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NOTE.—Patents are granted for 18 years. The term of years for which the fee has been paid, is given after the date of the patent.

No. 39,587. Cultivator. (Cultivateur.)

Richard Sylvester, Lindsay, Ontario, Canada, 1st August, 1892; 6 years.

Claim.—1st. A series of arms B, fixed to the axle A, each arm being connected to a drag bar C by a suitable spring D, in combination with the lever E fixed to the axle A, and provided with a spring catch F to engage with the rack bar G, substantially as and for the purpose specified. 2nd. The curved block H fitted between the plates of the drag bar C to form a seat for the tooth I, in combination with the check blocks J, connected together by the bolts K, substantially as and for the purpose specified. 3rd. A scattering tube L, having a branched end, each end being connected to a grain cup M by a rubber tube N, substantially as and for the purpose specified.

No. 39,588. Loader for Hay. (Monte-foin.)

Charles Clinton Jewett, Sand Springs, Iowa, U.S.A., 1st August, 1892; 6 years.

Claim.—1st. In a hay loader, the combination, with the grain elevating devices and mechanism for actuating the same, of a separate and independent grain table located wholly beneath the said grain elevating devices and composed of a fixed portion D and a movable portion D', which movable portion is pivoted at its lower end in close proximity to the upper end of the fixed portion D, and is free to be turned down and away from the said grain elevating devices to diminish the load thereon, and means for supporting the movable portion of the grain table at the desired location, substantially as described. 2nd. In a hay loader, the combination, with the axle, the draft frame, and the grain table having the elevating devices, of the fender bar connected at its upper end with the grain table, and having its lower end passing through a keeper on the draft frame, and a disconnector on the side of the fender bar, means for adjustably connecting the casting with the fender bar, a rod connected at its lower end with the draft frame and having its upper end working through the said casting and provided with a series of openings, a spring mounted on the said rod and held between the casting and the draft frame, and a pin to pass through one of the series of openings in the said rod, substantially as and for the purpose described. 3rd. In a hay loader, the combination, with the table, the elevating rakes and the crank shaft, of guide rods secured to the rakes, and the couplings mounted on the crank shaft and receiving and travelling upon the said guide bars, substantially as set forth. 4th. In a hay loader, the combination, with the table, the elevating rakes and the crank shaft, of the guide rods connected at their ends with the said rakes and inclining away from the said rakes from front to rear, and the couplings mounted on the said crank shaft and adapted to travel on and have connection with the said guide rods, substantially as and for the purpose described.

No. 39,589. Generator for Steam.

(Générateur de vapeur.)

Charles Dell Mosher, Amesbury, Massachusetts, U.S.A., 1st August, 1892; 6 years.

Claim.—1st. As an improvement in a boiler or steam generator, composed of water drums *b, b'*, steam drums *c, c'*, and tubes connecting said water drums with the steam drums, some of said tubes being arranged to form walls inclosing flues or passages extending along the sides of the fire box and adapted to conduct the products of combustion from one end of the fire box to a stack over the opposite end of the fire box, the improved baffle plates formed to obstruct the upper portions of said flues, said baffle plates being composed of tubes formed and arranged to constitute walls extending across the upper portions of said flues, the lower portions of said flues being separated to permit the free passage of the products of combustion below said baffle plates, as set forth. 2nd. A boiler comprising in its construction two water drums, two steam drums located above the water drums, pipes connecting the water drums, return pipes connecting the water and steam drums, tubes connecting the water drums with the steam drums, each water drum being connected with the corresponding steam drum by an independent series of tubes, and means for shutting off the communication between the two water drums, whereby the boiler may be divided and treated as two independent boilers, as set forth. 3rd. A boiler comprising in its construction two water drums, two steam drums located above the water drums, return pipes connecting the water and steam drums, transverse pipes connecting the water drums, valves in said pipes, whereby communication between the two water drums may be shut off, tubes connecting the water drums with the steam drums, and steam pipes to conduct steam from the steam drums, each of said steam pipes having a valve, whereby it may be shut off, the valves in the water drum connecting pipes and in the steam pipes enabling either side of the boiler to be entirely cut off from communication both with the other side of the boiler and with the engine, as set forth.

No. 39,590. Target. (Cible.)

Joseph Belet, Dôle, Jura, France, 1st August, 1892; 6 years.

Claim.—1st. In a mechanical target or butt, the combination, with a bull's eye or ring, of a yoke carrying a bent catch arm, a vertically sliding rod, and an escapement device, substantially as described and illustrated in the accompanying drawings. 2nd. In a mechanical target or butt, the combination, with a vertically sliding rod, of a frame *r*, counterweighted pivoted block *f*, and sector *H*, substantially as described and illustrated in the accompanying drawings. 3rd. In a mechanical target or butt, the combination, with a pivoted block, of a chain, a hand lever *l*, an index or pointer, a lever *i*, connecting said pointer to the chain, the pointer working over a scale at the "marksman's" stand, substantially as described and illustrated in the accompanying drawings. 4th. In a mechanical target or butt, the combination, of a bull's eye or ring, counterweighted bell crank lever yoke, bent catch and block *d*, rod *e*, arms or projections *e*¹¹¹, *S*, *s*¹, frame *r*, *X*¹¹¹, rod *g*, pivoted blocks *f*, *W*¹, weight *F*¹, chain *h*, *h*¹¹, levers *l*, *l*¹, counterweight *k*, pointer *j*, movable pointer carrier rail *i*, and stand or table *T*, substantially as described and illustrated in the accompanying drawings.

No. 39,591. Method of and Apparatus for Extracting Metals from Metalliferous Materials. (Méthode et appareil pour extraire les métaux des matières métallifères.)

Jose Baxeres Alzugaray, Oporto, Portugal, 1st August, 1892; 6 years.

Claim.—1st. The process of extracting metal from ores and metalliferous materials, consisting in placing the said ores or materials in a closed chamber in which they are exposed to a reducing tem-

perature without coming into contact with the fuel or products of combustion employed for heating the apparatus and reducing and refining the metals in one operation by the aid of the fluxes and reagents, which are selected in the proportions as hereinbefore explained according to the nature of the materials to be operated upon, in such a manner as to enable the chemical reactions and combinations to take place, which are necessary to insure the volatile and other elements forming suitable combinations, in order to liquify the charge and enable the desired metal to be run off or collected separately and in a state of purity, substantially as hereinbefore described. 2nd. A furnace or apparatus constructed with a reducing or working chamber or crucible provided with a closable charging orifice at the upper part, and with a closable tapping or discharging orifice at the lower part, and provided with means for heating it externally, substantially as hereinbefore described. 3rd. For extracting metals from ores and the like according to the method or process hereinbefore described, and claimed: a furnace or apparatus, constructed with a continuous or annular combustion chamber diminishing in width from the lower to the upper part, and surrounding a central chamber or crucible for containing the ore or materials to be treated, the said chamber or crucible being provided with a closable charging orifice at the upper part, and with a closable discharging orifice at the lower part, and with means for heating it externally, substantially as hereinbefore described with reference to the accompanying drawings. 4th. A furnace or apparatus constructed with a reducing or working chamber, or crucible made of refractory composition, and provided with a closable charging orifice at the upper part, and with a closable tapping or discharging orifice at the lower part, and with means for heating it externally, substantially as hereinbefore described. 5th. This furnace or apparatus, and the chamber or crucible made of a refractory material or of any compound of refractory substances, substantially such as herein described, or of any other simple or combined material capable of resisting the degree of heat required for each metal to be reduced in the crucible.

No. 39,592. Magneto-Electric Ignator for Vapour Engines. (*Appareil d'ignition magnéto-électrique pour machines à vapeur.*)

Leonidas Gorham Woolley, Grand Rapids, Michigan, U. S. A.,
1st August, 1892; 6 years.

Claim.—1st. In a device of the class described, in combination, with an armature rotating between the poles of a permanent magnet and periodically producing electrical tension in a coil around said armature, a rotating shaft in the head of the combustion chamber, a T-head on the end of the shaft adapted to engage a brush in the circuit arranged within the combustion chamber, and a flexible connection between said shaft and the armature shaft, arranged substantially as and for the purposes set forth. 2nd. In a device of the class described, in combination with an armature rotating between the poles of a permanent magnet, and a sparker arranged within the combustion chamber adapted to break the circuit the instant the tension is on, as set forth, a brush in the circuit attached to the stationary parts, and a circuit closing device attached to the moving parts of the engine, substantially as set forth. 3rd. In a device of the class described, in combination with an armature rotating between the poles of the permanent magnet, and periodically producing electrical tension in a coil around said armature, a sparker consisting of a rotating head engaging with a brush in the circuit insulated from the rest of the machine, arranged within the combustion chamber, a brush insulated from but attached to the stationary parts and connected to the brush inside the chamber, and a plate attached to the moving parts of the engine, adapted to periodically engage the brush for closing the circuit and holding it closed by producing a succession of sparks, substantially as set forth. 4th. In combination, with a combustible vapour engine, an electric machine adapted to produce a pulsating current and a current breaker located within the combustion chamber of said engine, moving synchronously with the armature of said electric machine and adjusted to break the circuit, only at the point of the highest tension of said current, substantially as described. 5th. In combination, with a combustible vapour engine, an armature rotating between the poles of a magnet and periodically inducing electrical tension in a coil, and an electric circuit permanently connected to said coil and to a sparker within the combustion chamber of said engine, said sparker adjusted to break said circuit at the time of highest electrical tension in said coil and at no other time, substantially as described. 6th. In combination, with a combustible vapour engine, an armature revolving between the poles of a magnet and periodically inducing electrical tension in a coil, an electric circuit permanently connected to said coil, and to a sparker located in the combustion chamber of said engine, adapted to break the circuit at the time of highest tension in said coil and at no other time, and a closer in said circuit attached to the moving parts of said engine, adapted to close said circuit at the proper time to fire the charge of combustible vapour, substantially as described.

No. 39,593. Apparatus for Making Bi-Sulphate of Lime. (*Appareil pour la fabrication de bisulfate de chaux.*)

William Harmon Howell, Thorold, Ontario, Canada, 1st August, 1892; 6 years.

Claim.—1st. In an apparatus for producing bi-sulphite of lime, the combination, with a retort or furnace for burning sulphur, of a receiver for containing a solution of milk of lime and having an inlet pipe for the solution, a pump, whereby the solution is delivered through said inlet pipe, and a nozzle or jet pipe arranged in said inlet pipe and connected with the retort or furnace, whereby the gas issuing from said nozzle is enveloped by the milk of lime flowing through said inlet pipe, substantially as set forth. 2nd. In an apparatus for producing bi-sulphite of lime, the combination, with a retort or furnace for burning sulphur, of a cooler or condenser connected with said retort and receiving the acid fumes from the same, a receiver for containing a solution of milk of lime having an inlet pipe for the solution, a pump, whereby the solution is delivered through said pipe, and a nozzle or jet pipe arranged in said inlet pipe and receiving the sulphurous acid gas from the cooler, substantially as set forth. 3rd. In an apparatus for producing bi-sulphite of lime, the combination, with a retort or furnace for burning sulphur, of a cooler or condenser connected with said retort and receiving the acid fumes from the same, a receiver for containing a solution of milk of lime having an inlet pipe for the solution, a pump, whereby the solution is delivered through said pipe, a nozzle or jet pipe arranged in said inlet pipe and receiving the sulphurous acid gas from the cooler, and a valve arranged in said inlet pipe, whereby the velocity of the inflowing liquid is regulated, substantially as set forth. 4th. In an apparatus for producing bi-sulphite of lime, the combination, with a retort or furnace, of a receiver for containing milk of lime, having an inlet pipe provided with a valve casing, a pump, whereby the solution is directed through said inlet pipe, a tapering nozzle or jet pipe arranged in said valve casing and receiving the sulphurous acid gas from the retort, and a tubular regulating valve sliding in said inlet pipe, and having an actuating rod or stem extending through said valve casing, substantially as set forth. 5th. In an apparatus for producing bi-sulphite of lime, the combination, with a retort or furnace for burning sulphur, and a cooler which receives the sulphurous acid gas from the retort, a receiver for containing milk of lime having an inlet pipe for the solution, a nozzle arranged in said inlet pipe and receiving the gas from the cooler, a pump, whereby the solution is circulated through the receiver and a cooler applied to the pipe or conduit between the pump and the receiver, substantially as set forth.

No. 39,594. Pulp Digester. (*Pourrissoir de pâte à papier.*)
William Harmon Howell, Thorold, Ontario, Canada, 1st August, 1892; 6 years.

Claim.—1st. A pulp digester or boiler, consisting of a metallic shell having an interior lining or coating composed of cement, sand, galena and asphaltum, substantially as set forth. 2nd. The combination, with the shell of a pulp digester, of a heating coil arranged in the same and connected with a water supply and an injector, whereby water is forced through said coil, substantially as set forth. 3rd. The combination, with the shell of a pulp digester, and a heating coil arranged in said shell, of a water chamber communicating with said coil and an injector, whereby the water in said chamber is circulated through the heating coil, substantially as set forth. 4th. The combination, with the shell of a pulp digester, and a heating coil arranged therein, of a water supply chamber, inlet and return pipes connecting the heating coil with said chamber, and a steam injector arranged in said inlet pipe, whereby the water in said chamber is directed through the heating coil, substantially as set forth. 5th. The combination, with the shell of a pulp digester, and a heating coil arranged therein, of a water supply chamber having an exit or overflow pipe and an automatic valve applied to said pipe, inlet and return pipes connecting the heating coil with said chamber, and a steam injector arranged in said inlet pipe, whereby the water in said chamber is directed through the heating coil, substantially as set forth. 6th. The combination, with the shell of a pulp digester, and a heating coil arranged therein, of a water supply chamber having an exit or overflow pipe, a valve applied to said pipe and controlled by a float arranged in the water chamber, an inlet pipe connecting one end of said coil with the interior of the water chamber and having a suction pipe, a steam injector arranged in said inlet pipe, and a return pipe connecting the other end of the coil with the water chamber, substantially as set forth.

No. 39,595. Furnace and Method for the Treatment of Refractory Ores. (*Fourneau et méthode pour le traitement des minerais réfractaires.*)

Charles James Fauvel, London, England, 1st August, 1892; 6 years.

Claim.—1st. A furnace for the treatment of refractory ores, comprising an oxidizing tower wherein a series of inclined slabs and flues in connection therewith are so arranged, that the slabs are heated progressively in the downward direction, by an upwardly flowing current of furnace gases passing through the flues beneath the slabs, and wherein the falling stream of ore is gradually heated, and subjected to the oxidizing and "sweetening" action, by falling over and down said series of heated slabs and by meeting a current of air

or gas heated in a heater separate from the furnace, and flowing continuously upwards through the falling stream from bottom to top of the oxidizing tower, substantially as specified. 2nd. The combination, with the oxidizing tower, and its adjuncts arranged for operation as described, of a discharge passage leading from the settling chamber at the foot of the tower and dipping into water, as described. 3rd. The combination, with the oxidizing tower, and its adjuncts, arranged for operation as described, of the jets and stream of water for suddenly cooling and splitting up the roasted ore, cleansing the precious metals contained therein and carrying the whole off, as described. 4th. The combination, with the oxidizing tower, and its adjuncts, arranged for operation as described, of the series of settling and condensing chambers for intercepting the vapours and particles carried over by the oxidizing current, as specified. 5th. The herein described oxidizing and sweet roasting furnace constructed and arranged for operation, substantially as specified. 6th. The herein described method of breaking up, and of removing any adherent skin of oxides from, the freshly roasted particles of ore by quenching the hot particles with cold water, in the manner described.

No. 39,596. Electric Cable. (*Câble électrique.*)

Theodore Guillaume, Cologne, German Empire, 1st August, 1892; 6 years.

Claim.—1st. An electric cable, or strand for the same, consisting of one or more pairs of naked conductors, the conductors constituting each pair being separated by a strip of non-conducting material, the conductors and the intervening non-conducting material being twisted together, substantially as herein described. 2nd. In an electric cable, a strip of non-conducting material twisted about its own axis to form spiral grooves or air channels in which conductors may lie, substantially as herein described. 3rd. In an electric cable, a strip of non-conducting material twisted about its own axis to form spiral grooves or air channels, and provided with a radially projecting part which can be laid over the said grooves or channels for the purpose of closing them, substantially as herein described. 4th. In an electric cable, the combination, with the conductors *a* and *a'*, of the non-conducting strip *b*, substantially as and for the purposes herein set forth.

No. 39,597. Cultivator. (*Cultivateur.*)

Sanford Gasser, Trout Creek, Michigan, U.S.A., 1st August, 1892; 6 years.

Claim.—1st. In a cultivator, the combination, with the oblong frame work, the axle, the ground wheels, and the sprocket wheel connected to one of the latter, of the pivoted side bars 16, having bearings, the rotatable shaft mounted in the bearings, the curved cultivator teeth radiating from the shaft, a sprocket mounted on the shaft, a chain connecting the same with that of the ground wheel, and means for raising and lowering said side bars, substantially as specified. 2nd. In a cultivator, the combination, with the frame work, the axle, and the ground wheels, of the pivoted side bars 16, having bearings, the rotatable shaft mounted in the bearings, the curved cultivator teeth radiating from the shaft, driving mechanism connecting one of the ground wheels with the rotatable shaft, means for raising and lowering said side bars, and the adjustable standards carrying the wheels 30, substantially as specified. 3rd. In a cultivator of the class described, the combination, with the axle wheels and main frame, of the opposite side bars loosely connected at their front ends to the main frame opposite boxes loosely connected to the side bars and adapted to oscillate and provided with bearings, a transverse cultivator shaft, cultivators mounted thereon and means for operating said shaft, substantially as specified. 4th. In a cultivator of the class described, the combination, with the axle, ground wheels and main frame, of the opposite side bars loosely connected at their front ends to the main frame, the transversely opposite bearing boxes, provided at their opposite sides with trunnions, bearing eyes depending from the side bars and loosely receiving the trunnions, a transverse cultivator shaft terminating in bearing ends mounted in the bearing of the boxes, and means for rotating the shaft, substantially as specified. 5th. In a cultivator of the class described, the combination, with the wheels, axle and main frame, of opposite side bars pivotally connected at their front ends to the frame, opposite bearing boxes mounted for oscillation at the under sides of the side bars, and provided with bearings, a transversely disposed tooth carrying cultivator shaft, means for rotating the shaft, a hand lever pivoted on the main frame, a transverse connecting bar between the two side bars, pivotal connections between the side bars and the ends of the transverse bars, and a chain connected to the lever and to the transverse bar, substantially as specified. 6th. In a cultivator of the class described, the combination, with the wheels, axle and main frame supported on the latter, of the opposite side bars loosely connected at their front ends to the main frame, the opposite bearing boxes loosely suspended and adapted to oscillate under the side bars, the transverse cultivator shaft mounted for rotation in said boxes, the opposite plates secured to the inner sides of the side bars and provided with central recesses and opposite bearing eyes, the transverse bar terminating in the recesses, the pivoting pins passed through the eyes and bar, the lever fulcrumed on the main frame, and the chain connecting the lever and bar, substantially as specified. 7th. In a cultivator of the class de-

scribed, the combination, with the axle, wheels and main frame, of the opposite cultivator has loosely connected at their front ends to the main frame, the transverse bar loosely pivoted at its ends to said bars, the loosely suspended oscillating bearing boxes, the transverse cultivator shaft journaled therein, means for operating said shaft, the front and rear eyes secured respectively near the front and rear ends of the side bars, the diagonally disposed wires, the lever and the chain connecting the lever with the cross bar, substantially as specified.

No. 39,598. Bed Pan, Commode, Etc.

(*Vase-de-toilette, latrine, etc.*)

Elizabeth Phillips, No. 4 Upper Bedford Place, Russel Square, Middlesex, England, 1st August, 1892; 6 years.

Claim.—1st. A sanitary pan for the use of invalids and others, provided with a movable air tight or close fitting cover fitted with a glazed aperture, substantially as herein shown and described and for the purpose stated. 2nd. A sanitary pan for the use of invalids and others, provided with a movable seat and a movable air tight or close fitting cover fitted with a glazed aperture, substantially as herein shown and described and for the purpose stated. 3rd. A sanitary pan for the use of invalids and others, provided with a movable air tight or close fitting cover fitted with a glazed aperture and an aperture closed by a spring valve, substantially as herein shown and described and for the purpose stated. 4th. A sanitary pan for the use of invalids and others, provided with a movable air tight or close fitting glazed cover and an additional movable slide or cover immediately below the glazed cover, substantially as herein shown and described and for the purpose stated.

No. 39,599. Lifter and Lock for Skylights.

(*Appareil pour élever et serrure de lucarnes.*)

Wm. Trebilcock, Central City, Colorado, U.S.A., 1st August, 1892; 6 years.

Claim.—1st. A lifter for skylights, transoms, &c., consisting of an apertured bracket, a notched lifting bar connected to the skylight and arranged for lateral movement in the aperture in the bracket, a locking lever for engaging said notched lifting bar to hold it from downward movement, a spring actuated locking bar pivoted to the lower end of the lifting bar and projected through the aperture in the bracket, said spring bar formed with notches arranged to engage the bracket and hold the lifting bar from upward movement, and means for raising the lifting bar and unlocking the locking lever from said lifting bar, substantially as and for the purpose described. 2nd. The combination, with the bracket A, having an aperture *a'*, as shown, and the guide pulley H, mounted thereon, of the notched lifting bar B, the spring actuated locking arm C, adapted to engage the notched bar B, the spring bar D, arranged to operate in the aperture *a'*, and hold the bar B in engagement with the arm C, and the lifting cord G, secured to the lower end of the bar B, passed over the pulley H, and down to within easy reach of an operator, substantially as and for the purpose described. 3rd. The combination, with the bracket A, formed with an aperture *a*, the shaft I, mounted thereon, provided with a pulley H, and notched disc K, and the spring locking arm C, having a spring member L, arranged for engagement with the notched disc, of the bars B and D, operating in the aperture *a*, and notched as shown, the bar D, pivoted near its lower end to the bar B, the angle lever pivoted in the bar B, and arranged to engage the bar D, the operating cord G, secured at one end to the lever F, its free end passed over the pulley H, and extended down, as shown, all arranged substantially as and for the purpose described.

No. 39,600. Shoe Slugging Machine.

(*Machine alimentaire de clous pour chaussures.*)

Solomon Marcella Cutter, Quebec, Canada, 1st August, 1892; 6 years.

Claim.—1st. In a shoe slugging machine, the combination, with the slug driver, slug supply, the movable raceway provided with slug releaser at its lower end, of the slug receiving throat or guide tube properly diminished in height to allow the nose of the raceway carrying the slug to project in and locate the slug directly over the throat and in the axis of the driver, and having a bearing plate at one side thereof, and a combined reciprocating detent and holder, the former operating the slug releaser and the latter acting in conjunction with said bearing plate to hold the slug during the withdrawal of the raceway, as set forth. 2nd. In a shoe slugging machine, the combination, with the slug driver, the partly formed slug receiving throat or guide tube, and means for supplying slugs thereto, of a work feeding awl adapted to enter the stock at a point out of line with said throat, to move to within the axis of said throat and be withdrawn from said stock and complete the formation of said throat, and means for actuating said awl, as set forth. 3rd. In a shoe slugging machine, the combination, with the slug driver, slug supply, the movable raceway provided with the slug releaser at its lower end, and the diminished slug receiving throat or guide tube having an upwardly projecting bearing plate at one side thereof, of the combined reciprocating detent and holder working above said throat, as and for the purposes set forth. 4th. In a shoe slugging machine, the combination, with the slug driver, slug supply, the

movable raceway provided with the slug releaser at its lower end, and the diminished slug receiving throat or guide tube having an upwardly projecting bearing plate at one side thereof, of the combined reciprocating detent and holder working above said throat, cam and lever mechanism for operating same, and a flexible or yielding connection intermediate of such operating mechanism and the parts operated, as shown and described. 5th. In a shoe slugging machine, the combination, with the slug driver, the partly formed slug receiving throat or guide tube, and means for supplying slugs thereto, of a work feeding awl adapted to both feed the stock and to form a part of said throat during the passage of the slug therethrough, a carrier for said awl, and mechanism for imparting an intermittent four-way movement to same, as set forth. 6th. In a shoe slugging machine, the combination, with the main driving shaft, the slug driver, the partly formed slug receiving throat or guide tube, and means for supplying slugs thereto, of a work feeding awl adapted to both feed the stock and to form a part of said throat during the passage of the slug therethrough, a carrier for said awl, an auxiliary shaft running parallel with said main shaft, a rocking arm set on the forward end of said auxiliary shaft and having a pivotal connection with said awl carrier, a sleeve encircling said auxiliary shaft for a portion of its length, and a rocking arm set on the forward end of said sleeve, and provided with a finger extension to intermittently bear upon said carrier, a flexible or yielding connection between this latter arm and the carrier, and mechanism for imparting independent rocking motion to said shaft and sleeve, as set forth.

No. 39,601. Door Hanger. (*Ferrure de porte glissante.*)

Albert Benton Pullman, Chicago, Illinois, U. S. A., 1st August, 1892; 6 years.

Claim.—1st. In a hanger for sliding doors, the combination of an angle iron to depend from the wall of the structure above the door and serve as a track for balls, an angle iron to project upward from the top of the door and hang upon the balls, and stops *q* in position to engage the balls and bind them against rolling before the door has reached the limit of its movement, substantially as described. 2nd. In combination, with the wall A, and door B, the angle iron C secured to the wall above the door, and carrying balls *r*, and the angle iron D secured to the upper part of the door, and hanging upon the balls *r*, and provided with stops *q*, in position to overtake the balls before the limit of movement of the door is reached, substantially as described. 3rd. In a door hanger, the combination, with the wall of the structure and the door, of the plate C provided with the curve *s* at its lower end, and secured to the wall above the door, balls *r*, travelling in the track formed by the curve *s*, and plates D, D, secured to the upper end of the door, one toward each side thereof, and provided with the curved tops *t* to rest upon the balls, and with projections *g*, closing the ends of the curves and forming sockets, substantially as described. 4th. In a sliding car door hanger, the combination, with the wall of the car and sliding door, of the track plate C, *s*, secured to the wall above the door, balls *r* travelling upon the track, and socket plates D secured to the upper end of the door toward opposite sides thereof and resting upon the balls *r*, of the weather guard comprising the plate E secured upon the top of the door, and having the flange *n*, projecting upward between the inner ends of the plates E, substantially as described.

No. 39,602. Freezer for Ice Cream.

(*Congelateur pour crème à la glace.*)

Henry William Atwater, East Orange, New Jersey, U. S. A., 1st August, 1892; 6 years.

Claim.—1st. The process herein described of manufacturing ice cream, water ices and the like, which consists in freezing a coating upon the ice cream or water ice freezing devices prior to freezing said ice cream or water ices thereon, the said preliminary coating being of a harder texture than said ice cream or water ices, and then freezing said cream, water ices or similar product upon said preliminary coating, substantially as set forth. 2nd. The process herein described which consists in freezing a layer of ice, of one degree of hardness, upon a suitable surface, and then freezing upon the frozen ice a mixture which when congealed is softer than said ice, and removable from said ice without materially affecting the same, as set forth. 3rd. In combination with the case, freezing cylinder and scraper, a rod *s*, having bearings in said case, and engaging said scraper to move the latter from scraping contact with the cylinder, said rod being longitudinally removable from its bearings, substantially as and for the purposes set forth. 4th. In combination with a suitable case or enclosure having on opposite sides thereof bearings admitting of a lateral movement of a rod thereon, and providing bearings to hold said rod, so that the same will hold the scraper away from contact with the freezing cylinder, said cylinder, scraper and rod, the last being arranged in said bearings, and both laterally and longitudinally movable thereon, substantially as set forth. 5th. In an ice cream freezer, the combination, with the case sections a^2 , a^3 , plates *e*, secured to one of said sections, providing journal bearings for the freezing cylinder, and projecting into engagement with the other of said sections to prevent lateral displacement, substantially as set forth. 6th. In an ice cream freezer, the combination, with sections a^2 , a^3 , of the case *a*, having apertures for the freezing cylinder journals, of said

freezing cylinders having said journals, and outer plates *e*, e^1 , secured to the said sections at said apertures, one of which overlaps the other, and set screws for holding or binding the plates together, all arranged and operating substantially as set forth. 7th. In an ice cream freezer, the combination, with case sections a^2 , a^3 , cylinder *b*, adjustable shute and scraper *d*, and pan *m*, plates *t*, secured to one of said sections, and provided with slots or recesses to receive a separator rod, and said rod, adapted to separate and hold the scraper from the freezing surface of the cylinder, substantially as set forth. 8th. In an ice cream freezer, a cylinder having shallow recesses at the opposite ends thereof, the bottoms of which are in vertical planes and serve as seats or bearings against which the journal flanges are fastened, and journals having said flanges conforming to said recesses so as to be centered thereby and fastened in said recesses, substantially as and for the purposes set forth. 9th. The improved freezer, herein described, in which is combined case sections a^2 , a^3 , a freezing cylinder having journals, one of which is hollow to allow the insertion of freezing mixture and a scraper, and journal plates *e*, e^1 , having recesses and overlapping lips on opposite sides of said recesses and set screws, substantially as set forth. 10th. In combination, with the sectional case having a freezing cylinder therein, with journals arranged in bearings at opposite sides of said case, journal bearing plates having dust passages *h*, between the bearings and the cylinder, as set forth, 11th. In combination, with the sectional case, a freezing cylinder, scraper and cream pan, journal bearing plate having recesses for the cylinder journals, and having at their inner sides recesses *i*, forming dust or dirt passages, substantially as set forth. 12th. In combination, with the sectional case, a freezing cylinder and a scraper, a cream pan having one end extending beyond the end of the case, substantially as and for the purposes set forth. 13th. In combination, with the sectional case, a freezing cylinder and a scraper, a cream pan having an inclined bottom having its lowest point beneath the said cylinder and its higher point outside of said case, substantially as set forth. 14th. In combination, with the sectional case, having an opening at one end, a freezing cylinder, a scraper and a cream pan, arranged within the case beneath said cylinder, and extending through said opening to the outside of said case, and suitable means for limiting the longitudinal movement of said pan, substantially as set forth. 15th. In combination, with the sectional case having an opening at one end, a freezing cylinder, a scraper and a cream pan extending through said opening, a hood *g* for covering said opening, substantially as set forth. 16th. In combination, with the sectional case, freezing cylinder and cream pan, a guard arranged between the journal bearing and the cream pan, and adapted to guide the particles of dust from said bearings to a point below the upper edge of the cream pan, substantially as set forth. 17th. In combination, with the case, freezing cylinder and cream pan, a scraper pivoted on a rod *s*, and adapted to be turned into or from engagement with the cylinder, substantially as set forth. 18th. In combination, with the case, a freezing cylinder and a cream pan, a scraper pivoted on a removable rod, substantially as and for the purposes set forth. 19th. In combination, with the case, freezing cylinder and cream pan, plates *t*, t^1 , having receptacles 10, 11, for a rod *s*, said rod carrying a shute or scraper which is movable with said rod on the case, whereby the rod and the shute may be arranged in a position to scrape the frozen cream from the cylinder or be removed from such position, substantially as set forth. 20th. In combination, with the case, freezing cylinder, cream pan, plates *t*, t^1 , rod *s*, and shute, and adjustable rod 3, at the lower end of said shute and supporting the same, as set forth. 21st. In combination, with the case, freezing cylinder, shute and upper support for the said shute, a rod arranged at the lower end of said shute, and adjustably arranged in end bearings on the case, substantially as set forth. 22nd. In combination, with the case, and freezing cylinder of an ice cream freezer, a shute and scraper consisting of a sheet metal piece having its opposite sides bent up and perforated, and a straight rod extending through the perforations and having bearings on said case at its opposite ends, substantially as set forth. 23rd. In combination, with the case and freezing cylinder, a shute and scraper combined in one, and a straight rod supporting said shute and scraper removable therefrom, and a second rod for throwing said shute or scraper into contact with the cylinder with greater force, substantially as set forth.

No. 39,603. Stretcher for Wire.

(*Tendeur de fil de fer.*)

Herman J. Rohr, Monmouth, Illinois, U. S. A., 1st August, 1892; 6 years.

Claim.—1st. In a wire stretcher, the combination of the body having a right angularly disposed and tapered journal at one end, means for removably securing said body to a fence post, a reel journaled on said tapered journal at one end of the body and provided with a ratchet head, a yoke embracing said reel and having its ends pivotally mounted on the journal outside of the heads of the reel and having a handle projecting radially therefrom, and a spring actuated pawl carried by the yoke and engaging the ratchet head of the reel, substantially as set forth. 2nd. In a wire stretcher, the combination, with a cylindrical body having a collar thereon and a number of holes adjacent to the collar, one end of the body being notched, and a windlass journaled on and at right angles to the other end of the body, of a post brace comprising a block mounted on the body, a set screw passing therethrough into one of said holes, a yoke

secured to the block with one edge serrated and the other edge notched, and a chain detachably engaging the notch in the body, one end being forked and having its terminal links embracing the sides of the yoke and resting in certain of the notches therein, substantially as set forth. 3rd. In a wire stretcher, the combination, with a cylindrical body having a number of holes therein, one end of the body being notched, and a windlass connected with the other end of the body, of a post brace comprising a block mounted loosely on the body, a set screw passing therethrough into one of said holes, a yoke secured to the block, and a chain detachably engaging the notch in the body, one end being forked and having its terminal links respectively embracing the sides of the yoke, substantially as described. 4th. In a wire stretcher, the combination, with a body and a windlass connected with one end thereof, of a chain adapted to be led around a post, connections between the ends of the chain and one end and the centre of the body, and a chain tightener consisting of a block mounted on the body, a screw passing through the block and having a crank handle on its front end, a detachable sleeve on the screw having a hook engaging one of the links of said chain, and means for holding this sleeve on the screw, substantially as described. 5th. In a wire stretcher, the combination, with a body and a windlass connected with one end thereof, of a chain adapted to be led around the post, connections between the ends of the chain and one end and the centre of the body, means for tightening the chain, and a post claw consisting of a flat body having at each end an ear with a perforation of a size to slide over the chain, and at each side of said ear an turned prong adapted to engage the post, substantially as described. 6th. In a wire stretcher, the combination, with a body and a windlass connected with one end thereof, of a post brace adjustably mounted on the body, a chain leading therefrom and detachably seated in a notch in one end of the body, and a chain tightener consisting of a block mounted on the body between its notched end and said brace, a screw taking through said block and having a crank handle at its front end, and a hook on the rear end of the screw adapted to engage the chain, as and for the purpose set forth. 7th. In a wire stretcher, the combination, with a body and a windlass connected with one end thereof, of a chain connected with the other end of the body, a post brace adjustably mounted on the body between its ends, the other end of the chain being connected with this brace, a chain tightener, substantially as described, mounted on the body between that end thereof to which the chain is connected and said brace, and a post claw longitudinally adjustable on the chain and having prongs adapted to engage the post, as and for the purpose set forth. 8th. In a wire stretcher, the combination, with a cylindrical body having a slot in one end and a windlass connected with the other end thereof, of a post brace adjustable longitudinally and axially on said body, a chain leading from said brace and adapted to be detachably engaged with the notch in the body, and a chain tightener between the notch and the post brace and also longitudinally and axially mounted on said body, the tightener having a finger, all substantially as and for the purpose hereinbefore set forth.

No. 39,604. Car Axle. (Essieu de char.)

Hiram Parsons Willard, Tustin, California, U.S.A., 1st August, 1892; 6 years.

Claim.—The combination, of an axle, provided with a wheel bearing arbor at one end, a portion of the axle adjacent to the inner end of such arbor being provided with screw threads, a circular nut of greater diameter than the axle screwed upon such threaded portion of the axle, means for locking such nut upon the axle, a cylindrical cap encircling the axle and provided with the annular recess fitted with the projecting portion of the cylindrical nut, a car wheel mounted upon the wheel arbor, and means for securing the cylindrical cap and the car wheel together.

No. 39,605. Hay Rack. (Râtelier à foin.)

Henry S. Hoy, Louisville, New York, U.S.A., 1st August, 1892; 6 years.

Claim.—1st. In a hay rack, having the rear axles placed above the longitudinal frame timbers of said rack, and the forward end of said rack adapted to fit over and be used with the forward running gear of an ordinary farm wagon, the combination, of the converging framing pieces having vertical offset near the forward end of each, cross bars fastening in position said framing pieces, longitudinal boarding for supporting the load, and a short reach for attaching the framework to the axle. 2nd. In a hay rack, the combination, of the converging framing planks A, A, having a vertical offset near the forward end of each, the upper cross bars B, B', B', B', B', B', and the lower cross bars C, C, C', the axle tree I, hung over the framing planks A, A, as shown, the braces D, D, the longitudinal boarding E, E, E, E, the short reach K, and the wheel guards O, O, all arranged substantially as shown and described.

No. 39,606. Case for the Transmission of Liquors by Mail. (Caisse pour la transmission des liqueurs par la malle.)

Custavus J. Johnson, Chicago, Illinois, U.S.A., 1st August, 1892; 6 years.

Claim.—1st. A mailing case, having a cap provided with a plunger arranged to enter the body of the case and compact therein a body of packing within which the vial is embedded. 2nd. A mailing case

having a metal cap provided with a separately made plunger of wood or analogous material secured to the cap, for the purpose described. 3rd. A mailing case, comprising a body, a cap provided with a plunger, and a packing of absorbent material within which the vial to be transported is imbedded, substantially as described. 4th. A mailing case, such as set forth, containing a packing of powdered silicate of magnesia or its equivalent, for the purpose described. 5th. A mailing case, containing a layer of tough, pitchy material, substantially as and for the purpose set forth. 6th. A mailing case, constructed with a body A, a cap B, provided with a plunger B', a packing ring C, and a lining D, of paraffine or its equivalent, substantially as and for the purpose set forth.

No. 39,607. Grain Drier. (Séchoir à grain.)

Frederick Henry Conrad May, Buffalo, New York, U.S.A., 1st August, 1892; 6 years.

Claim.—1st. The combination, with the stationary frame, of the endless conveyer running around guide wheels at opposite ends of the frame, a tight air chamber arranged between said guide wheels, and having its top closed by the upper side of the endless conveyer, and a transverse cylindrical air pipe connected with one end of said air chamber, and forming a journal for the adjacent guide wheel or wheels of the endless conveyer, substantially as set forth. 2nd. The combination, with the stationary frame, and a tight air chamber having an open top, of an endless conveyer closing the top of the air chamber, and composed of transverse plates, and a longitudinal packing strip arranged between the top of the air chamber and the under side of the conveyer, substantially as set forth. 3rd. The combination, with the stationary frame, and a tight air chamber having an open top, of an endless conveyer closing the top of the air chamber, and composed of transverse plates, longitudinal rails or bars supported in the air chamber below the endless conveyer, and packing strips secured to the said rails, and bearing against the under sides of the conveyer plates, substantially as set forth. 4th. The combination, with the stationary frame, and the tight air chamber or compartment having an open top, of a travelling conveyer closing the top of said air chamber, and composed of transverse slats having perforations provided with hoods open at their front or advancing ends and closed at their rear ends, substantially as set forth.

No. 39,608. Cultivator. (Cultivateur.)

Walter Coulthard, Oshawa, Ontario, Canada, 1st August, 1892; 6 years.

Claim.—1st. The combination of the tooth holder made in two parts *a* and *b*, connected by a single bolt *d*, and having the groove *c*, *c*, for the tooth with the jaws *f*, *f*, substantially as and for the purposes described. 2nd. In cultivators, with or without a pressure device or seeding device, the combination, of the frame A, A, mounted on wheels as usual, B, B, the rod F, F, and the sectional frames G, G, pivotally hinged or supported on the rod F, substantially as and for the purposes described. 3rd. In such cultivators with or without pressure device or seeding device, the combination, of the sectional frames G, G, G, and the tooth holders K, K, for adjustably holding the teeth L, L, substantially as and for the purposes described. 4th. In such cultivators with or without pressure device or a seeding device, the combination, of the sectional frames G, G, G, the tooth holders K, K, arranged and fastened alternately on the front and rear of the transverse bars I, I, substantially as and for the purposes described. 5th. In such cultivators with or without a pressure device or seeding device, the combination, of the frame A, the rod F, the sectional frames G, G, the tooth holders K, K, arranged on the transverse bars I, I, alternately, as specified, and the teeth L, L, adjustably fastened in the tooth holders K, K, substantially as and for the purposes described.

No. 39,609. Claw Clip for Joining Boxes and for like uses. (Griffe et serre pour joindre les boîtes, etc.)

Mackay John Scobie, London, England, 1st August, 1892; 6 years.

Claim.—1st. A claw clip having limbs meeting in an angle, and having a curved claw at the extremity of each limb, the parts being so formed that the angle of the claw clip can be applied closely to the angle of the work, and that the direct distance from the angle to the point of the claw is approximately the same as the length of the limb measured along its surface. 2nd. A claw clip, substantially as shown by figures 1 to 7, with angle *a*, two limbs *b*, *b*, and two claws *c*, *c*, the parts being so formed that the points of the claws at *c*, *c*, allow the angle at *a*, to be applied closely to the work, and that the direct distance from the angle *a*, to the point *c*, is approximately the same as the length of the limb measured along the surface from *a* to *c*.

No. 39,610. Filtering Faucet. (Robinet à filtrer.)

Henry Heaton Luse, San Francisco, California, U.S.A., 1st August, 1892; 6 years.

Claim.—In a filtering faucet, the combination, with a plug formed of one integral piece having a chamber C extending directly through it in line with the opening in the faucet, and a narrow transverse slit D cut through it at right angles to the chamber, of a filter piece E fitted into said slit, substantially as set forth.

No. 39,611. Machine for Slacking Lime.*(Machine pour l'extinction de la chaux.)*

Alonzo R. Miller, Washington, District of Columbia, U. S. A., 1st August, 1892; 6 years.

Claim.—1st. The combination of a slacking vessel, an agitator for incorporating the water and other ingredients within the vessel, means for directing lime to the vessel, a conduit for distributing water over and through the lime to begin the slacking process, and a conduit leading to the vessel for supplying water to complete the slacking process, substantially as described. 2nd. The combination of a slacking vessel, an agitator for incorporating the water and lime within the vessel, a tilting platform chute discharging into the vessel, a hopper discharging on to the tilting platform, perforated border pipes below the mouth of the hopper for applying water to the falling lime, and means for supplying water to the vessel to complete the slacking process, substantially as described. 3rd. The combination of a slacking vessel, an agitator within the vessel for incorporating lime and water, means for feeding lime to the vessel, separate means for introducing water to the vessel and a lid or cover for closing the vessel to confine the heat during the final slacking process, substantially as described.

No. 39,612. Receptacle for Preserved Substances.*(Receptacle pour conserves.)*

Dan Rylands, Stairfoot, England, 1st August, 1892; 6 years.

Claim.—1st. The combination, of a jar or receptacle *a*, having an external flange *a*¹, a short distance below the mouth thereof, a ring or washer *c*, resting upon the said flange and surrounding the upper edge of the said receptacle, a ring or strip *b*, of paper, cork or similar material surrounding such upper edge above the said washer *c*, whereby contact of the contents of the jar or receptacle with such washer is prevented, and a lid or cover *b*, having a downwardly extending flange *b*², which fits tightly upon the said ring or strip *b*, and bears against the washer *c*, the said lid or cover having a hole *b*¹, for the egress of air, adapted to be hermetically closed, substantially as and for the purposes above specified. 2nd. The combination, of a jar or receptacle *a*, having an external flange *a*¹, a short distance below the mouth thereof, adapted to bear against packing or jointing material around a hole in a vessel or bath, when the said receptacle is inserted in such hole, a ring or washer *c*, resting upon the said flange and surrounding the upper edge of the said receptacle, and a lid or cover *b*, having a downwardly extending flange *b*², which fits over and surrounds the upper edge of the receptacle and bears upon the said ring or washers, the said lid or cover having a hole *b*¹, for the egress of air, adapted to be hermetically closed, substantially as and for the purposes above specified. 3rd. The combination, of a jar or receptacle *a*, having an external flange *a*¹, a short distance below the mouth thereof, a ring or washer *c*, resting upon the said flange and surrounding the upper edge of the said receptacle, a ring or strip *b*, of paper, cork or similar material surrounding such upper edge above the said washer *c*, whereby contact of the contents of the jar or receptacle with such washer is prevented, and a lid or cover *b*, having a hole *b*¹, for the reception of a stem or stalk, and a recess *b*², around the same for wax or cement, and having a downwardly extending flange *b*², which fits tightly upon the said ring or strip *b*, and bears against the washer *c*, the said lid or cover having a hole *b*¹, for the egress of air, adapted to be hermetically closed, substantially as and for the purposes above specified.

No. 39,613. Gas Attachment for Cooking Stoves.*(Appareil à gaz pour poêles de cuisine.)*

Richard Bigley, Toronto, Ontario, Canada, 1st August, 1892; 6 years.

Claim.—1st. In combination with a cooking stove, a gas cooking attachment consisting of a gas cooking table supported on the outside of the stove flush with the top of it, as specified. 2nd. In combination with a cooking stove, a gas cooking attachment consisting of ovens and gas cooking table connected directly to the side of the stove next the oven, the supplemental oven being held close to the stove oven and provided with a damper at one side connecting with the smoke flue or pipe of the cooking stove, as and for the purpose specified. 3rd. In combination with a cooking stove, the supplemental ovens A and B, connected by bolts C directly to the side B of the stove next the oven, the table D, supported by lugs *d* in the slots *e*, and legs E on the top of the oven A, as specified.

No. 39,614. Method of Making Cylindrical Boxes.*(Méthode de fabriquer des boîtes cylindriques.)*

Gilbert William Bradley, Manchester, Vermont, U.S.A., 1st August, 1892; 6 years.

Claim.—1st. The herein described process of bending, solidifying and polishing wood veneers, which consists in passing the veneer through a series of pairs of rollers arranged in the path of curvature of the bent veneer, working under pressure, one of the external rollers of the series running at a higher differential rate of speed than the other, under the action of which the outer layers of the wood are stretched and polished, substantially in the manner described and for the purpose set forth. 2nd. The herein described apparatus for bending wood veneers, consisting of a series of pairs of

rollers arranged in the path of curvature of the veneer to be bent, working under pressure, one of the external rollers of the series being adapted to revolve at a higher speed than its companion or counterpart, as a provision for smoothing and polishing the external surface of the bent veneer, substantially in the manner described and set forth.

No. 39,615. Balance Lock for Water Ways.*(Serrure à balance pour conduits d'eau.)*

Chauncey Noble Dutton, Pittsburg, Pennsylvania, U.S.A., 1st August, 1892; 18 years.

Claim.—1st. In a balance lock apparatus, the combination of a floating and vertically movable tank or casing adapted to contain a charge of compressed air, a gated lock chamber fixed on said casing, a second floating and vertically movable tank or casing adapted to contain a charge of compressed air, and a valve controlled air passage connecting said tanks or casings, substantially as set forth. 2nd. In a balance lock apparatus, the combination, of a floating and vertically movable tank or casing adapted to contain a charge of compressed air, a gated lock chamber fixed on said casing, a second floating and vertically movable tank or casing adapted to contain a charge of compressed air, a gated lock chamber fixed on said casing, and a valve controlled air passage connecting said tanks or casing, substantially as set forth. 3rd. In a balance lock apparatus, the combination of a floating and vertically movable balance tank or casing adapted to contain a charge of compressed air, two or more floating and vertically movable lock chamber tanks or casings, each adapted to contain a charge of compressed air, and having a gated lock chamber fixed upon it, and independent valve controlled air passages connecting the several lock chamber casings with the balance casing, substantially as set forth. 4th. In a balance lock apparatus, the combination of a head wall dividing a water way into upper and lower levels, a gated mouth or passage way formed in said head wall, a tank or casing adapted to contain a charge of compressed air, said casing floating and being vertically movable in the lower level of the water way adjacent to the head wall, a lock chamber fixed upon said casing and provided with gated mouths or end openings, one of which is fitted to make a joint with the mouth of the head wall, a second floating and vertically movable tank or casing adapted to contain a charge of compressed air, and a valve controlled air passage connecting said tanks or casings, substantially as set forth. 5th. In a balance lock apparatus, the combination of a head wall dividing a water way into upper and lower levels, gated mouths or passage ways formed in said head wall, one or more pairs of tanks or casings adapted to contain charges of compressed air, said casings floating and being vertically movable in the lower level of the water way adjacent to the head wall, lock chambers fixed upon said casings, each provided with gated mouths or end openings, one of which is fitted to make a joint with a mouth of the head wall, and valve controlled air passages connecting the casings of such pair, substantially as set forth. 6th. In a balance lock apparatus, the combination of a head wall dividing a water way into upper and lower levels, gated mouths or passage ways formed in said head wall, two or more lock chamber tanks or casings, each adapted to contain a charge of compressed air, and floating, and being vertically movable in the lower level of the water way adjacent to the head wall, lock chambers fixed upon said casings, each provided with gated mouths or end openings, one of which is fitted to make a joint with a mouth of the head wall, a floating and vertically movable balance tank or casing adapted to contain a charge of compressed air, and independent valve controlled air passages connecting the several lock chamber casings with the balance casing, substantially as set forth. 7th. In a balance lock apparatus, the combination of a floating and vertically movable tank or casing adapted to contain a charge of compressed air, a gated lock chamber fixed on said casing, a second floating and vertically movable tank or casing adapted to contain a charge of compressed air, a valve controlled air passage connecting said tanks or casings, an air compressing mechanism, and a detachable valve controlled pipe or passage connecting said air compressing mechanism with one of the casings, substantially as set forth. 8th. In a balance lock apparatus, a floating and vertically movable tank or casing adapted to contain a charge of compressed air, said casing being provided with outwardly projected walls increasing its lower width relatively to its upper width, in order to equalize the buoyant effect of the charge and downward effort of the casing at different levels of the floatation, substantially as set forth. 9th. In a balance lock apparatus, a floating and vertically movable tank or casing adapted to contain a charge of compressed air, said casing being provided with horizontal outward extensions of its walls forming equalizing faces, which are normally located below the level of the water in which the casing floats, substantially as set forth. 10th. In a balance lock apparatus, the combination of a head wall dividing a water way into upper and lower levels, a gated mouth or passage way formed in said head wall, a tank or casing adapted to contain a charge of compressed air, said casing floating and being vertically movable in the lower level of the water way adjacent to the head wall, a lock chamber fixed upon said casing and provided with gated mouths or end openings, one of which is fitted to make a joint with the mouth of the head wall, and vertical guides entering recesses or guide openings in the casing to prevent undue lateral or longitudinal

movement thereof, substantially as set forth. 11th. In a balance lock apparatus, the combination, of a head wall dividing a water way into upper and lower levels, a gated mouth or passage way formed in said head wall, a tank or casing adapted to contain a charge of compressed air, said casing floating and being vertically movable in the lower level of the water way adjacent to the head wall, a lock chamber fixed upon said casing and provided with gated mouths or end openings, one of which is fitted to make a joint with the mouth of the head wall, and vertical guides provided with end stops to prevent undue vertical movement of the casing, substantially as set forth. 12th. In a balance lock apparatus, the combination, of a head wall dividing a water way into upper and lower levels, a gated mouth or passage way formed in said head wall and provided with laterally and downwardly projecting flanges on its end, a tank or casing adapted to contain a charge of compressed air, said casing floating and being vertically movable in the lower level of the water way adjacent to the head wall, a lock chamber fixed upon said casing and provided with gated mouths or openings, lips or flanges projecting from the end of the mouth of the lock chamber adjacent to that of the head wall parallel with and adjacent to those of the head wall flanges, packing strips interposed between the head wall flanges and lock chamber flanges, and mechanism for pressing said flanges closely against said packing strips, substantially as set forth. 13th. In a balance lock apparatus, the combination, of a head wall dividing a water way into upper and lower levels, a gated mouth or passage way formed in said head wall and provided with laterally and downwardly projecting flanges on its end, a tank or casing adapted to contain a charge of compressed air, said casing floating and being vertically movable in the lower level of the water way adjacent to the head wall, a lock chamber fixed upon said casing and provided with gated mouths or openings, lips or flanges projecting from the end of the mouth of the lock chamber adjacent to that of the head wall parallel with and adjacent to those of the head wall flanges, packing strips interposed between the head wall flanges and lock chamber flanges, and fluid pressure cylinders provided with pistons by which pressure is exerted upon said flanges for pressing them closely against said packing strips, substantially as set forth. 14th. In a balance lock apparatus, the combination, of an open bottomed tank or casing, internal partitions dividing the casing into a series of air tight cells or compartments, and valve controlled air passages each leading into one of said compartments, substantially as set forth. 15th. In a balance lock apparatus, the combination, of an open bottomed tank or casing, internal partitions dividing the casing into a series of air tight cells or compartments, valve controlled air passages each leading into one of said compartments, a main air pipe, valve controlled connections coupling the air passages of the several compartments to said main air pipe, and a valve controlling said main air pipe, substantially as set forth.

No. 39,616. Repeating Mechanism for Watches.

(*Mécanisme à répétition pour montres.*)

August Wilhelm Matthaei, Berlin, German Empire, administrator of the estate of Jens Richter, late of Hong Kong, Asia, 1st August, 1892; 18 years.

Claim.—1st. In a repeating mechanism for watches, a wheel provided with a given number of teeth and adapted to revolve in a given direction from a predetermined starting point, and gearing adapted to revolve the wheel, in combination with a lock controlled by a moving element of the watch and adapted to lock said wheel against revolution, and a push pin adapted to bear on the periphery of the wheel, as and for the purpose set forth. 2nd. In a repeating mechanism for watches, a wheel provided with a given number of teeth and adapted to revolve in a given direction from a predetermined starting point, gearing adapted to revolve the wheel, the spindle of one of the gear wheels being provided with a button for revolving the same, in combination with one of the hands of the watch, a lock controlled by said hand, and adapted to lock the wheel against revolution, and a push pin adapted to bear against the periphery of the wheel, as and for the purposes set forth. 3rd. In a repeating mechanism for watches, a wheel provided with twelve ratchet teeth and adapted to revolve in a given direction from a predetermined starting point, a spring actuated pawl pivoted to said wheel, a fixed ratchet adapted to be engaged by the pawl to lock the wheel against revolution, and gearing adapted to revolve the wheel to and from its starting point, in combination with the hour hand, an arm connected therewith and adapted to engage the pawl and move it against the stress of its spring into engagement with the teeth of the fixed ratchet, and a push pin adapted to bear against the periphery of the wheel, substantially as and for the purposes specified. 4th. In a repeating mechanism for watches, the wheel R², provided with twelve teeth, the pawl L, pivoted to said wheel, and having a pin *l*, projecting through a slot in the wheel, and the bridge B on said wheel overhanging the pin *l*, said bridge having wings *b*, and *b*¹, arranged as described, and a fixed ratchet R, adapted to be engaged by the pawl L, in combination with the spring actuated pin P², bevelled as described, the gear wheel R¹, rigidly connected with wheel R², and having a hole adapted to be engaged by the pin P⁴, the pinion P, in gear with wheel R¹, the hour hand, the arm L², connected therewith and adapted to engage the pin *l*, on wheel L, and a push pin adapted to bear on the periphery of wheel R², substantially as and for the purposes specified. 5th. In a repeating mechanism for watches, a wheel provided with

thirty-six teeth arranged in sets of three teeth, and a recess or notch between each set, said wheel being adapted to revolve in a given direction from a starting point, in combination with a push pin adapted to be brought into engagement with the teeth and notches of said wheel, substantially as and for the purposes specified. 6th. In a repeating mechanism for watches, a quarter hour repeating wheel provided with thirty-six teeth, and a notch or recess between each set of three teeth, an hour repeating wheel provided with twelve teeth, the teeth on said wheels pointing in opposite directions, a pawl pivoted to the quarter hour repeating wheel, a gear wheel connected with the quarter hour and hour repeating wheels, a driving pinion in gear with the gear wheel, and a fixed ratchet adapted to be engaged by the pawl on the quarter hour repeating wheel, in combination with a lock adapted to lock the gear and repeating wheels against revolution in one direction, the hour hand of the watch, an arm controlled thereby and adapted to control the pawl to move the same into engagement with the fixed ratchet, and two push pins adapted to be moved in contact with the teeth on the quarter hour and hour repeating wheels respectively, substantially as and for the purpose specified. 7th. The combination, with the ratchet wheel R, the push pins P² and P³, and the hour hand carrying the arm L², of the gear wheel R¹, its pinion P, the superposed toothed wheels R², R³, rigidly connected with the gear wheel and arranged to revolve about the fixed ratchet R, the spring actuated pawl L, provided with the pin *l*, projecting through a slot in wheel R², to which said pawl is pivoted and adapted to engage the teeth of the fixed ratchet, and the bridge B, on wheel R², having the wings *b* and *b*¹, and overhanging the pin *l*, said parts being arranged and operating, substantially as and for the purposes specified.

No. 39,617. Heater. (*Calorifère.*)

Richard Bigley, Toronty, Ontario, Canada, 1st August, 1892; 6 years.

Claim.—1st. In a heater, a combination chamber A, having at the top an enlarged outwardly projecting dome B, which is connected by the pipes G, to the base chamber E, which has two partitions O, extending from the back of the chamber E, to a short distance from the front, a smoke pipe being connected to the top of the chamber E, at the back between the partitions, substantially as and for the purpose specified. 2nd. The combustion chamber A, dome B, pipes G, base chamber E, with partitions O, and smoke pipe J, in combination with the chamber H, pipes I, extending through the chamber E, into the hot air space, as specified. 3rd. The combustion chamber A, dome B, pipes G, base chamber E, with partitions O, and smoke pipe J, in combination with the ash pit D, having an opening M, connecting with the smoke pipe J, and provided with a damper N, as specified. 4th. The combustion chamber A, dome B, pipes G, base chamber E, with partitions O, and smoke pipe J, in combination with the supplemental pipe K, having damper L, as specified. 5th. The combustion chamber A, dome B, pipes G, base chamber E, with partitions O, and smoke pipe J, in combination with the cleaning chutes P, as specified.

No. 39,518. Device for Producing Voltaic Effects.

(*Appareil pour produire des effets voltaïques.*)

Peter Heskley, Copenhagen, Denmark, 1st August, 1892; 6 years.

Claim.—The construction of a device (in the form of a cross), composed of layers of copper and zinc or other metals, between which voltaic action can be set up, with an intervening layer of sponge, or like substance, substantially as shown and described and for the purpose set forth.

No. 39,616. Means for Preventing the Alteration of Amounts of Negotiable Papers. (*Moyen d'empêcher l'altération des papiers négociés es.*)

George Donald Edwards, Denver, Colorado, U.S.A., 1st August, 1892; 6 years.

Claim.—1st. As a means of preventing the alteration of instruments representing sums of money a series of digits arranged under appropriate headings, and the cancellation of the unused headings and of the used digits to indicate the sum covered by the instrument, substantially as described. 2nd. The combination of a series of headings and a series of numbers by the cancellation of a part of which the sum which the instrument is intended to cover, or which it is not to exceed, may be indicated, substantially as described, and for the purposes set forth.

No. 39,620. Tea Kettle. (*Bouilloire à thé.*)

John Black and Fred C. A. Natus, both of South Chicago, Illinois, U. S. A., 1st August, 1892; 6 years.

Claim.—1st. In a tea kettle, the ears which carry the swinging bail or handle of said vessel, provided with shoulders or projections on their inner faces adapted to support the bail when thrown to either side, said projections being tapering or wedge shape at their lower ends, substantially as and for the purpose herein set forth. 2nd. The cover of the kettle provided with a swiveling band on its top, and rubber or soft packing ring beneath its rim, essentially as and for the purpose herein described. 3rd. The combination, with the kettle body, of the ears on opposite sides of the filling opening of said body, having bail supporting and cover closing projections

on their inner faces, as described, the swinging bail or handle of the kettle, and the kettle cover provided with a swiveling band on its top adapted to engage with or under the projections on the ears, as set forth. 4th. The combination, with the kettle body, and its spout, of a tube arranged to connect the upper portion of the kettle top with the spout, essentially as and for the purpose herein set forth. 5th. The breast or top of the kettle body constructed to rise above the highest water level of the kettle and above the filling opening therein, substantially as and for the purpose herein described. 6th. The combination, with the kettle body, provided with a filling opening at its top, and constructed with a breast or upper portion outside of the rising above said opening, of the kettle spout, and a tube connecting said raised breast with the spout, essentially as specified.

No. 39,621. Method of and Means for Increasing the Flow of Natural Gas. (*Méthode et moyen d'augmenter l'écoulement du gaz naturel.*)

James Warren Strouse and Albert Burt Strouse, both of Fostoria, Ohio, U. S. A., 1st August, 1892; 6 years.

Claim.—1st. The process of increasing the flow of natural gas, which consists in piping into the wells, and exhausting the air from the pipe to cause a flow of gas vacuum pressure. 2nd. The process of increasing the flow of natural gas, which consists, first, in drawing the gas from the place of deposit beneath the earth's surface, by a vacuum formed at the top of the well, and, second, by drawing and commingling air with the gas by a vacuum formed at the bottom of the well, and drawing air from the top thereof. 3rd. In the process of increasing the flow and pressure of gas, in combination with the well tubing, a pipe extending to the bottom of the tubing, and connected at the top to the mechanism for causing a vacuum in the pipe tapped into the tubing.

No. 39,622. Lawn Sprinkler. (*Arrosoir pour pelouses.*)

Jerome B. Fellows and Frederick B. Osgood, both of North Conway, New Hampshire, U. S. A., 1st August, 1892; 6 years.

Claim.—1st. In a travelling lawn sprinkler, the combination, with rotary sprinkler arms mounted on wheels adapted to travel upon the ground, of a long and flexible hose attached to a water reservoir and to said sprinkler, substantially as and for the purposes set forth. 2nd. A travelling lawn sprinkler having supporting wheels, rotary sprinkler arms, a shaft carrying said sprinkler arms and a gear meshing with mechanism for propelling the machine upon the ground and a flexible hose adapted to supply water to said sprinkler arms, substantially as and for the purposes set forth. 3rd. In a travelling lawn sprinkler, the combination, with a supporting frame and a vertical pipe mounted thereon, of a rotary vertical shaft in said pipe, rotary sprinkler arms attached to one end of said shaft and a gear on the other end meshing with a gear for driving the machine, substantially as and for the purposes set forth. 4th. In a travelling lawn sprinkler, the combination with rotary sprinkler arms mounted on wheels adapted to travel upon the ground and a long flexible hose attached to a water reservoir and to said sprinkler, of an adjustable steering wheel whereby the machine may be caused to travel in any desired direction, substantially as and for the purposes set forth. 5th. In an automatically propelled lawn sprinkler, the combination, with a frame mounted on wheels, a pipe set on said frame and a long flexible hose connecting said pipe and a reservoir, of a shaft adapted to rotate in said pipe carrying on its upper end a cap having rotary sprinkler arms set therein and on its lower end a worm-gear, a loose gear on a shaft journaled in said frame and meshing with said worm-gear and with gear for propelling the machine over the ground, and a clutch adapted to fasten the said loose gear on its shaft when in operation, substantially as and for the purpose set forth. 6th. In a travelling lawn sprinkler having a frame mounted on wheels adapted to travel upon the ground, the combination, with a vertical pipe mounted on said frame and a vertical shaft adapted to rotate in said pipe, having on one end a cap carrying rotary sprinkler arms fitting closely to the top of said pipe, and on its other end a gear meshing with a system of gears for propelling the machine, and a long flexible hose for supplying water to said pipe, of stationary sprinkler arms opening into said pipe, substantially as and for the purposes set forth.

No. 39,623. Air Compressor. (*Compresseur à air.*)

William Albert Rohr, Montreal, Quebec, Canada, 1st August, 1892; 6 years.

Claim.—1st. An air compressor driven in part by the body of air under compression, and by an auxiliary power, as set forth. 2nd. In an air compressor, having a closed cylinder and a piston working therein, the establishment behind such piston of a pressure furnished by the body of air under compression, for the purpose set forth. 3rd. An air compressor, having a closed cylinder with guarded intake and outlet and inlet ports, a piston working within such cylinder, the length of stroke of which is limited to afford a permanent air space at one end of same, a counter shaft and one or more fly wheels mounted thereon, connections between said piston and shaft, an accumulator or storage chamber, and an auxiliary power, for the purpose set forth. 4th. An air compressor, having a closed cylinder with guarded intake and outlet and inlet ports, a piston

working within such cylinder, the length of stroke of which is limited to afford a permanent air space at one end of same, an accumulator or storage chamber in communication with said air space and outlet port of said cylinder, a counter shaft and one or more fly wheels mounted thereon, connections between said piston and shaft, and an auxiliary power also connected with said shaft and assisting in the rotation of same, for the purposes set forth. 5th. An air compressor, having a closed cylinder and piston working therein and driven in part by the main body of air under process of compression and directed behind such piston, and by an auxiliary power, as set forth. 6th. An air compressor, having a storage chamber for the compressed air, and a cylinder with piston working therein, the said storage chamber being in open communication with an air space behind such piston, whereby the body or air contained in such chamber may be in contact with and act directly upon such piston.

No. 39,624. Electric Battery. (*Pile électrique.*)

Charles Grimwood and William Walter Moore, both of Montreal, Quebec, Canada, 1st August, 1892; 6 years.

Claim.—The improvement described, consisting of a carbon stick or plate hollowed on top to take metal and screw for binding post, said metal composed of tin and antimony, substantially as and for the purposes hereinbefore set forth, with right or left angle bend to form contact, the metal being entirely covered with carbon and requiring no insulation, substantially as and for the purpose hereinbefore set forth.

No. 39,625. Apparatus for Producing Illusory Dramatic Effects. (*Appareil pour la production d'effet illusoire dramatique.*)

James William Knell, Highlands, New Jersey, U. S. A., 1st August, 1892; 6 years.

Claim.—1st. In combination, with a moveable carriage located on a stage floor, the endless path borne on the carriage, the rope or like flexible connection from the carriage to a windlass, and extending from opposite ends of said carriage over guides or pulleys, the guides or pulleys, and the means, as a windlass, for producing an intermittent reciprocating movement of the carriage, all substantially as described. 2nd. In combination, with a stage floor having an opening therethrough, a moveable carriage located in the opening and movable along its supports, the endless path borne on said carriage, a standard fixed to the carriage, and the means substantially as described, for moving the said carriage back and forth along the opening, substantially as described. 3rd. In combination, with a number of carriages, supported on tracks or runways and adapted to move thereon, the standard or like means of attachment of an animal fixed to each carriage, the endless path or apron borne on the carriage, and the means substantially as described, for moving the several carriages, all as and for the purpose specified. 4th. In combination, with a stage floor having an opening therethrough, a carriage located in the opening and movable along its supports, the standard fixed to the carriage, the endless path borne on the carriage, the flexible apron fast to the carriage and passing over a support near one end of the opening, the apron support, and the means for moving the carriage back and forth along the opening, all substantially as described. 5th. In combination, with a stage floor, a moveable carriage supported thereon, an endless path borne on said carriage, means for imparting an intermittent movement to the carriage, and the back ground scene, all substantially as described. 6th. In combination in a stage setting, the compound panoramic scenes of unequal height, and adapted to be moved at different rates of speed, all substantially as described. 7th. In combination, with a stage, the background or like stage setting, a carriage movable back and forth on said stage, the horizontal endless path borne on said carriage, and independent of any connection with the carriage propelling mechanism, all substantially as described. 8th. In combination, with a stage floor, a moveable carriage located thereon and movable along its supports, the endless path borne on said carriage, and means, substantially as set forth, for moving the carriage back and forth, substantially as described. 9th. In combination, with the stage, the scenery and the device for supporting a moving object, the fence mounted on a moveable belt or like flexible part supported in operative relation to the stage and scenery, all substantially as described. 10th. In combination, with a stage, the scenery and the endless path for supporting the moving object, a fence made up of a number of slats or palings mounted upon a moveable belt or like flexible connection, the moveable belt supporting the pickets, and the guides arranged to hold the pickets in an upright position, all substantially as described. 11th. In combination, with a stage, the scenery, and an endless belt for supporting a moving object mounted thereon, a fence made up of a number of pickets secured to a flexible belt or like part, with the edges of their bases in contact when in an upright position, the flexible belt bearing the fence and supported on pulleys, and means for rotating the pulleys, all substantially as described. 12th. In combination, with a stage, the scenery, and a device for supporting a moving object, an opening through the stage floor, a fence arranged to pass through and along the opening, and composed of a series of slats secured to a belt, the moving belt supported below the stage floor, and the guides extending along the path of movement of the pickets above the level of the floor, all substantially as described.

No. 39,626. Gas-Burner for heating purposes.*(Bec à gaz pour appareil de chauffage.)*

Phillip Lesser, Ridgway, Pennsylvania, U.S.A., 1st August, 1892; 6 years.

Claim.—1st. The gas-burner herein shown and described, constructed to form a top chamber to which the gas is first applied, an end passage leading from said top chamber downward, and side chambers or channels on a lower level than the top chamber, and communicating therewith through said end passage, said side chambers being covered by perforated plates, substantially as described. 2nd. A gas-burner consisting in the raised bottom *a*, having a surrounding channel *B*, around its sides and ends, the top of the channel being open, and the raised, bottomless cap-plate *C*, resting at its lower longitudinal edges on the side edges of the bottom *a* and with its end walls *c'*, on the outer end walls *f*, *f'*, of the chamber *B*, to form the end passages *d*, *d'*, and formed with the perforated side plates *C'*, *C'*, forming covers for the side of the channel *B*; the chamber *D*, formed by said cap-plate, being provided with a gas inlet, substantially as set forth.

No. 39,627. Machine for Grinding Grain, Etc.*(Machine pour mouler le grain, etc.)*

The Central Cyclone Company, assignee of Sidney Straker, all of London, England, 1st August, 1892; 6 years.

Claim.—1st. In a pulverizing or grinding mill, the combination, with a grinding fan or beater, of an impinging ring or impinging rings with its face, or with their faces set obliquely to the plane in which the beater rotates, openings in the top and bottom of the said ring, a casing in which slots or other openings are formed immediately below the said bottom opening in the ring or rings, and a grist return chamber which communicates with the reducing chamber at a point inside the periphery of the grinding fan or beater, substantially as set forth. 2nd. In a pulverizing or grinding mill, the combination, with a semi-cylindrical casing forming the upper portion of the reducing chamber, of bars placed around the inner circumference of the said casing and resting in recesses therein, and of segmental covers or doors having india rubber buffers, or steel or other springs to bear upon the said bars. 3rd. In a pulverizing or grinding mill, the combination, with a semi-cylindrical casing forming the upper portion of the reducing chamber, of bars placed around the inner circumference of the said casing and resting in recesses therein, segmental covers or doors having india rubber buffers, or steel or other springs to bear upon the said bars, and two serrated impinging rings, one on each side of the fan or beater, with faces inclined to the plane in which the fan or beater rotates, substantially as set forth. 4th. In a pulverizing or grinding mill, the combination with the series of bars arranged in a semi-circle in the bed with spaces between them, of segments, slatted segmentally to receive the ends of the said bars, and other segments secured to the first named segments or to the casing of the machine and provided with recesses to receive the said bars, substantially as set forth. 5th. In a pulverizing or grinding mill, a fan or beater, the boss of which is provided with holes, a portion of each hole lying radially in the hub, the other portion being at right angles therewith and parallel with the driving shaft, and beater arms provided with hooked portions at their inner ends which engage with the hub at places where the said two portions of each hole meet, filling pieces placed in the radial portions of the said holes to keep the hooked portion of the arms in engagement with the hub and to act as balance weights and cotters driven through suitable holes in the hub to retain the filling pieces in place, substantially as set forth. 6th. In a pulverizing or grinding mill a fan or beater provided with arms, the ends of some of which are arranged so that they are in gradually increasing proximity to the face of the impinging ring, the ends of other of the said arms being arranged to approach still nearer to the impinging rings, substantially as set forth.

No. 39,628. Electrically Actuated Clock.*(Horloge actionnée par l'électricité.)*

Fred Leon Gregory, Niagara Falls, New York, U. S. A., 2nd August, 1892; 6 years.

Claim.—1st. In an electric clock-actuating mechanism, the combination, with the clock movement having a ratchet-wheel, and with an electro-magnet and its electrical circuit, of the vibratory rock shaft carrying the clock-actuating weight in proximity to the poles of the magnet, and having a pawl engaging the ratchet-wheel to actuate the clock movement on the descent of said weight, and a locking switch, substantially as described, actuated by the descending weight to close the circuit for raising the weight, substantially as described. 2nd. In an electric clock-actuating mechanism, the combination, with the clock movement having a ratchet-wheel, and with the electro-magnet and its electrical circuit, of the vibratory clock-actuating weight in proximity to the poles of the magnet and having a pawl engaging the ratchet-wheel to actuate the clock movement on the descent of the weight, the contact point, the switch arm supported, substantially as described, means for locking said arm in engagement with the contact point, and a switch actuating arm carried by the weight and engaging said switch arm to unlock the same on the upward stroke of said weight, substantially as described. 3rd. In an electric clock actuating

mechanism, the combination, with the clock movement having a ratchet-wheel, of the rock shaft carrying the clock-actuating weight and carrying a pawl engaging the ratchet-wheel, said shaft having the switch actuating arm, the electro-magnet and its electrical circuit, and a switch mechanism in said circuit, comprising the weighted lever 30, the switch arm 36, and the contact point, substantially as described. 4th. In an electric clock-actuating mechanism, the combination, with the electro-magnet and its armature connected to actuate the clock movement, of the contact point, the fixed catch 41, the lever 30 pivotally supported on the clock frame, the switch arm 36 pivoted to said lever, and having the notch engaging said fixed catch, and constructed to contact with said contact point when engaging said catch, and the switch-actuating arm carried by the armature between said lever and switch arm, said switch actuating arm operating the lever to throw the switch arm into engagement with the contact point, and said fixed catch on the descent of the armature, and to unlock the switch arm from said catch on the raising of the armature, substantially as described. 5th. In an electric clock actuating mechanism, the combination with the clock movement, and with the electro-magnet and its electrical circuit, of the vibratory rock shaft carrying the main weight in proximity to the poles of the magnet, and having a pawl engaging the ratchet-wheel to actuate the clock movement on the descent of the main weight, an auxiliary weight supported substantially as described, and having a pawl engaging the ratchet-wheel, and an arm carried by the main weight and engaging the auxiliary weight, to lift the same during the descending stroke of the main weight, and means closing and interrupting the electrical circuit on the descent and raising respectively of the main weight, substantially as described. 6th. In a clock-actuating mechanism, the combination, with the clock movement, having the ratchet wheel, of the main weight, having a pawl engaging said wheel, the smaller auxiliary weight, having a pawl engaging said wheel, and having the latch, the auxiliary weight actuating arm carried by the main weight, and engaging said latch for lifting the auxiliary weight during the descending stroke of the main weight, and means for raising the descended main weight, whereby the auxiliary weight operates for actuating the clock movement during the raising of the main weight, substantially as described. 7th. In a clock-actuating mechanism, the combination, with the clock movement, having a ratchet wheel, of the rock shaft carrying the main weight and having the pawl engaging the ratchet wheel and the arm 48, and the auxiliary weight shaft carrying the auxiliary weight, and have the pawl engaging the ratchet wheel, the latch 47, and the latch stop 52, said arm 48 engaging the latch to lift the auxiliary weight during the descent of the main weight, substantially as described.

No. 39,629. Dust Collector: (Aspirateur de poussière.)

The Edward P. Allis Company, Milwaukee, Wisconsin, assignee of William A. Cockrell, Mount Perry, Ohio, both of the U.S.A., 2nd August, 1892; 6 years.

Claim.—1st. In a dust collector, the combination, of a shell or casing provided with an inlet for dust laden air, and a rotatable drum or cylinder mounted within said casing and having its exterior directly exposed to the incoming air, said drum consisting essentially of blades or flights having their front and rear faces inclined at an angle of approximately 30 to 40 degrees from lines radiating from the axis of the drum or cylinder. 2nd. In a dust collector, the combination, of a shell or casing provided with an inlet at one side and a rotatable drum or cylinder located within and eccentrically to said shell or casing, said drum consisting essentially of a series of slats, blades or flights inclined at an angle of approximately 30 to 40 degrees from lines radial to the axis of the drum. 3rd. The herein described dust collector, consisting of shell or casing *A*, provided with openings *e*, in its ends, rotatable drum or cylinder *C*, consisting essentially of overlapping inclined blades *b*, slatted rack *G*, trough *F*, and conveyor *H*. 4th. In combination, with shell or casing *A*, provided with inlet *B*, drum or cylinder *C*, mounted eccentrically within the casing and consisting essentially of overlapping slats or flights *b*, inclined at an angle of approximately 30 to 40 degrees from lines radial to the axis of the cylinder. 5th. In combination, with the shell or casing *A*, provided with inlet *B*, drum or cylinder *C*, mounted eccentrically within the casing, and slats or flights *b*, inclined approximately at an angle of from 30 to 40 degrees to lines radial to the axis of the cylinder. 6th. In combination, with shell or casing *A*, provided with an air inlet, drum or cylinder *C*, and slatted rack *G*, the slats of which are of a length less than that of the chamber. 7th. In a dust collector, the combination, of a shell or casing provided with an inlet, and a rotatable drum located within said shell or casing, and consisting essentially of overlapping blades arranged oblique to lines projected radially from the axis of the cylinder. 8th. In combination, with a shell or casing, a rotatable drum or cylinder *C*, mounted therein and provided with sheet metal blades bent or creased longitudinally, substantially as and for the purpose set forth. 7th. In a dust collector, the combination, of a shell or casing provided with an opening in its end wall, and a drum or cylinder mounted within said casing, and having an opening registering with the opening in the casing and comprising heads and a series of overlapping blades or flights arranged at angles to lines radiating from the axis of the cylinder.

No. 39,630. Fastener for Stove Pipes.*(Attache pour tuyaux de poêle.)*

John Henderson Johnston and George Purves, both of Little Rock, Arkansas, U.S.A., 2nd August, 1892; 6 years.

Claim.—1st. The combination, with two adjacent pipe sections, of metal loops rivetted to the said pipe sections inside of the same near their ends, and a separate connecting strap or tie bent around the loops and connecting the opposite pipe sections, substantially as shown and described. 2nd. The combination, with two adjacent pipe sections, of metal loops B, formed of a strip of sheet metal bent in triangular shape with their ends brought together and rivetted to the pipe sections, and their middle parts b^2 offsetting as described, and a connecting strap or tie bent around the loops, as described, and connecting the pipe sections, substantially as shown and described.

No. 39,631. Device for Holding a Wheel on its Axle.*(Appareil pour tenir les roues sur leurs essieux.)*

Oscar Jacobi, Montreal, and Herbert A. Beatty, Toronto, both of Canada, 2nd August, 1892; 6 years.

Claim.—A hub journaled on the end of an axle and butting against a flange formed on the axle, in combination with a spring bolt connected to the hub and arranged to fit behind the flange formed on the axle, substantially as and for the purpose specified.

No. 39,632. Speculum. (Speculum.)

John Wesley Daily, Salina, and Richard H. Teague, Ellsworth, both of Kansas, U.S.A., 2nd August, 1892; 6 years.

Claim.—1st. An endoscopic instrument provided with an incandescent electric lamp concealed within the wall of the part to be inserted in the cavity, substantially as described. 2nd. An endoscopic instrument having a recess formed therein, an incandescent electric lamp located therein, and a removable fenestrated plate secured to the instrument in such a manner as to permit the light to illuminate the cavity during use, substantially as described. 3rd. An endoscopic instrument having a recess formed on the inner surface of its jaw, an incandescent electric lamp located therein, a cushion beneath the lamp, and a fenestrated plate secured to the jaw of the instrument and permitting the light from the lamp to illuminate the cavity during use, substantially as described. 4th. An endoscopic instrument having a recessed jaw, an incandescent lamp located within the recess, a transparent plate covering the recess, and an outer plate securing the transparent plate in place, and provided with an opening above the recess, and so located as to permit the light from the lamp to illuminate the cavity during use, substantially as described. 5th. An endoscopic instrument having a recessed jaw, an incandescent lamp located within the recess, an asbestos cushion located beneath the lamp, a transparent plate covering the recess, and an outer plate securing the transparent plate in place, and provided with an opening above the recess, and so located as to permit the light from the lamp to illuminate the cavity during use, substantially as described.

No. 39,633. Apparatus for Obtaining Metals from Metallic Solutions. (Appareil pour obtenir des métaux des solutions métalliques.)

Émile Viarengo and Edward Casper, both of London, England, assignees of Alberto Rovello, Turin, Italy, 2nd August, 1892; 6 years.

Claim.—1st. The herein described electrolytical apparatus consisting of a tank or casing formed of two heads and a series of intermediate frames detachably connected together, said frames being provided with porous diaphragms dividing the tank into an equal number of cells, a feed and exhaust duct for each alternate series of cells having its inlet and discharge, respectively, near the bottom of the tank at the opposite ends thereof, and an overflow for each of said alternate series of cells, in combination with electrodes for the cells and an electrical circuit including said electrodes. 2nd. The herein described electrolytical apparatus, consisting of a tank or casing composed of two heads, whereof one is provided with two feed ports and the other with two exhaust and two overflow ports, arranged as set forth, a series of intermediate frames, each provided with diaphragms that divide the tank into a plurality of cells, each of said frames having four ports m, m^1, m^{11}, m^{111} , whereof ports m^{11} and m^{111} register with said overflow ports and communicate by ports n^{11}, n^{111} with the interior of the cells, the two other ports m, m^1 in the bottom of said frames registering with the feed and exhaust ports in the heads and communicating by ports n, n^1 with the interior of said cells, said parts being detachably connected together, for the purpose set forth. 3rd. The herein described electrolytical apparatus, consisting of a casing or tank composed of two heads, whereof one is provided with two feed ports, and the other with two exhaust and two overflow ports, arranged as described, a series of intermediate frames provided with porous diaphragms that divide the tank into plurality of cells, a feed and exhaust duct for each alternate series of cells, in communication therewith and with the corresponding ports in the heads of the tank, and an overflow duct for each of

said alternate series of cells communicating with the overflow ports in one of the heads, in combination with electrodes, supporting rods for the same, provided with conducting strips c^2 , electrical conductors, to which the alternate ends of the strips are connected, and an electric circuit including said electrical conductors, for the purpose specified.

No. 39,634. Washstand. (Lavabo.)

Nathan O. Bond, Fairfax, and Michael Bernard Harlow and Charles Creighton Carlin, both of Alexandria, Virginia, U.S.A., 2nd August, 1892; 6 years.

Claim.—1st. In a washstand, the combination, with a top having an opening therein, of a reservoir eccentrically pivoted in a plane above the level of the top, substantially as described. 2nd. In a washstand, the combination, with a top having an opening therein, brackets secured to said top, a reservoir eccentrically pivoted in said brackets, and a dome on said reservoir having an opening in the upper front portion, substantially as described. 3rd. In a washstand, the combination, with a top having an opening therein, brackets on said top, a reservoir eccentrically pivoted in said brackets, a dome on said reservoir having an outlet therein, of a swinging bowl pivoted below the top and fitting under the opening, substantially as described. 4th. In combination, with a washstand, of a top having an opening therein, brackets thereon, a reservoir substantially barrel shape eccentrically pivoted in said brackets, a dome having a converging front portion to form an outlet for the water, and curving back near the top, a flange in said dome, a lug, and a cover to rest on said flange and under said lug, substantially as described. 5th. In a washstand, the combination, with the top having an opening therein, brackets on said top, a reservoir pivoted in said brackets, a cover pivoted above the reservoir consisting of a water proof underside and a cloth outer surface, substantially as described. 6th. In a washstand, the combination, with a top and a reservoir eccentrically pivoted in a plane above the top, of a swinging bowl below the top supported by a shaft and brackets, and means for retaining the bowl in a horizontal position, substantially as described. 7th. In a washstand, the combination, with a swinging bowl of a locking wheel having a transverse groove in its periphery, a cord or chain connected to a lever on the shaft on which the bowl swings, and passing through a groove, and around the periphery of the wheel, and having a weight on its end, substantially as described. 8th. In a washstand, the combination, with a shaft having a lever on one end, brackets on said shaft to rigidly retain the bowl in place, a cord connected to the end of the depending lever, and passing through a groove, and around the periphery of a locking wheel, and having a weight on its end, and means for rotating said wheel, substantially as described. 9th. In a washstand, consisting of a top having an opening therein, brackets on said top, a reservoir eccentrically pivoted in said brackets, a cover pivoted in the brackets above the reservoir, a swinging bowl adapted to fit under the opening on the top, a hood placed around the path of the bowl, a waste water receptacle and means for locking the bowl in a horizontal position, substantially as described.

No. 39,635. Freezer for Ice Cream.*(Congélateur pour crème à la glace.)*

Charles Gurley Shepherd and Walter J. Shepherd, assignees of Peter Adams, all of Buffalo, New York, U.S.A., 2nd August, 1892; 6 years.

Claim.—1st. In an ice cream freezer, the combination, with the rotary cream can having a cover provided on its underside with a gear rim, of a stationary spindle upon which the cream can turns, a rotary dasher journaled in the cream can, and provided with a pinion meshing with the gear rim of the cover, and a pan shaped body inclosing said gear pinion and rim and secured at its bottom to the spindle and having its upper end closed by the under side of the cover of the cream can, whereby said cover serves to close the upper end of the hood as well as the cream can, substantially as set forth. 2nd. The combination, with the tub and the cream can having a gear rim, of the hinged top frame provided with a hood which covers the driving gear of the cream can, a removable cross bar secured to the lower end of the hood and provided with an angular opening or socket, and a spindle for the can having an angular portion seated in the correspondingly shaped socket of the removable cross bar, substantially as set forth. 3rd. The combination, with the tub, the cream can, and the spindle having an angular upper end, of the upwardly swinging top frame having a sight aperture, and a removable bar secured to the top frame and having an angular opening visible through said sight aperture and which receives the angular end of the spindle, substantially as set forth. 4th. The combination, with the tub having an upright plate projecting above the upper edge thereof and provided with an offset upper portion inclining outward and having openings or loops, of the upwardly swinging top frame provided at its inner end with projecting lugs passing loosely through the openings of said upright plate, the inner end of the top frame when raised resting upon the offset of the upright plate of the tub, and the lugs of the frame bearing against the outer side of the upright plate and limiting the outward movement of the frame, substantially as set forth.

No. 39,636. Car Door. (Porte de chars.)

Albert Benton Pullman, Chicago, Illinois, U.S.A., 3rd August, 1892: 6 years.

Claim.—1st. In a railway car, the combination, with a sliding car door pivotally hung at its upper end and whereby it may be swung to and from the wall of the car below the line of suspension, of a cleat D, tapering substantially throughout its whole extent, and secured vertically against the wall of the car upon the rear side of the doorway, substantially as described and for the purpose set forth. 2nd. In combination, with the wall A of a railway car, and sliding door B, pivotally suspended thereon by means of a hanger, whereby it may be swung to and from the wall of the car below the line of suspension, the vertical cleat D at the rear side of the doorway, extending from about the bottom to the top of the doorway, and tapering substantially throughout its whole length, and a fastening device for securing the lower end of the door at will against the wall of the car, substantially as described. 3rd. The combination, with the wall A of a railway car, and sliding door B, pivotally suspended thereon by means of a hanger, whereby it may be swung to and from the wall of the car below the line of suspension, and provided along its inner lower edge with a metal chafing strip *s*, of the vertical tapering cleat D, secured to the wall A, upon the rear side of the doorway, and provided toward its lower end with the metal plate *t*, to come into contact with the chafing strip *s*, substantially as described. 4th. The combination, with the wall A of a railway car, and sliding door B, pivotally suspended thereon by means of a hanger, of the tapering cleat D, secured to the wall A, upon the rear side of the doorway, and a stop for limiting the outward movement of the door to about the extent required to permit it to pass over the cleat, substantially as described. 5th. In combination, with the wall A of a railway car, the sliding door B, pivotally suspended thereon by means of a hanger, and provided with a metal strip *s*, along its inner lower edge, projecting below it, tapering cleat D, secured to the wall A, upon the rear side of the doorway, and one or more brackets secured to the wall of the car below the level of the door, each having a flange *t*, overlapping the projection strip *s*, and limiting the outward movement of the door to about the extent required to permit it to pass over the cleat, substantially as described.

No. 39,637. Machine for Making Bricks.

(*Machin pour faire la brique.*)

William Johnson, Leeds, York, England, 3rd August, 1892: 6 years.

Claim.—1st. The renewable or interchangeable covers *g* for covering in more or less of that part of the machinery in which the pugging operation takes place, substantially as set forth. 2nd. The renewable or interchangeable nose *l* connecting the pug mill portion with the brick making or moulding part, substantially as set forth. 3rd. The arrangement in one machine of a pug mill and a brick making or moulding machine, the axes of which are in a horizontal plane and at right angles to each other, substantially as set forth and shown in the accompanying drawings. 4th. The arrangement of the shaft *r* for driving the pug mill portion and pulling over the moulds cylinder *h*, substantially as set forth and shown in fig. 2 of the accompanying drawing. 5th. The reciprocating hinged pawl *m* and clutch box *n* for intermittently pulling over or rotating the mould cylinder *h*, substantially as set forth. 6th. The aperture or groove *r* leading back to the hopper or pug mill, whereby the surplus clay from the brick making or moulding part of the machine is automatically carried back to the pug mill, substantially as set forth.

No. 39,638. Hydraulic Crane. (Grue hydraulique.)

John Graham, jr., and Erwin Graves, both of Camden, New Jersey, U.S.A., 3rd August, 1892: 6 years.

Claim.—1st. In combination with tracks, a roller-provided bridge adapted to travel thereupon, a motor drum mounted upon a shaft, ropes leading from said drum to opposite sides of the bridge, a chain wheel also mounted upon said shaft, a pair of hydraulic pistons and cylinders, chain wheels mounted upon said pistons, and a chain in engagement with said three chain wheels, substantially as set forth. 2nd. In combination with tracks, a roller-provided bridge embodying carriage ways and adapted to travel on said tracks, a drum, ropes leading from said drum to opposite sides of said bridge, a motor for operating said drum, a carriage provided with sheaves, a fall block provided with sheaves, and a fall rope one end of which is attached to a point of fixed attachment, the intermediate portion of which is engaged with the sheaves of the carriage and fall block, and a motor to which the other end of the fall rope is connected, substantially as set forth. 3rd. In combination with tracks, a roller-provided bridge embodying carriage ways and adapted to travel on said tracks, a motor drum, ropes leading from said drum to opposite sides of said bridge, a motor for operating said drum, a carriage provided with sheaves, a fall block provided with sheaves, a fall rope engaged with the sheaves of the carriage and fall block, and a hydraulic cylinder and piston, adapted to operate said fall rope, substantially as set forth. 4th. In combination with tracks, a roller-provided bridge embodying carriage ways and adapted to travel on said tracks, a drum, ropes leading from said drum to opposite sides of said bridge, a motor for operating said drum, a carriage provided with sheaves, a fall block provided with sheaves, a wheel-provided hydraulic cylinder, a wheel-provided piston mount-

ed in said cylinder, and a fall rope engaged with the sheaves of the carriage and fall block, and also engaged with the wheels of said piston and cylinder, substantially as set forth. 5th. In combination with tracks, a roller-provided bridge embodying carriage ways and adapted to travel on said tracks, a drum, ropes leading from said drum to opposite sides of said bridge, a motor for operating said drum, a carriage provided with sheaves, a fall block provided with sheaves, a wheel-provided hydraulic cylinder, two pistons one within the other situated within said cylinder, rope wheels mounted upon the upper end of the inner cylinder, means for at will locking the exterior piston to the interior piston or to the cylinder, and a fall rope engaged with the sheaves of the carriage and fall block and also engaged with alternate rope wheels of the piston and cylinder, substantially as set forth. 6th. In combination with tracks, a roller-provided bridge embodying carriage ways and adapted to travel on said tracks, a drum, a rope leading from said drum to opposite sides of said bridge, a motor for operating said drum, a carriage provided with sheaves, a fall block provided with sheaves, a hydraulic cylinder provided with rope wheels, two pistons one within the other situated within said cylinder, a projection attached to the exterior cylinder, hooks connected respectively with the inner piston and the cylinder and adapted to engage said projection, rope wheels mounted upon the upper end of the inner cylinder, and a fall rope engaged with the sheaves of the carriage and fall block, and also engaged with alternate rope wheels of the piston and cylinder, substantially as set forth. 7th. In combination with tracks, a roller-provided bridge embodying carriage ways and adapted to travel on said tracks, a drum, ropes leading from said drum to opposite sides of said bridge, a motor for operating said drum, a carriage provided with sheaves, brakes adapted to control carriage sheaves, a fall block provided with sheaves, and a fall rope, one end of which is attached to a point of fixed attachment and the intermediate portion of which is engaged with the sheaves of the carriage and fall block, and a motor to which the other end of the fall block rope is connected, substantially as set forth. 8th. In combination with tracks, a bridge embodying carriage ways, provided with sheaves and rollers, and adapted to travel on said tracks, a drum, ropes leading from said drum to opposite sides of said bridge, a motor for operating said drum, a carriage provided with wheels and sheaves, a sliding bar provided with a brake shoe adapted to be carried by the movement of said bar into and out of contact with carriage sheave, a weighted block upon said bar, adapted to move into and out of contact with the side of the sheave opposite to that with which the brake shoe makes contact, an operating arm connected to said block, a fall block provided with sheaves, a fall rope one end of which is attached to a point of fixed support, and the intermediate portion of which is engaged with the sheaves of the carriage and fall block, and a motor to which the fall block rope is connected, substantially as set forth. 9th. In combination with tracks, a roller provided bridge embodying carriage ways and adapted to travel on said tracks, a motor drum mounted upon a shaft, ropes leading from said drum to opposite sides of the bridge, a chain wheel also mounted upon said shaft, a pair of hydraulic pistons and cylinders, chain wheels mounted upon said pistons, chain in engagement with said three chain wheels, a carriage provided with sheaves, a fall block provided with sheaves, a hydraulic cylinder provided with rope wheels, a piston mounted in said cylinder and also provided with rope wheels, and a fall rope engaged with the sheaves of the carriage and fall block, and also engaged with alternate wheels of said piston and cylinder, substantially as set forth. 10th. In combination with tracks, a roller provided bridge embodying carriage ways and adapted to travel on said tracks, a motor drum mounted upon a shaft, ropes leading from said drum to opposite sides of the bridge, a chain wheel also mounted upon said shaft, a pair of hydraulic pistons and cylinders, chain wheels mounted upon said pistons, a chain in engagement with said three chain wheels, a carriage provided with sheaves and brakes, a fall block provided with sheaves, a hydraulic cylinder provided with rope wheels, a piston mounted in said cylinder and also provided with rope wheels, and a fall rope engaged with the sheaves of the carriage and fall block, and also engaged with alternate wheels of said piston and cylinder, substantially as set forth. 11th. In combination with tracks, a roller provided bridge embodying carriage ways and adapted to travel on said tracks, a motor drum mounted upon a shaft, ropes leading from said drum to opposite sides of the bridge, a chain wheel also mounted upon said shaft, a pair of hydraulic pistons and cylinders, chain wheels mounted upon said pistons, a chain in engagement with said three chain wheels, a carriage provided with sheaves, a fall block provided with sheaves, a hydraulic cylinder provided with rope wheels, two pistons, an outer and inner, mounted in said cylinder, means for at will locking the outer piston to the inner or to the cylinder, rope wheels mounted in connection with said pistons, and a fall rope engaged with the sheaves of the carriage and fall block, and also engaged with alternate wheels of said piston and cylinder, substantially as set forth.

No. 39,639. Electrical Heater.

(*Calorifere electrique.*)

Charles Clayton Rich, Mount Vernon, New York, U.S.A., 3rd August, 1892: 6 years.

Claim. 1st. An electric heater consisting of a heat absorbing core, a series of radiating rings encircling said core, said rings be-

ing provided on both sides with insulating washers, and insulated coils surrounding said core between the rings and washers, substantially as described. 2nd. An electric heater consisting of a heat absorbing centre, a series of radiating rings encircling said core, said rings being provided with slots and with insulating washers on both sides, and insulated coils surrounding said core between the rings and washers, being connected into a continuous circuit by passing through the slots in said rings, which divide the coils, substantially as described. 3rd. An electric heater consisting of a heat absorbing centre, a series of radiating rings encircling said core, said rings being provided with slots and with insulating washers on both sides, and insulated coils surrounding said core between the rings and washers, being connected into a continuous circuit by passing through the slots in said rings, which divide the coils, and an insulating substance placed between each layer of each section of coils, substantially as described. 4th. An electric heater consisting of an iron core, a series of iron radiating rings provided on both sides with asbestos washers and with slots, and insulated coils surrounding the core between the rings and washers, being connected into continuous circuit by passing through the slots in said rings which divide the coils, substantially as described. 5th. An electric heater consisting of an iron core, a series of iron radiating rings provided on both sides with asbestos washers and with slots, insulated coils surrounding the core between the rings and washers, being connected into continuous circuit by passing through the slots in said rings which divide the coils, and an insulating substance placed between each layer of each section of coils, substantially as described.

No. 39,640. Washing Machine. (Machine à blanchir.)

Richard Nash, North La Crosse, Wisconsin, and John Nash Ellensburg, Washington, both in the U.S.A., 3rd August, 1892; 6 years.

Claim.—The washing machine comprising the compartment suds box, the dasher hung therein and geared to an operating handle or lever, arranged in its lesser compartment, and the pivoted longitudinally arranged wings, the under sides of which, as also opposite the surfaces of the suds box, are corrugated, which wings also stand off from the sides of the suds box as well as being yielding, substantially as specified.

No. 39,641. Skate. (Patin.)

Thomas H. McQuown, Biggsville, Illinois, U.S.A., 3rd August, 1892; 6 years.

Claim.—1st. In a skate, the combination, with a rear runner supporting a sole plate and a heel plate, of a bracket secured to the sole plate and the front end of the said rear runner, and a front runner pivoted on the said bracket and extending in line with the said rear runner, substantially as shown and described. 2nd. In a skate, the combination, with a rear runner supporting a heel plate, of a front runner extending in line with the said rear runner, a bracket or brackets connected with the said rear runner and carrying a pivot for the said front runner, and a sole plate supported on the said bracket, substantially as shown and described. 3rd. In a skate, the combination, with a rear runner supporting a heel plate, of a front runner extending in line with the said rear runner, a bracket or brackets connected with the said rear runner and carrying a pivot for the said front runner, a sole plate supported on the said bracket, and means, substantially as described, for adjusting the said sole plate relatively to the front runner, as set forth. 4th. In a skate, the combination, with a pivoted front runner, of a coiled spring pressing with its free end on the said front runner, substantially as shown and described. 5th. In a skate, the combination, with a sole plate and a runner, of an adjusting plate secured to the under side of the said sole plate and engaging the said runner, substantially as shown and described. 6th. In a skate, the combination, with a rear runner supporting a heel plate, of a front runner extending in line with the said rear runner, a bracket or brackets connected with the said rear runner and carrying a pivot for the said front runner, a sole plate supported on the said bracket, and a spring pressing on the said pivoted front runner, substantially as shown and described. 7th. In a skate, the combination, with a rear runner supporting a heel plate, of a front runner extending in line with the said rear runner, a bracket or brackets connected with the said rear runner and carrying a pivot for the said front runner, a sole plate supported on the said bracket, and an adjusting plate held adjustably on the said sole plate and resting on the said bracket, to increase or diminish the distance between the front runner and the sole plate, substantially as shown and described. 8th. In a skate, the combination, with a rear runner curved at its front end in the shape of a segment, and a heel plate supported on the said rear runner, of a sole plate supported on the front end of the said runner, a bracket connected with the rear runner and with the under side of the said sole plate, and a front runner pivoted on the said bracket and having its rear end formed in the shape of a segment fitting upon the curved end of the rear runner, substantially as shown and described. 9th. In a skate, the combination, with a rear runner curved at its front end in the shape of a segment, of a heel plate secured on the said runner, a sole plate supported on the front end of the said runner, a bracket connected with the front end of the rear runner and with the under

side of the said sole plate, a grooved front runner pivoted on the said bracket and having its rear end formed in the shape of a segment fitting upon the curved end of the rear runner, and a spring pressing on the said front runner, substantially as shown and described.

No. 39,642. Mechanism for Stopping and Starting Vehicles. (Appareil pour arrêter et mettre en mouvement les voitures.)

William Giffard, Salford, Lancaster, England, 3rd August, 1892; 6 years.

Claim.—1st. The improved apparatus for stopping and starting tram cars, omnibuses and other wheeled vehicles, and consisting of a spring *a*, or series of springs confined in a case and acted upon by blocks or pistons *c*, connected to sliding muffs *f* operated by chains passing over chain pulleys which operate clutches capable of being manipulated by the driver or person in charge, so as to compress the spring or springs during the stopping of the vehicle and to utilize the power thus stored for restarting the vehicle, substantially as hereinbefore described and illustrated. 2nd. In apparatus of the indicated nature, the spring *a* and case *b* in combination with the sliding muffs *f* and chain *g* and *h* for the purposes, and arranged and acting substantially as hereinbefore described and shown. 3rd. The means for throwing the clutch halves *i* *i*² into and out of gear, said means consisting of the combination of the foot lever *r* or hand lever *r*¹ and parts of the hook bar *g* and springs *g*¹, the hook bars *p* racks *p*¹ spring *p*², nut wheel *n* screwed studs *m* and fork *k*, arranged and acting substantially as described and shown. 4th. The means for seizing the chain *h* and moving it with the muffs *f* during the compression of the spring, said means consisting of the finger *l* stud *l*¹, lever *u* and bowl *u*¹ acting in concert with the tappet catch *v*, with the objects and substantially as described and shown. 5th. In the indicated apparatus forming the starting chain wheel *j* of larger diameter than the compressing or retarding chain wheel *i*, so as to give the requisite leverage for enabling the compressed spring more easily to restart the vehicle, substantially as described and shown. 6th. The conical frictional clutch and means for operating the same from the bar *p*, as described and as illustrated in sheet 4. 7th. The means for throwing both front and rear clutches into gear simultaneously and thus retarding stopping and restarting the car through both axles, substantially as described and as illustrated in sheet 4.

No. 39,643. Egg Tray Machine.

(Machine pour boîtes à œufs.)

William S. Lowe, Lima, Ohio, U.S.A., 3rd August, 1892; 6 years.

Claim.—1st. In an egg tray machine, a sprocket chain composed of links *d*, having plates *L* attached thereto, adjustable links *d*¹, made in two parts screwing together, as shown, and straight links *d*² connecting the adjustable links with the tray links, substantially as described. 2nd. In an egg tray machine, the combination of a sprocket chain, platform plates pivoted thereto, and guides between which such plates slide, substantially as described. 3rd. In an egg tray machine, the combination of the sprocket chain *D*, composed of a tray, straight and adjustable links, square plates *E* attached to such chain, and guides *F*, *F* extending from top to bottom of the machine, between which the plates *E* move, substantially as described. 4th. In an egg tray machine, a platform constructed the full size of the tray to be made, and provided with recesses along two of its opposing sides, substantially as described. 5th. In an egg tray machine, the combination of the rock shaft *H*, arm *I*, discharging bars *G*, *G*, having fingers *g*, *g*, platform *E*¹, having recesses *e*¹, and means for rocking the shaft, whereby the fingers *g*, *g*, pass through the recesses to discharge the tray, substantially as described. 6th. In an egg tray machine, the combination of a sprocket chain, square platform plates *E* pivotally attached thereto, and flat guide bars *F*, *F*, between which such plates move, substantially as described.

No. 39,644. Electrical Heating Apparatus for Railway Trains. (Appareil de chauffage électrique pour chars de chemin de fer.)

Mark Wesley Dewey, Syracuse, New York, U. S. A., 3rd August, 1892; 6 years.

Claim.—1st. The combination, with an electrically propelled vehicle, receiving its current from stationary supply conductors along the path of the vehicle, and a conductor on the vehicle having its terminals connected with movable contacts on said stationary conductors, of an electric heating device carried on the vehicle in contact with or in proximity to one of said stationary conductors, for the purpose set forth. 2nd. The combination, with an electrically propelled vehicle receiving a continuous current for stationary supply conductors along the path of the vehicle, and a conductor on the vehicle having its terminals connected with movable contacts on said stationary conductors, of a continuity preserving current pole changer, operated by the electric motor propelling the vehicle and in circuit with said motor, a portion of the vehicle conductor having its current therein alternated by the pole changer, a transformer having its primary coil in circuit with the portion of the conductor wherein the current is alternated and its secondary coil in circuit

with a heating device, and a device for cutting out or in the said heating device, as set forth. 3rd. In combination, with an electrically propelled vehicle receiving a continuous current from stationary supply conductors along the path of the vehicle and a conductor on the vehicle having its terminals connected with movable contacts on said stationary conductor, two or more suitable electric heating devices in series, and a shunt containing a making and breaking device around each of said heating devices, as set forth. 4th. In combination, with an electrically propelled vehicle, the supply conductor on the vehicle, an electric heating device connected with said supply conductor, and a direct low resistance shunt path for the current around said heating device containing a circuit maker and breaker. 5th. The combination, with an electrically propelled vehicle and the supply conductors and motor thereon, of a continuity preserving current pole changer operated by the electric motor propelling the vehicle and in circuit with said motor, a portion of the vehicle conductor having its current therein alternated by the pole changer, a transformer having its primary coil in circuit with the portion of the conductor wherein the current is alternated and its secondary coil in circuit with a heating device, and a device for cutting out or in the said heating device, as set forth. 6th. The combination, of a movable vehicle, a stationary electric conductor along the path of said vehicle, and a suitable heating device supported on the vehicle in contact with or in close proximity to said stationary conductor. 7th. The combination, with a movable contact or trolley of an electrically propelled vehicle, of an electric heating device on said movable contact or trolley, for the purpose of heating the same. 8th. The combination, with a movable contact or trolley, of an electrically propelled vehicle, of a suitable heating device carried by said trolley in contact with or in proximity to a stationary supply conductor, as set forth. 9th. An electric heating device, consisting of a thin strip of metal coiled or formed spirally, a divided core of metal within the said heating device, means for connecting and disconnecting the parts of the core to shunt the heating device, and a suitable shield or case enveloping said device, as set forth. 10th. The combination, with a vehicle, stationary electric supply conductors along the path of said vehicle, a source of continuous current connected thereto, and a conductor on the vehicle having its terminals connected with movable contacts on said stationary supply conductors, of a continuity preserving current pole changer and an electric motor for operating the same both upon the vehicle and in circuit with the vehicle conductor, a portion of the vehicle conductor having its current therein alternated by the pole changer, a transformer having its primary coil in circuit with a portion of the conductor wherein the current is alternated, and its secondary coil in circuit with a heating device, and means for cutting out the said heating device, as set forth. 11th. The combination, with an electrically propelled vehicle receiving a continuous current from stationary supply conductors along the path of the vehicle and a conductor on the vehicle having its terminals connected with movable contacts on said stationary conductors, of a continuity preserving current pole changer operated by the electric motor propelling the vehicle and in circuit with said motor, a portion of the vehicle conductor having its current therein alternated by the pole changer, a transformer having its primary coil in circuit with the portion of the conductor wherein the current is alternated and its secondary coil in circuit with a heating device, means for cutting out the said heating device, and suitable means also on the vehicle for throwing the motor out of gear with the driving axle of the vehicle, so that the motor may operate the pole changer when the vehicle is at rest, as set forth.

No. 39,645. Shears. (Forces.)

Martin L. Tolbert, Fort Shaw, Montana, U.S.A., 3rd August, 1892; 6 years.

Claim.—1st. The combination, with opposite shear shanks, each provided with a bearing ear projecting outwardly therefrom, of opposite levers pivotally mounted thereon and extended in rear of their pivots to form hand grips or handles, and a link pivotally connecting the levers at their forward ends and in front of their pivots, substantially as specified. 2nd. The combination, with the opposite shanks provided with opposite bearing ears, of oppositely pivoted operating levers extending in rear of their pivots to form hand grips, and opposite links pivoted at their ends to the forward ends of the levers and embracing the opposite shear blades, and serving to maintain them in contact with each other, substantially as specified. 3rd. The combination, with the shanks 1, the intermediate rear spring 2, and the blades 3, of the coiled spring mounted between the shanks at the heels of the blades, the perforated bearing ears mounted on the shanks at their forward ends and in rear of the supplemental spring, the operating levers pivoted in the ears and extended at each side of their pivot point, and the opposite links embracing the blades and pivoted at their ends to those of the levers, substantially as specified.

No. 39,646. Apparatus for the Manufacture of Salt.

(Appareil pour la fabrication du sel.)

John Runciman, Goderich, Ontario, Canada, 3rd August, 1892; 6 years.

Claim. 1st. In apparatus for the manufacture of salt, the combination of an outer continuous and stationary annular evaporating pan or trough, means for heating said pan arranged to extend around

and beneath it, and a drying table arranged to occupy a concentric position within or on the inside of the evaporating pan, substantially as specified. 2nd. The combination of the annular evaporating pan or trough A, the concentric drying table E, having central outlet apertures *b*, and the series of rakes H, having oblique blades *d* and arranged for rotation over and around said table, essentially as described. 3rd. In combination with the annular evaporating pan or trough A, and the concentric drying table E, having central outlet apertures *b*, the series of rakes H, having oblique blades *d*, and arranged to rotate over and around said table and within the pan, and the plows or scoops *c* carried by said rakes, substantially as specified.

No. 39,647. Explosive. (Explosif.)

Stephen H. Emmens, Emmens, Pennsylvania, U.S.A., 3rd August, 1892; 6 years.

Claim.—The process of manufacturing explosives, consisting in fusing a suitable hydrocarbon substitution derivative, as trinitrophenol, adding thereto a suitable alkaline nitrate, as nitrate of soda, continuing a sufficient degree of heat until actual liquefaction of the mixture is attained, and then allowing the same to cool, substantially as hereinbefore specified.

No. 39,648. Explosive. (Explosif.)

Stephen H. Emmens, Emmens, Pennsylvania, U.S.A., 3rd August, 1892; 6 years.

Claim.—1st. The within described process of making explosive compounds having as a base the new crystalline acid herein described, which process consists in fusing said new crystalline acid by heat in the presence of an allied nitro-hydrocarbon, as dinitrobenzene, incorporating a pulverized oxidant with the liquid combustible so produced, and then permitting the mixture to cool, substantially as hereinbefore specified. 2nd. In the within described process of making explosive compounds having as a base the new crystalline acid herein described, the method of reducing the fusion point of such acid which consists in the admixture therewith of an allied nitro-hydrocarbon, as dinitrobenzene, substantially as hereinbefore specified.

No. 39,649. Band Cutter and Feeder.

(Coupe-hart et alimentateur.)

William Plowright, Blandinsville, Illinois, U.S.A., 3rd August, 1892; 6 years.

Claim.—1st. The combination, with the frame and the endless aprons arranged therein in alignment with each other, of the slotted plate between said aprons, the rotating shaft journaled across said plate, and the radial blades carried thereby and playing through the slots in the plate, substantially as described. 2nd. The combination, with the frame, the aprons therein, and the standards L at the sides of the frame, said standards having bifurcated upper ends forming arms provided with perforations M, of the bearings N, adjustable vertically between said arms, pins O, passing through said perforations above and below the bearings, the rod P, sliding longitudinally in said bearings, and having teeth A, and means substantially as described, for imparting a longitudinal reciprocation to said rod, as and for the purpose set forth. 3rd. The combination, with the frame, the aprons therein, and the standards L at the sides of the frame, said standards having bifurcated upper ends forming arms provided with perforations M, of the bearings N, adjustable vertically between said arms, pins O passing through said perforations above and below the bearings, the rod P, sliding longitudinally in said bearings, and having teeth A, and upwardly projecting pin R, the telescopic rotating shaft U, journaled in the side of the frame, the crank T at the upper end thereof, and pitman S connecting said crank and pin, as and for the purpose set forth.

No. 39,650. Method of Making Gas.

(Méthode de faire du gaz.)

John Henry Ferguson, Liverpool, Lancaster, England, 3rd August, 1892; 6 years.

Claim.—1st. In the manufacture of gas, wherein the gas is heated after distillation (said gas being made in closed retorts), the herein described improvement connected with such manufacture, consisting in heating such gas, after distillation, by the heating retort heating gases after they have been used to heat such coal distilling retorts. 2nd. In the manufacture of gas, wherein the gas is heated after distillation, arranging the secondary heating retort in a space separate from the distilling retorts and leading to and utilizing in such space the waste and used gases from the retort bench, or a portion thereof, to heat such secondary retort for the purposes specified. 3rd. In the manufacture of gas, wherein the gas is heated after distillation; arranging the heating or secondary heating retort in a space separate from the distilling retorts, and leading to and utilizing in such space the waste and used gases from the retort bench or a portion thereof, to heat such secondary retort, and employing valves or dampers on or in the passages by which heating gases pass, whereby more or less of such gases are caused to act on said secondary retort; for the purposes specified. 4th. In apparatus for making gas in which a secondary gas heating retort is employed, arranging such secondary retorts outside the roof or arch of the bench and

within a chamber, and providing passages from such bench for conveying all or a portion of the gases from the bench to such secondary chamber; substantially as and for the purposes described. 5th. In the manufacture of gas, subjecting the coal in the retorts to and distilling it at a high temperature of about from 1800° to 2000° Fahrenheit, and subsequently heating the gas so produced in a secondary retort heated to a temperature of about from 1000° to 1300° Fahrenheit; for the purposes specified. 6th. The herein described method of making gas, consisting in distilling coal in a bench or a plurality of closed retorts such as A; conveying the combined volumes of gas from such retorts directly into a secondary retort such as D, and before tarry vapours condense; and heating such gases in such retort; for the purposes specified. 7th. The herein described method of making gas, consisting in distilling coal in closed retorts; conveying the gas so made directly in a secondary retort, and before tarry vapours condense; and heating such gas in such retort; also introducing into and distilling tar in such retort; and then cooling the gases as they leave such retort; for the purposes described. 8th. In apparatus for making gas from coal in which a secondary heating retort D, is employed; disposing a chamber C, between the distilling retorts, and the secondary heating retorts, and providing a valve or valves on or in such chamber, or on the pipes connected therewith, said pipes and chamber being so disposed with relation to the secondary retort, that the gases from the distilling retorts pass so rapidly into the secondary retort that the tarry vapours in the gas do not condense before they arrive in such secondary retort; substantially as and for the purposes described. 9th. The combination of the gas pipes *a*¹, horizontally arranged chamber C, and secondary retort D, said retort and chamber being disposed substantially in the same horizontal plane and disposed and adapted to operate substantially as and for the purposes set forth. 10th. The combination of secondary heating retort D with cooling outlet pipe E said retort D being of return form, the gas being caused to enter at the front end or mouth, travel through same, and then leave at said mouth and enter and pass through said cooling pipe; substantially as and for the purposes set forth. 11th. The combination of secondary retort D, and cooling device K arranged and adapted to operate as and for the purposes specified. 12th. The combination of secondary retort D, cooling device K, and tar introducing device *k*², arranged and adapted to operate as and for the purpose set forth.

No. 39,651. Vessel for Cooking, Smelting and Evaporating. (*Ustensil pour cuire, fondre et évaporer.*)

Theodore Frederking, Assignee of William Schubert, both of Leipzig, Saxony, 4th August, 1892, 6 years.

Claim. A cooking, smelting or evaporating vessel having solid walls made of a good conductor of heat, into which is embedded a metallic heating tube, or a system of such tubes adapted to be connected with a supply of heating fluid or to form part of a continuous circulating apparatus, substantially as described.

No. 39,652. Machine for Bashing, Notching and Stamping Bread. (*Machine pour entailler et estamper le pain.*)

Jonah Joel House, Birmingham, England, 4th August, 1892, 6 years.

Claim. 1st. In an improved machine for bashing and notching bread, the mould E, containing knives *e*², through which the loaf is forced, substantially as and for the purpose herein set forth and shown. 2nd. In an improved machine for bashing and notching bread the basher *d*¹, in combination with the mould for bashing and notching bread, substantially as herein set forth and shown. 3rd. The improvements in and connected with machines for bashing, notching and stamping bread, consisting of the stamping arrangement, such as *F*³, for stamping the bread at the same time as it is being bashed and notched, substantially as herein set forth and shown upon the accompanying drawing.

No. 39,653. Brake for Railway and Tramway Vehicles. (*Frein pour voitures de chemin de fer et tramway.*)

Luke Roberts and James Wheaton, Bradford, York, England, 4th August, 1892, 6 years.

Claim. 1st. In railway and tramway vehicles, the combination of brake mechanism adopted to be automatically applied by the weight of the vehicle, with mechanism operated by the draw bar or equivalent attachment arranged to take off the brake when power to move the vehicle is applied thereto, substantially as herein shown and described. 2nd. In railway and tramway vehicles constructed on the bogie principle, the combination, with the circular attachment connected to the brake levers of each bogie, of a coupling loosely mounted upon and attached to the peripheries of said circular attachments, and also connected to the draw bar of the vehicle, substantially as herein shown and described.

No. 39,654. Guard for Cash Drawers.

(*Garde pour caisse de comptoir.*)

Hugo Brav, Berlin, Prussia, 4th August, 1892; 6 years.

Claim.—Apparatus for preventing unauthorized opening of drawers in shop counters, consisting in the combination of two or more two armed levers or eccentrics *a*, *a*¹, *b*, *b*¹, arranged at the side of the drawer, and subjected to the action of a spring or weight, the arms of said levers being connected with one another, and with the drawer, and with a foot lever *F*, or pulling cord, in such a manner that on pressing down the former or pulling down the latter, the drawer is brought into the open position, and on release of the same returns automatically into the closed position, substantially as described.

No. 39,655. Pole for Electric Lights.

(*Poteau pour lumière électrique.*)

Oliver Spanner, Toronto, Ontario, Canada, 4th August, 1892; 6 years.

Claim.—In combination, with the electric light pole, an outwardly extending arm connected to the upper or top end of the pole, an electric lamp suspended from the outwardly extending arm and adapted to be raised and lowered, a supplemental arm rigidly connected to the pole, and arranged at an angle to the outwardly extending arm, a guide rope connected to the electric light lamp, and to the supplemental arm in such a manner as to draw the lamp in an inclined direction whilst being lowered, substantially as described.

No. 39,656. Solvent for Gums. (*Dissolvent pour gommes.*)

William Read, Jr., Needham, Massachusetts, U.S.A., 4th August, 1892; 6 years.

Claim.—1st. A solvent for gums, composed of coal tar naphtha, petroleum naphtha, mixed in about equal parts, and a spirit such as wood or grain alcohol, in the proportion of about one part of the spirit to about eight parts of the mixture of coal tar naphtha and petroleum naphtha, as set forth. 2nd. The improved method of making a solvent, consisting in adding to a mixture of coal tar naphtha and petroleum naphtha, in about equal parts, a smaller proportion of wood or grain alcohol, and thereby precipitating the described by-product, the proportion of the alcohol being about one-eighth of said mixture, and then adding more alcohol to the residuum, as set forth.

No. 39,657. Hot Air Furnace. (*Calorifère à air.*)

Martin Koehler, Toledo, Ohio, U.S.A., 4th August, 1892; 6 years.

Claim.—1st. In a hot air furnace, the combination, with the fire-box and combination chamber, of a main escape pipe opening into said chamber, a series of smaller escape pipes, and ducts connecting the two sets of pipes, as and for the purpose set forth. 2nd. In a hot air furnace, the combination, with the fire-box and combustion chamber, of a main escape pipe opening into said chamber, a series of inverted U-shaped escape pipes, and ducts connecting the two sets of pipes, as and for the purpose set forth. 3rd. In a hot air furnace, the combination, of the main and auxiliary escape pipes arranged in separate series and ducts connecting the said series, as and for the purpose set forth. 4th. In a furnace, a combustion chamber, a hot air conduit in communication therewith and extending above the same, and provided with oppositely arranged branch conduits communicating with a hot air pipe arranged one upon each side of the combustion chamber, and uniting at the smoke flue in rear of the furnace. 5th. In a furnace, a combustion chamber, provided with grate bars formed of a main section, and a removable top section. 6th. In a furnace, one or more circular grates, having pivoted relation in inverse order, whereby the same may be revolved vertically within the combustion chamber or transversely of the same. 7th. In a furnace, a combustion chamber, one or more circular grates arranged therein, and having a connection with a series of levers by which to dump the grate or give the same a rotative movement at will. 8th. In a furnace, a combustion chamber, an insertible lining arranged therein, composed of a series of plates, having overlapping flanges arranged integrally therewith, and a portion arranged at right angles thereto, thereby forming an air space between the outer casing and combustion chamber. 9th. In a furnace, a combustion chamber, provided with a removable lining composed of insertible overlapping sections, one series of sections arranged upon the upper angled side of the preceding section, and a base being insertibly secured in a groove or way arranged integrally therewith. 10th. In a furnace, a hopper formed with a depending portion having right angled ways formed integrally therewith, in combination, with insertible hopper sections formed with co-acting horizontal flanges adapted to rest thereon, and means for holding the same in place.

No. 39,658. Cigar. (*Cigare.*)

Mona Lesser, Montreal, Quebec, Canada, 4th August, 1892; 6 years.

Claim. 1st. A cigar having a recess or indentation at the inhaling end and a funnel of metal or other rigid material inserted in and forming such recess or indentation, for the purposes set forth. 2nd. A binding plate for two or more cigars consisting of a base plate

and two or more funnels carried thereby, as set forth. 3rd. A binding plate for two or more cigars consisting of a base plate and two or more hollow projections carried thereby, as set forth.

No. 39,659. Boiler Furnace (*Fourneau de chaudière.*)

Earl Andrews Wheeler, Sharon, Pennsylvania, U.S.A., 4th August, 1892; 6 years.

Claim.—1st. In combination with a series of boilers and interposed stacks of connecting pipes, a furnace and an interposed absorbent material surrounding the stacks to retard the escape of the heat between the furnace and the place of exit, said material surrounding the stacks of pipes, substantially as described. 2nd. In combination with a set of boilers, with a series of connecting pipes between, and with a furnace for heating said boilers, said boilers resting upon arches, fire brick spanning the spaces at the top of the arches, with spaces between, and a series of fire brick placed in tiers at right angles to each other upon the arched brick, said brick encircling the pipes and interposed between the furnace and the exit, substantially as described.

No. 39,660. Wheel. (*Roue.*)

Harry J. Swindley, 12 Castellan Gardens West, Barnes, Surrey, England, 4th August, 1892; 6 years.

Claim.—1st. In a wheel for velocipedes and other carriages, the combination, with a hollow tyre permanently fixed to the rim and having an air tube within it, of one or more holes or slots in the rim capable of allowing the air tube to be withdrawn from the hollow tyre without disturbing the connection of the said boiler tyre with the rim of the wheel, as and for the purpose set forth. 2nd. In a wheel for velocipedes and other carriages, the combination, with a hollow tyre fixed to the rim of the wheel, of an air tube preferably made in the form of a bag, *i.e.*, with closed ends, of one or more holes or slots in the rim capable of allowing the air tube to be inserted in and withdrawn from the said tyre, and of one or more plugs or plates adapted to close the said holes or slots in the rim of the wheel, as set forth. 3rd. In a wheel for velocipedes and other carriages, the combination, with a hollow tyre fixed to the rim of the wheel, of an air tube made in the form of a bag, *i.e.*, with closed ends, and having an inflation tube located at or near one end thereof, of one or more holes or slots in the rim capable of allowing the air tube to be inserted in and withdrawn from the hollow tyre, and of one or more plugs or plates adapted to close the said holes or slots in the rim of the wheel, one of the said plugs or plates having a hole or its equivalent for the passage of the inflation tube, as set forth. 4th. In a wheel for velocipedes and other carriages, the combination, with a hollow tyre permanently fixed to the rim of the wheel, of an air tube having closed ends and a continuous tape of non-stretchable material fixed to it, and an inflation tube located in any suitable position, of one or more holes or slots in the rim capable of allowing the air tube to be inserted in and withdrawn from the hollow tyre, and of one or more plugs or plates adapted to close the said holes or slots in the rim of the wheel, one of the said plugs or plates having a hole or its equivalent for the passage of the inflation tube, as set forth. 5th. In a pneumatic air inflated tyre for the wheels of velocipedes and other carriages, the combination of the rim of the wheel having one or more holes or slots therein, of an outer cover or covers of canvas or rubber, or their equivalents, either combined or separate, having one or more holes or slots therein, of an air tube having closed ends and adapted to be placed within the hollow tyre formed by the outer cover or covers, and of one or more plugs or plates or their equivalents adapted to close the said holes or slots, all combined, arranged and operating as and for the purpose set forth. 6th. In a pneumatic or air inflated tyre for the wheels of velocipedes and other carriages, the combination, with the rim of the wheel having one or more holes or slots therein, of a hollow tyre having one or more holes or slots therein, of one or more bag-shaped air tubes, each having closed and bevelled or chamfered ends and a continuous tape of non-stretchable material in any convenient part thereof, and of one or more plugs or plates, or their equivalents, adapted to close the said holes or slots, all combined, arranged and operating as for the purpose set forth. 7th. In a pneumatic or air inflated tyre for the wheels of velocipedes and other carriages, the combination with a hollow tyre having one or more holes or slots therein, of a rim having one or more holes or slots therein, of one or more plugs or plates adapted to close the said holes or slots, and of two or more air tubes, each having closed ends, and each connected to the other by a junction pipe, all combined, arranged and operating as and for the purpose set forth. 8th. In a wheel for velocipedes and other carriages, the combination with a hollow tyre fixed to the rim of the wheel, of one or more air tubes made in the form of bags *i.e.* with closed ends, and each having an inflation tube located at or near one end thereof, of two or more holes or slots in the rim and in the hollow tyre capable of allowing the said air tubes to be inserted in and withdrawn from the said tyre, and of the continuous internal or external plate or second rim, adapted to close the said holes or slots in the main rim of the wheel, as set forth. 9th. In a wheel for velocipedes and other carriages, the combination with the rim of the wheel having one or more holes or slots therein, of a hollow tyre mounted on a second rim or continuous plate having one or more holes or slots therein, and capable of being moved circumferentially on the rim of the wheel and of being fixed thereto, and of one or more air tube, preferably having closed ends, all combined, arranged and

operating, as set forth. 10th. In a pneumatic or air inflated tyre giving access to the air tube or tubes, without disturbing the cover or covers forming the hollow tyre, or removing the same from the rim, by forming in the rim and in the tyre one or more holes or slots, each of a sufficient size to allow the air tube or tubes when either partially or wholly deflated to pass therethrough, and each provided with a closing plug or plate, or their equivalents, as and for the purpose hereinbefore described, and illustrated by the accompanying drawings. 11th. In a pneumatic or air inflated tyre, the use of an air tube having sealed or closed ends so that it forms a bag, and provided with a suitable valve for inflation and deflation, as and for the purpose set forth. 12th. In a pneumatic or air inflated tyre, attaching to the air tube preferably to that part which comes in contact with the concave face of the rim, a tape or strip of canvas or other non-stretchable material to prevent the said air tube from stretching, and so facilitates its withdrawal from and insertion in a hollow tyre, as set forth. 13th. In a pneumatic or air inflated tyre, the use of an air tube having sealed or closed ends, bevelled or chamfered so that the closing walls are not at right angles to the thread of the wheel, and a tape or strip of canvas or other non-stretchable material fixed along its entire length, as and for the purposes set forth. 14th. In a pneumatic or air inflated tyre, having an air tube made in two or more lengths placed end to end in the said tyre, connecting these lengths of a tube to one another, so that the pressure may be the same in each length by means of small pipes or tubes passing out through holes in the rim, and connected together by a junction pipe, as set forth. 15th. In wheels for velocipedes and other carriages having pneumatic or air inflated tyres, the air tubes of which are adapted to be withdrawn through holes in the rims, connecting the air tubes to the plugs or plates adapted to close the holes in the rims of the wheels, by means of tubular bolts having flanged heads adapted to fit within the air tubes and bind them to the closing plugs or plates, as set forth.

No. 39,661. Filtering Machine.

(*Machine à filtrer.*)

The Crocker Filtering Company, assignee of James Allen Crocker, all of Brooklyn, New York, U.S.A., 4th August, 1892; 6 years.

Claim.—1st. The combination with a filtering machine having hollow heads, of a valve rod L, carrying a pair of valves P, P, and a tubular connection W, surrounding the rod L, and provided with a pair of valves N, N, both pair of valves being operated simultaneously or independently of each other, as and for the purpose described. 2nd. A valve rod L, having a pair of quadrantal valves P, P, secured in reversed or diametrically opposite positions thereto, a hollow sleeve connection W, having a pair of circular valves N, N, secured thereto, in combination with a filtering machine, having two groups of perforated tubes G, and two heads D, D, with sub divided water passages *h, h*, leading to said tubes, as and for the purpose described. 3rd. In a filtering machine, the perforated partition plates T, T, in combination with and interposed between the two groups of perforated pipes G, as and for the purpose set forth. 4th. In a filtering machine, having two groups of perforated tubes G, G, located diametrically opposite each other; a pair of perforated sectional division plates T, T, and located one on each side of the centre of the machine, and between it and the corresponding group of perforated tubes G, as and for the purpose specified.

No. 39,662. Water Filtration System.

(*Système de filtration de l'eau.*)

The Crocker Filtering Company, assignee of James Allen Crocker, all of Brooklyn, New York, U.S.A., 4th August, 1892; 6 years.

Claim.—1st. In combination with a water supply and a filtering apparatus; one or more interposed precipitating basins with their inlet and outlet conduits or pipes, substantially as described. 2nd. In combination with a water supply and a battery of filters; one or more interposed precipitating basins with their inlet and outlet conduits or pipes, substantially as set forth. 3rd. A precipitating solution tank in combination with a water supply, a battery of filters, and one or more interposed precipitating basins with their inlet and outlet conduits or pipes, as specified. 4th. An organized filtering system consisting of a water supply, a battery of filters, one or more interposed precipitating basins with their inlet and outlet conduits or pipes, and one or more pumping and lifting stations, with their distributing reservoirs and connecting pipes, substantially as described. 5th. A precipitating basin with an inlet at its bottom and a delivery outlet near the level of the water therein, and at a maximum distance therefrom, in combination, with a water supply and a battery of filters, as described. 6th. A water supply, a battery of filters with a building thereover, one or more interposed precipitating basins with their inlet and delivery pipes, a precipitating solution tank located at a point in the building nearest the inlet of the basin supply, the pipe connecting them, one or more pumping, lifting and reservoir distributing stations with the pipes and conduits leading from the filtering battery to said stations, all constructed to operate substantially in the manner and for the purpose set forth. 7th. A water supply, one or more pumping, lifting and reservoir distributing stations with the pipes or conduits connecting them and a filtering plant interposed between the supply and the pump station or stations, substantially as described.

No. 39,663. Apparatus for Making Gelatine Capsules.*(Appareil pour faire des capsules de gelatine.)*

The Krehbiel Capsule Company, assignee of John Krehbiel, all of Kalamazoo, Michigan, U.S.A., 4th August, 1892; 6 years.

Claim.—1st. In a plant for manufacturing gelatine capsules, the combination of a number of independent mold plates having mold pins, upon which the capsules are formed, a way upon which said mold plates are caused to travel, and mechanical devices arranged at intervals on the way, and adapted to carry out automatically the different steps in the process of manufacture, substantially as described. 2nd. A plant for manufacturing gelatine capsules, comprising a number of mold plates provided with mold pins upon which the capsules are formed, a way upon which said mold plates are caused to circulate, and mechanically deiced, substantially as described, for dipping the mold pins into gelatine, cutting off and removing the capsules, and greasing the mold pins, said devices being arranged stationarily at intervals on the way, and adapted to operate upon the mold plates on the way. 3rd. A plant for manufacturing gelatine capsules, comprising a number of circular mold plates, provided with mold pins upon which the capsules are formed, a way upon which said mold plates are caused to circulate, and provided with inclined storage ways, communicating with said way and mechanical devices located at intervals on the way, and adapted to carry out automatically the different steps of dipping the mold pins into the gelatine, cutting off, and removing the capsules, and greasing the mold pins. 4th. A plant for manufacturing gelatine capsules, comprising a number of circular mold plates, provided with mold pins upon which the capsules are formed, a way upon which said mold plates are adapted to circulate, said way having two inversely inclined portions upon which the mold plates are adapted to roll by gravity, and vertical portions connecting the ends of the inclined portions, and provided with mechanical elevating devices for the mold plates, inclined storage ways communicating with the inclined ways, and devices located at intervals in the way, and adapted to automatically carry out the different mechanical steps of dipping the mold pins into the gelatine, cutting off the gelatine capsules, removing them from the mold pins and greasing the mold pins, all substantially as described. 5th. In a plant for manufacturing gelatine capsules, a dipping machine comprising an intermittently revolving reel, provided with ways upon which the mold pin plates are held and adapted to be moved, a gelatine pan placed between the reel and provided with raising and lowering mechanism, stationary ways communicating with the ways on the reel, and mechanical devices for controlling the feed and the discharge of the mold plates onto and from the reel, substantially as described. 6th. In a plant for manufacturing gelatine capsules, a dipping machine comprising the intermittently revolving reel, provided with ways for holding the mold pin plates, the stationary ways communicating with the ways on the front and rear side of the reel respectively, the intermittently rising and falling dipping pan under the reel, the feeding device for charging the reel with mold plates from the stationary way on one side, and the endless cable for discharging the dipped mold plates from the reel and rolling them on the stationary way on the other side of the reel. 7th. In a plant for manufacturing gelatine capsules, a capsule cutting off machine consisting of the way in which the mold pin plates are adapted to be moved and locked in position, a frame placed adjacent to and in front of the mold pin plates and carrying a series of revolving cutters, and mechanism for imparting a rotary reciprocating motion to said frame. 8th. In a plant for manufacturing gelatine capsules, a capsule cutting off machine consisting of the way provided with an intermittent feeding device for the mold pin plates and devices for locking the same in position, and adjustable rotary reciprocating frame placed adjacent to and in front of the mold pin plates and carrying a series of revolving cutters, and a series of revolving scrapers. 9th. In a plant for manufacturing gelatine capsules, a machine for removing capsules from the mold pins, consisting of the way in which the mold pin plates are adapted to be moved, a reciprocating frame carrying clamping jaws adapted to engage upon the mold pins, and a reciprocating frame carrying spreader bars engaging between the clamping jaws. 10th. In a plant for manufacturing gelatine capsules, a machine for greasing the mold pins, consisting of the way in which the mold pin plates are adapted to be moved, a reciprocating frame carrying the clamping jaws adapted to engage upon the mold pins, a reciprocating frame carrying spreader bars engaging between the clamping jaws, and a greasing cloth having folds secured between the clamping jaws.

No. 38,664. Surgical Bandage. (Bandage chirurgical.)

Dr. Gottlieb Christian Wilhelm Breiger, Osterode, Prussia, German Empire, 4th August, 1892; 6 years.

Claim.—1st. The manufacture of material suitable for bandages, by working or forming pure hygroscopic wadding, as for example, cotton wool into thin layers or sheets, and arranging said layers or sheets one above another, and impregnating each of them with powdered plaster of Paris, substantially as described. 2nd. The new manufacture of bandage material, consisting of layers of wadding impregnated with powdered plaster of Paris, the outer layers being each provided with a protective non-hygroscopic layer or coating, as hereinbefore described.

No. 39,665. Aerial Navigation Machine.*(Machine pour la navigation aerienn.)*

Frederick William Zimer, Coleman Street, London, England, 4th August, 1892; 6 years.

Claim.—1st. In an air ship, the combination, of a detachable aerostatic or supporting balloon attachment and an adjustable supporting main sail composed of the parts 12 to 23, the covering fabric 23, of the aerostatic attachment being capable of being released by the parts 24, 25, 26 and 72, so that such fabric will when required also act as an attached parachute, and the main sail being also adjustable by such means relatively to a depending car, tail sails 27, hinged or similarly connected to the rear of the main sail and adjustable relatively thereto by the parts 54, 55, 58 to 71, and 77, a car 28, depending from the main sail fitted with detachable supporting wheels 51, and attached supporting castors 80, a rudder 29, and actuating means 43 to 48, 50 and 52, an adjustable air propeller 30, 32 to 36, and telescopic adjustable shaft 31, 37, 38, adjustable relatively to the main sail and car, and driving mechanism 40, 41 and 42, and conjunctively operating combined hand and pedal driving apparatus 39, 46, 53 to 57, 75, 76, 81, and an equalizing fly wheel 84, as set forth. 2nd. In an air ship, a detachable aerostatic attachment, in combination, with an under attached supporting main sail normally acting conjunctively therewith as a supporting balloon, but formed with a covering fabric 23, capable of being released by connecting cords, so that such fabric can, when required, be used as an attached parachute to retard the descent of the air ship, as set forth. 3rd. In an air ship, in combination, an adjustable main sail, composed of the parts 12 to 22, and forming the under part of an aerostat or balloon, the covering fabric of which can be released so as to be used as an attached parachute, with adjustable tail sails 27, hinged or similarly connected to the main sail and adjustable relatively thereto by the parts 54, 55, 58 to 71, and 77, as set forth. 4th. In an air ship, in combination, the adjustable propeller mechanism 30 to 32, and 36 to 38, driving mechanism 40 to 42, and conjunctively operating combined hand and pedal driving apparatus 39, 46, 53 to 57, 75, 76 and 81, and an equalizing fly wheel 84, as set forth. 5th. In an air ship, the application of conjunctively operating combined hand and pedal driving apparatus 39, 46, 53 to 57, 75, 76 and 81, and an equalizing fly wheel 84, as set forth. 6th. The construction of the main sail, tail sails, propeller blades and car frame, with tubular and lattice framing rivetted or secured at the several intersections and with an inclosing or covering fabric, as set forth. 7th. The means described (consisting of the parts 32 to 36), of detachably securing the propeller blades to their shaft. 8th. The means described (consisting of the parts 54, 55, 58 to 71, and 77), of adjusting the tail sails relatively to the main sail to which they are attached. 9th. Constructing the framing of the air ship with bearings to engage with supporting wheels on which it normally rests, and which will run along therewith while resting on the ground, but will become automatically detached as the air ship rises, as set forth. 10th. The hereinbefore described improved arrangement of combined hand and treadle actuating mechanism in which the handle bar is so mounted as that its lateral turning movements about the axis of its vertical support are utilized for steering or analogous directing purposes.

No. 39,666. Bank Punch. (Punch de banque.)

Alvin V. Lane, Dallas, Texas, U.S.A., 4th August, 1892; 6 years.

Claim.—1st. In a bank punch, the combination of a series of pairs of levers, each pair provided with a punch and die, a table for holding the paper to be punched, and means, substantially as described, for operating the punching levers. 2nd. In a bank punch, the combination of a series of pairs of levers provided with punches, a series of spring pressed rods connected with the pairs of levers and adapted to operate the same, feeding mechanism consisting of a toothed feed wheel, a bar provided with pins adapted to engage the teeth of the feed wheel, a frame connected with the said bar and arranged to be moved by either of the lever operating rods, and feed rolls connected with the toothed wheel, substantially as specified. 3rd. In a bank punch, the combination, with the punching devices, of a spring pressed clamping plate for holding the paper to be punched, and a shaft provided with two arms, one for moving the clamping plate and the other for operating the star punch, substantially as specified. 4th. In a bank punch, the combination of the lever E, provided with the punch *g*, the lever F, having the die *h*, the spring pressed rod *j*, the bar *s* pivoted to the said rod *j* and to a fixed support, the shaft M having arms *g*¹, *h*¹, the table B provided with the aperture *c*, the clamping plate C provided with the arm *d*, and the spring *f* arranged to press the arm *d*, substantially as specified. 5th. In a bank punch, the combination of the punching levers E, F, provided with punches *g* and dies *h*, the rods *j* having the ears *q*, the frame G, the bar L, the toothed wheel K and the rollers H, I, substantially as specified.

No. 39,667. Cabinet for Holding Duplicating Apparatus. (Commode pour contenir des appareils à duplicité.)

Marc Asher Levy, New York, State of New York, U.S.A., 4th August, 1892; 6 years.

Claim.—1st. The combination, with a duplicating apparatus such as described, of a cabinet therefor provided with suitable means upon its top or cover for holding a duplicating slab in position thereon, and provided with a receptacle below said cover for receiving said

slabs, substantially as shown and described. 2nd. The combination, with duplicating slabs such as described, of a cabinet having two or more of its sides extended above its top or cover, provided with one or more shelves with side grooves below said cover, substantially as shown and described. 3rd. The combination, with duplicating slabs such as described, of a cabinet having two or more of its sides extended above its top or cover, having a suitable lid at its open end, and provided with one or more shelves below said cover, substantially as shown and described. 4th. The combination, with a duplicating slab such as described, of a cabinet therefor constructed with two or more of its sides extended above its top or cover, having a lid at its open end, said lid being hinged to its top or cover, and said cabinet being provided with one or more receptacles below its top or cover, substantially as shown and described. 5th. The combination, with a duplicating slab such as described, of a cabinet having extensions at two or more of its sides, provided with one or more shelves, with flanges D above said shelves, and provided with a lid at its open end, said lid being hinged to the top or side of said cabinet, and provided with a spring latch which engages the bottom or side, of the cabinet opposite the hinges, substantially as shown and described.

No. 39,668. Apparatus for Making Velvet Ribbons.

(Appareil pour faire du ruban de velours.)

Wilhelm Remy, Crefeld, Prussia, German Empire, 4th August, 1892; 6 years.

Claim.—An apparatus for producing velvet bands or ribbons with satin backs and firm edges, consisting essentially of two hemming guides *f, f'* mounted in a frame and capable of being adjusted to the desired width of ribbon, and into which the caoutchouc, or similarly coated satin and velvet strips are guided or fed, these hemming guides being constructed so as to turn the edges of the satin over the edges of the velvet strips and in conjunction with the slides *l, l'*, press the two strips firmly, the combined strip after leaving the apparatus passing under a warm roller by means of which the desired pattern is imprinted upon the edges, substantially as described.

No. 39,669. Type Writer and Matrix Making Machine. (Clavigraph et machine à faire les matrices.)

Edward Purvis Sherwood, Holmes Villa, Rotherham, York, 4th August, 1892; 6 years.

Claim.—1st. The improvements in type writers consisting of the spring and toggle for mounting the finger keys, so that they may be operated to rest on each side of the point of balance, substantially as herein set forth and shown upon the drawing. 2nd. In improvements in type writers, the particular mode of and means for stopping the type and holding it in position while the writing is being effected, consisting of the stop spring 4 on the sleeve 2 in combination with the stop ring 8, and rocking movement of the centre teeth of the type cylinder against the fixed knife edge 71, substantially as herein set forth and shown upon the drawings. 3rd. In improvements in type writers the crosshead on sleeve 2 and type cylinder 33, mounted in a rocking frame with intermediate toggle arm 10 and 11 for pressing the type against the paper, substantially as herein set forth and shown. 4th. In type writers the graduated descending collars 2^a and 2^b for actuating the carriage in a forward direction by which the differential spacing of the letters is obtained, substantially as herein set forth and shown. 5th. In type writers, the stepped lever 48 and bar 45 with adjustable screw 45^b for adjusting the spacing of the letters, substantially as herein set forth and described. 6th. In type writers, the reversing motion with clutch operated by the writing of the last letter of the line for automatically carrying the carriage back for the commencement of a fresh line and with lifting ring 62, operated and substantially as herein set forth and shown. 7th. In type writers, the paper carriage consisting of the rolls 97 and 98 with pawl and ratchet for operating the paper with and without the paper lifting incline 116 for automatically lifting the paper for a fresh line, substantially as herein set forth and shown. 8th. In type writers the pivoting of the paper carriage upon the rod 87 for disconnecting the paper carriage from the propelling pinion to allow of the carriage being moved for the inspection of the writing, in combination with a pointer for indicating the position for refixing it, substantially as herein set forth and shown upon the drawings. 9th. In type writers, the rising and falling type wheel and operating lever 56 for changing to capital, small, or figures, whereby the same set of finger keys are used for large and small letters, substantially as herein set forth and shown. 10th. In type writers, the adjustable supporting pad for adjusting the pressure upon the paper in case of manifold writing, substantially as herein set forth and shown upon the drawings. 11th. In type writers, the tappet 3, and spring 7, for automatically raising the finger keys after they are depressed, substantially as herein set forth and shown. 12th. The improvements in type-setting machines of the mounting of loose type in type wheel, in combination with the operating bent arm 10 and 11 for forming the matrix, substantially as and for the purpose herein described. 13th. The improvements in type writers and matrix making machines, substantially as and for the purpose herein set forth and shown upon the accompanying drawing.

No. 39,670. Apparatus for Operating Cocks, Etc.

(Appareil pour ouvrir et fermer les robinets.)

Oscar Lowe, Berlin, Prussia, 4th August, 1892; 6 years.

Claim.—A contrivance for opening and closing gas cocks, valves, switches and the like, characterized by the pierced rod *a*, in which the revolving shaft *c* is placed, and which shaft transmits its rotary movement to the clips *c'* in a like manner, substantially as described.

No. 39,671. Extensible Table. (Table à rallonge.)

Johann Frederick Wiggers, Hanover, Prussia, 4th August, 1892; 6 years.

Claim.—1st. A folding table which can be extended at two sides, in which is used a top *e* movable in vertical directions, but secured against sideward movement, and the extending leaves *i* and *k*, (*i'* and *k'* respectively), which placed one above the other are situated under the top *e*, and come into operation successively, substantially as described. 2nd. In a folding table, the application of laths *h* and *h'*, which serve as supports and guides to the legs *q* and *q'*, which can be turned and are fixed automatically, when in use by flaps *s*, substantially as described. 3rd. In extending leaves *i* and *k* and *i'* and *k'* respectively, laths *m* and *n*, (and *m'*, *n'* respectively), which sliding in recesses of the frame *a*, limit the movement of the leaves *i* and *k*, (and *i'* and *k'* respectively), by means of suitably arranged projections *q* and *r*, substantially as described.

No. 39,672. Disinfecting Apparatus.

(Appareil désinfectant.)

Frederick André, Hildesheim, Prussia, 4th August, 1892; 6 years.

Claim.—A combined disinfecting apparatus and steam generator having a boiler, the upper part *y* of which is closed air tight, by lateral doors and incloses a truck *e* running on wheels in and out thereof, and designed to receive articles or materials to be disinfected, which are left for a period of from one quarter to one hour or thereabouts, in the steam generated at about 102 C, in the lower part *x*, dried by the pipe *g*, after the valves *f, h, i* have been opened and cooled by the fresh air admitted, substantially as described.

No. 39,673. Apparatus for Filling Cases or Moulds.

(Appareil pour remplir les cadres ou moules.)

Telford Clarence Batchelor, London, England, 4th August, 1892; 6 years.

Claim.—1st. The method of obtaining equal density in the contents of a cartridge or other case, by causing the material being filled into said case itself to propel the case against a constant load, substantially as described. 2nd. In apparatus such as described the combination with the filling screw B, of a surrounding tube such as G, upon which the case to be filled is placed, substantially as described and illustrated in the accompanying drawing. 3rd. In apparatus such as described, the combination, with the filling screw, of a carriage adapted to receive the case to be filled and to carry a constant load, substantially as described. 4th. In apparatus such as described, the combination, with the filling screw B, of a mandrel such as H, carried within said screw and adapted to slide longitudinally therein, substantially as described and illustrated in the accompanying drawing. 5th. In apparatus such as described, the combination, with the carriage which contains the case to be filled, of a mandrel adapted to travel with said carriage for the purpose of producing a central opening in the cartridge or packed material, substantially as described. 6th. In apparatus such as described, the combination, with the filling screw, of a worm wheel, such as I, adapted to be operated by said filling screw and one or more feeding worms K, connected with and operated by said worm wheel, substantially as and for the purpose described and illustrated in the accompanying drawing. 7th. In an apparatus such as described, the combination with the tube, such as G, and worm B, of a hollow mandrel, such as H, and worm U, substantially as and for the purpose described and illustrated in the accompanying drawing. 8th. In an apparatus such as described, the combination, with the hollow mandrel H, of a removable extension, such as H, substantially as described and illustrated in the accompanying drawing. 9th. In an apparatus such as described, the combination, with the hopper A, into which the worms B open, of a vibrating agitator, such as V, constructed and operating substantially as described and illustrated in the accompanying drawing.

No. 39,674. Apparatus for Fastening the Lids of Coffins. (Appareil pour assujétir les couvercles de cercueils.)

Franz Schmidt and Hermann Wolff, both of Zittan, Saxony, 4th August, 1892; 6 years.

Claim.—1st. A catch *s*, fixed to the lid of a coffin, in combination with a slide plate S, connected to the coffin and operating substantially as and for the purpose specified. 2nd. In a locking arrangement for coffins, the combination and arrangement, with a bolt *k*, of the spiral spring *m* and the pin *r* and collar *w*, substantially as and for the purpose hereinbefore described and as illustrated by the accompanying drawing.

No. 39,675. Brake for Tramways.*(Frein de tramways.)*

Friedrick Adler, Prague, Bohemia, Austria, 4th August, 1892; 6 years.

Claim.—1st. A combined starting and brake apparatus for tram cars and other vehicles, wherein when the car or vehicle is being stopped the starting gear is run in and set for the next starting, and the brake subsequently applied, substantially as described. 2nd. In apparatus for starting tram cars or vehicles, a draw bar movable longitudinally on the car frame or vehicle, and gearing with or in connection with the wheels or axles of the car or vehicle, and so adapted that when pressed inwards the motion of the car or vehicle is unaffected, but when pulled outward revolves the driving wheel, substantially as described. 3rd. In apparatus for starting tram cars or vehicles, a movable draw bar *c*, having teeth gearing with a toothed wheel on or connected with the driving wheel or axle, and teeth in connection with which is a pawl *h* operated by the foot, substantially as described. 4th. Apparatus or mechanism for starting and backing cars and other vehicles, consisting of a rack moving draw bar, and toothed gearing in combination with the brake levers arranged as set forth, all as herein described and shown in the drawing. 5th. In apparatus for starting tram cars or vehicles, the combination with a movable draw bar operated as herein described, of a ratchet mechanism operated by hand, by which the movement inwards of said bar can be effected by hand, substantially as described. 6th. The combination, with the moving rack bar, of the tooth wheel *b*, mounted loosely on the shaft *k*, and having a boss with the teeth *n*, working in connection with a pin *N*, fixed on the shaft *k*, and a spring *a*, said teeth in pin and spring constituting a clutch, as set forth with reference to the drawing.

No. 39,676. Seeding Machine. (Semoir.)

James Nixon, Woodstock, Ontario, Canada, 4th August, 1892; 6 years.

Claim.—1st. The rod *H*, suspended by the links *G*, from the arms *F*, which are attached to the rod *D*, the bars *K*, connecting the rod *H*, to the bracket *C*, in combination with the lever *L*, extending behind the seed box *M*, and connected to the rod *H*, substantially as and for the purpose specified. 2nd. In a seeding machine, the combination of a frame *A*, an axle *B*, the bracket *C* thereon, a bar *K*, having one end connected to the bracket, the rod *H*, connected to the other end of the bar and carrying the hoes *T*, a rod *D*, mounted in the frame and flexibly or pivotally connected with the rod carrying the hoes, and lever *L*, *P*, connected to the rod for operating the hoes, substantially as and for the purpose specified. 3rd. In a seeding machine, the combination of a frame *A*, a rod *D*, mounted therein, a rod *H*, connected flexibly to said rod, the hoes *T*, connected by drag bars *I*, to said rod *H*, a lever *L*, connected to the rod for tilting the same, and lever *O*, extending behind the seed box *M*, and connected to the drag bars for adjusting the hoes, the said levers having suitable retaining devices for holding them in proper adjustment, substantially as and for the purpose specified. 4th. In a seeding machine, the combination of the axle *B*, the lever *L*, mounted thereon and having retaining devices, the bell crank lever *N*, connected to the said lever, the rod *D*, connected to the rod *H*, carrying the drag bar *I*, the hoes *T*, connected to the drag bars, and having the toe and heel in line, and the lever *O*, having the crank *P*, connected to one of the drag bars, substantially as and for the purpose specified.

No. 39,677. Spring Bottom for Furniture.*(Fonds à ressort pour meubles.)*

Elias Dimant, 204 Little Flinders Street, Melbourne, Victoria, Australia, 4th August, 1892; 6 years.

Claim. My improved spring bottom foundation or backing for bedsteads, mattresses, couches, chairs, seats and the like, consisting of a series of rubber bands, or springs, (such as *A*), attached to a corresponding series of lengths or strips of webbing, (such as *C*), preferably by means of metal loops, (such as *a*), substantially as and for the purposes herein described, and explained and as illustrated in the accompanying drawing.

No. 39,678. Apparatus for Regulating the Supplies of Liquid Hydrocarbon to Lamps. (Appareil pour régler l'alimentation des liquides hydro-carbures aux lampes.)

Henri Galopin, Temple Court Place, Chancery Lane, Milbourne, Victoria, Australia, 4th August, 1892; 6 years.

Claim.—1st. In apparatus for regulating the supply of liquid hydrocarbon to the lamp and other burners in houses, railway carriages, and other structures, the combination, with a tank, or other receptacle (such as *C*) supported on a higher level than any of the burners it is to supply, of a main supply pipe provided with automatic regulating valves at each branch so as to avoid excessive pressure in any part of the building or structure, the reservoir of each lamp or burner being also provided with an automatic regulating valve, all substantially as herein described and explained and as illustrated in the accompanying drawing. 2nd. In apparatus for regulating the supply of liquid hydrocarbon to the lamp and other burners in houses, railway carriages and other structures, the combination,

with a vessel (such as *A*) containing a supply of said liquid hydrocarbon, of a valve (such as *a*) fitted with a spring whereby it is normally held closed, a set screw (such as *a'*) being passed through an elbow pipe adapted to be coupled to the outlet opening of said vessel, said set screw being arranged to bear against the spindle of said valve, substantially as and for the purposes herein described and explained and as illustrated in the accompanying drawing. 3rd. In apparatus for regulating the supply of liquid hydrocarbon to the lamp and other burners in houses, railway carriages and other structures, the combination, with a float (such as *c'*) contained within a suitable casing, of a valve (such as *c''*) connected to and operated by said float; a spring (such as *c''*) being employed in the case of a chandelier, substantially as and for the purposes herein described and explained and as illustrated in the accompanying drawing. 4th. In apparatus for regulating the supply of liquid hydrocarbon to the lamp and other burners in houses, railway carriages and other structures, the combination, with a valve (such as *c''*) adapted to close and open the end of the delivery pipe leading to the lamp burner of a float (such as *c'*) either connected directly to the spindle of said valve by an arm or lever (such as *c''*) or else supported on the end of a lever secured to a cam or eccentric adapted to operate upon said valve spindle, substantially as and for the purposes herein described and explained and as illustrated in the accompanying drawing.

No. 39,679. Pneumatic Wheel Tyre.*(Bandage de roue pneumatique.)*

Karl Lehmann, Berlin, Prussia, 4th August, 1892; 6 years.

Claim.—1st. In a pneumatic tyre, constructing the outer cover or tread with grooves, and a shoulder adapted to engage with a suitably shaped rim, substantially as and for the purpose hereinbefore described and as illustrated by the accompanying drawings. 2nd. In a wheel rim for use with a pneumatic tyre, suitably shaped inward and outward projections formed upon the edges, substantially as and for the purpose hereinbefore described and as illustrated by the accompanying drawings. 3rd. In a pneumatic tyre, a non-circular air tube shaped to approximately the inside contour of the rim and tread, substantially as and for the purpose hereinbefore described and as illustrated by the accompanying drawings. 4th. In a pneumatic tyre, the combination, with the air tube, of elastic pads or cushions to prevent damage by the heads of the spokes, substantially as hereinbefore described and as illustrated by the accompanying drawings.

No. 39,680. Lamp for Burning Liquid Hydrocarbon.*(Lampe pour combustion des liquides hydro-carbures.)*

Robert Reid, Robert Hanna and Henry Arthur Wheat, all of Melbourne, and Thomas Holroyd, Brunswick, all in Australia, 4th August, 1892; 6 years.

Claim.—1st. A lamp for burning gasoline and other light liquid hydrocarbons, having a reservoir for containing the liquid, a converter where a suitable quantity of such liquid has a current of air passed over or through it, a burner in open communication with said converter, and a chimney or other equivalent device for conducting the products of combustion away from the burner in such a manner as to automatically cause a current of air to pass through the converter to the burner, substantially as and for the purposes herein described and explained and as illustrated. 2nd. In a lamp for burning gasoline and other light liquid hydrocarbons, the combination, with a reservoir for containing a supply of such liquid, of a needle valve so arranged within such reservoir as to be surrounded by the liquid therein, as small a pipe as practicable being employed for conducting the liquid from said reservoir to the converter in such lamp, substantially as and for the purposes herein described and explained, and as illustrated. 3rd. In a lamp for burning gasoline and other light hydrocarbons, the employment of a converter made in two compartments, one communicating with the atmosphere and the other with the burner, the latter of said two compartments being moreover fitted with a sheet of wire gauze or other material, which will serve to spread the gasoline or other liquid fed on to it over a large area, a pipe or other means of communication being provided between the converter and the gasoline or other light liquid hydrocarbon reservoir, substantially as and for the purposes specified, and as illustrated. 4th. In a lamp for burning gasoline and other light liquid hydrocarbons, the combination, with a chimney arranged above the burner of the lamp, of a circular plate fitting tightly around the upper end of said chimney, a tripod and screw threaded rod being used for the purpose of keeping said plate and said chimney pressed firmly down upon their supports, substantially as and for the purposes specified, and as illustrated.

No. 39,681. Machine for Making Metal Spokes, etc.*(Machine pour la fabrication des rais en métal, etc.)*

Robert Alpe, 128 Fentham Road, Birchfields, Warwick, England, 4th August, 1892; 6 years.

Claim.—1st. The improved machine for the manufacture of metal spokes or other such articles by which such spokes are automatically moved, revolved and reduced in diameter at a portion or portions of their length, substantially as and for the purpose herein set forth and shown upon the accompanying drawings. 2nd. In machinery

for the manufacture of metal spokes or other such articles, the adjustable automatic stopping and feeding arrangement, substantially as and for the purpose herein set forth and illustrated. 3rd. In machinery for the manufacture of metal spokes or other such articles, the divided disc E, and disc e^2 , with spring bolt e^3 , substantially as and for the purpose herein set forth and illustrated. 4th. In machinery for the manufacture of metal spokes and other such articles, the guide plate F, substantially as and for the purpose herein set forth and illustrated.

No. 39,682. Bung. (*Bondon.*)

Theodor Hiller, Berlin, Prussia, Germany, 4th August, 1892; 6 years.

Claim.—1st. A bung or stopper fitting bung holes of different sizes consisting of a pin c carrying an india rubber disc d and a tightening plate f on the one side and provided with a nut h on the other, this india rubber disc being compressed by tightening the nut so as to be firmly fitted against the material of the staves, substantially as described. 2nd. In a bung the arrangement of a shell a surrounding the nut h whose bottom plate rests on the india rubber disc while the cover of the same is furnished with a central perforation, the conical walls of which are designed to receive a plug where by the unauthorized removal of the plug is prevented, substantially as described. 3rd. In a bung the arrangement of a peg furnished at the top and at the bottom with a left and a right handed screw thread respectively, the upper screw thread fitting in the shell a and pressing when properly turned the india rubber disc downwardly as well as upwardly or expanding the said disc, substantially as described. 4th. The use of a device for closing the plugs of tap shells wherein a peg c and a disc d representing the plug are furnished with a passage, the latter disc having such a diameter that by giving one quarter of a turn to the peg c the disc d is tightly pressed and the tap closed at the same time in order to prevent the subsequent or future dripping of the liquid, substantially as described.

No. 39,683. Process and Machine for Making Wine.

(*Procédé et appareil pour la fabrication du vin.*)

Alexander Bruns, Halle a Saale, Prussia, Germany, 4th August, 1892; 6 years.

Claim. 1st. The process of manufacture of sparkling wines and other sparkling beverages by natural fermentation in which there is added to wine in a vat a ferment (obtained by adding to squashed raisins) a light, sugared wine, and thereupon subjecting the mixture whilst lightly corked for several days to a temperature of about 25° C. (say F 77° Fah.) and during the process of fermentation the yeast has imparted to it by means of a small addition of tannin and alum, a pulverulent nongementary consistency that expedites the clarification substantially as described. 2nd. In the process of manufacturing sparkling wines and other sparkling beverages by natural fermentation, according to the preceding claim, the use as set forth of an apparatus consisting of an upwardly tapering vat which is inclosed within an air-tight metallic envelope and is furnished at bottom with a discharge cock (made of or coated with precious metal) that projects somewhat into the vat, and which vat can be placed in communication by means of an upper cock b with an expansion vessel containing carbonic acid under pressure, substantially as described.

No. 39,684. Rotary Plough. (*Charrue rotative.*)

Oscar Marth, Berlin, Prussia, Germany, 4th August, 1892; 6 years.

Claim.—In a rotary plough, the combination with the share, f , of the adjustable dishd plate h , situated behind the share and obliquely to the frame and provided with rims m , substantially as described and for the purpose specified.

No. 39,685. Glove. (*Gant.*)

Alois Bernhard Fischl, Prague, Bohemia, Austria, 4th August, 1892; 6 years.

Claim.—1st. A glove having a seam b^1 from the inner side of the thumb to the opening for the hand, and a seam b^2 from the thumb to the joint between the first and second fingers for the purpose of avoiding side seams, substantially as described. 2nd. In a glove fingers having only one seam each r , opposite one another so as to avoid the seams on the corners of the fingers and to improve the fit, substantially as described.

No. 39,686. Ventilator. (*Ventilateur.*)

August Reidingcr, Augsburg, Bavaria, Germany, 4th August, 1892; 6 years.

Claim.—1st. The herein described arrangement for ventilating apartments and the like comprising an inflector I, formed with air inlet branches, terminating in the external atmosphere, and in communication by an air passage with the said apartment and the nozzle D, through which fluid under pressure can be injected into the said air passage, the said inflector being provided with means whereby the inductive or sucking action of air flowing past the rear branch for the time being of the inflector, is rendered inoperative upon the air in the air passage, substantially as hereinbefore described. 2nd.

In an inflector a movable flap valve K, adapted to close the communication between the air passage to which the inflector is applied, and the rearward branch for the time being of the inflector so as to render the inductive or sucking action of air flowing past the rearward branch inoperative and a lever arrangement h , connecting the said flap valve with a cock H, of a conduit, containing fluid such as air, steam or water under pressure, the arrangement being such that when the flap valve is moved by an air current, in a direction to close said communication the cock H will be operated so as to wholly or partially shut off the supply of compressed fluid to the said air passage, substantially as described. 3rd. The use in conjunction with the ventilating arrangement of an air distributor V, formed with openings of various sizes, those in the line of flow, or direction of the air current being made smaller than those in a direction perpendicular thereto for the purpose of uniformly distributing the air current passage out of the ventilating passage, substantially as herein described.

No. 39,687. Apparatus for Raising and Lowering Heavy Bodies. (*Appareil pour soulever les fardeaux.*)

Adolf Prusmann, Dortmund, Prussia, Germany, 4th August, 1892; 6 years.

Claims.—1st. In apparatus for raising and lowering heavy bodies such as ships, bridges or railway trains, the employment of several floating chambers b provided with compartment c and connected to a platform a , the chambers b raising and sinking in a series of water charged reservoirs d^1, d^2 , etc., having narrow openings f and communicating through pipes h, a , etc. with one another and with the inlet and outlet pipes, water flowing from the reservoirs d^1, d^2 , etc. into the compartments c and *vice versa* by way of passage controlled by valves e , substantially as herein described. 2nd. In an apparatus of the kind herein described for raising and lowering heavy bodies, such as ships, bridges or railway trains actuating the valves e controlling the passages through which water flows from the reservoirs d^1, d^2 , etc. into the compartment c , or *vice versa* by mechanical appliances arranged substantially as described and shown. 3rd. In apparatus of the kind herein described for raising and lowering heavy bodies, such as ships, bridges or railway trains, actuating the valves e controlling the passages through which water flows from the reservoirs d^1, d^2 , etc., into the compartments c or *vice versa* by hydraulic appliances, arranged substantially as described and shown.

No. 39,688. Floating Apparatus.

(*Appareil de flottage.*)

Adolf Prusmann, Dortmund, Prussia, Germany, 4th August, 1892; 6 years.

Claim.—1st. In floating apparatus for raising or lowering railway trains, ships or other heavy bodies, utilizing part of the water or other liquid contained in reservoirs in which air chambers float for the purpose of varying the position of the centre of buoyancy of the apparatus, and of imparting to it a tendency to remain stationary in any position, such volume of water or other liquid entering the apparatus during the descent of the latter and serving to gradually compress a body of air or other gas, the reaction of which forces the said volume of water or other liquid out again into the reservoirs during the ascent of the apparatus, substantially as herein described. 2nd. In floating apparatus for raising or lowering railway trains, ships, or other heavy bodies, the employment of means substantially as herein described for regulating the descent and ascent of the apparatus; such means comprising air compartments A attached to the closed air chambers and communicating by means of pipes r with the water or other liquid in which the apparatus floats. 3rd. In floating apparatus for raising or lowering railway trains, ships or other heavy bodies, the employment of means, substantially as herein described, for regulating the descent and ascent of the apparatus; such means comprising closed air compartments located in the space in which the air or other gas is compressed by the inflowing water. 4th. In floating apparatus of the kind herein described for raising or lowering railway trains, ships or other heavy bodies, allowing air to escape from or forcing air into the compartments or spaces in communication with the water or liquid in which the apparatus floats, so that the buoyancy of the apparatus may at will be altered according to the load which at any one time is on the platform of the apparatus.

No. 39,689. Grain Drill. (*Semoir en ligne.*)

P. P. Mast & Company, assignee of Martin L. Kissell, all of Springfield, Ohio, U.S.A., 4th August, 1892; 6 years.

Claim.—1st. In a grain drill, the combination, with the main frame, supporting wheels having their axle connected to the frame near the forward end thereof, and auxiliary supporting wheels connected to the frame near the rear end thereof, of a hopper and feeding mechanism mounted upon the frame between the said sets of wheels, motion transmitting mechanism receiving motion from the supporting wheels, and conveying it to the feeding mechanism shaft, and drilling devices, and means to adjust the same to and from the ground, and a pole connected to the main frame by a flexible joint. 2nd. In a grain drill, the combination, with the main frame, feeding devices and drilling devices carried thereby, the latter being adjustable to and from the ground, and means to effect such adjustment.

of main supporting wheels, and auxiliary supporting wheels having also the function of packing the soil, such latter wheels being connected to the frame to follow each a drilling device. 3rd. In a grain drill, the combination, with the main frame, forward supporting wheels, and auxiliary supporting wheels having the capacity of packing the soil, and connected to the main frame on vertical pivots, of feeding and drilling devices in advance of the auxiliary wheels, and means to adjust the drilling devices to and from the ground. 4th. In a grain drill, the combination, with the main frame, of main supporting wheels, substantially of the type shown, whereby they are adapted to run upon the ground generally, as well as upon the fields, of auxiliary supporting wheels connected to said frame, and adapted to travel upon the ground generally, as well as to pack the soil. 5th. In a grain drill, the combination, with the main frame having places for the connection of auxiliary wheels in and out of line with the drilling devices, of auxiliary supporting wheels transferable from the places of connection in line to those out of line with the drilling devices, and *vice versa*. 6th. In a grain drill, the combination, with the main frame, the rear beam of which has a number of holes, some of which are in and some outside of the line of the drilling devices, of auxiliary supporting wheels mounted upon pivots, and transferable from said outside holes to others in line with the drilling devices, and *vice versa*. 7th. In a grain drill, the combination, with the main frame, of auxiliary supporting wheels attached thereto at the rear corners thereof, and adapted to swing sidewise and toward the front of the machine, as occasioned in turning and backing. 8th. In a grain drill, the combination, with the lifting bar and rods suspended therefrom, of spacing devices mounted upon said bar between said rods, and consisting of a wire formed into eyes at either end and a portion extending from eye to eye.

No. 39,690. Method of Making Wooden Plates.

(*Méthode de fabrication de plaques en bois.*)

Robert Himmel, Berlin, Prussia, 5th August, 1892; 6 years.

Claim.—The method of manufacturing bright polished and dead patterned wooden boards by pressing the wooden boards (veneered or thick), after they have been polished with plates heated up to about 50°, which latter are engraved on the patterned places and grooved on the non-patterned places, so that after pressing the wooden board the patterned places on the metal plate appear bright on the wood and the grooved places give the wooden board a dull, dead appearance, substantially as described.

No. 39,691. Burglar Alarm. (Délateur de voleur.)

Noah Monroe Powell, Knox City, Missouri, U.S.A., 5th August, 1892; 6 years.

Claim.—1st. The combination, with a frame adapted to support the safe, a scale platform suspended therefrom, a housing placed over said safe and resting on said platform, and the scale beam, of an alarm bell in an electric circuit, a circuit breaker formed in said circuit, and disposed in connection with said scale beam, said breakers adapted to be operated by the movement of the scale beam, substantially as and for the purpose shown and described. 2nd. The combination, with the frame adapted to support the safe, the scale frame suspended therefrom, said frame consisting of the bars B, B², provided with outwardly extending arms *b*, *b*, *b*¹, *b*¹, said bars linked as at *b*², one of said arms *b* being of longer leverage than the other, the scale beam connected with the bar B, a scale platform suspended from said bars, and a housing placed over the safe and resting on the scale platform, said housing provided with a door I, of an alarm in an electric circuit breaker arranged to be operated by the movement of the scale beam, said beam adapted to be tilted down when said door I is swung open, substantially in the manner and for the purpose described. 3rd. The combination, with the safe supporting frame, a scale platform hung thereon, the scale beam connected therewith and disposed above the supporting frame, said beam adapted to engage a contact maker in an electric circuit when vibrated, and an alarm in said electric circuit, adapted to be operated by the movement of said beam, of a casing placed over said safe and resting on said platform, provided with a door arranged adjacent to the scale beam, and a lock adapted to be operated by the making or breaking of an electric circuit independent of the scale beam circuit, substantially as and for the purpose described. 4th. The combination, with the casing or shell, H, provided with a door J, and a locking device operated by the making breaking of an electrical circuit, of a thermostat arranged upon the inner side of said door, said thermostat adapted to be operated when said door is swung open, substantially as and for the purpose described. 5th. The combination, with the supporting frame, a scale platform supported therefrom, the scale beam connected therewith, said beam disposed to engage a contact breaker in an electric circuit when vibrated, a housing or shell supported on said platform and over the safe, and an alarm bell in said circuit, of push buttons projected to the outside of said shell, and buttons adapted to control an electric circuit and operate an alarm bell in said circuit when pressure is applied against them, substantially as and for the purpose described. 6th. The combination, with the safe supporting frame, the scale bars hung therein, a scale platform supported from said bars, a scale beam connected with said bars, said beams disposed adjacent to an electric circuit contact maker or breaker, whereby the vibration of said beam will operate said cir-

cuit, and a shell or housing disposed over the safe and resting on the said scale platform, of an alarm in said electric circuit, and an indicator adapted to be operated by the swinging movement of the scale beam, substantially as and for the purpose described. 7th. The combination, with the safe supporting frame, a housing or shell disposed over said safe and supported on said platform, the series of steel springs connected to the bottom of said shell, rubber cushions disposed over said springs and metallic strips over said cushions, said springs and metallic strips connected with an electric circuit, of an alarm bell in said circuit adapted to be operated by the removal of the rubber cushion between said spring and strip, substantially for the purpose and in the manner hereinbefore described.

No. 39,592. Electric Lamp. (Lampe électrique.)

James Watson Easton, New York, State of New York, U.S.A., 5th August, 1892; 6 years.

Claim.—1st. In an electric lamp, an electric brake for controlling the movement of the carbon feeding mechanism, substantially as shown and described. 2nd. In an electric arc lamp, a spiral spring arranged to act as a brake to control the movement of the carbon feeding mechanism, substantially as shown and described. 3rd. In an electric arc lamp, a spiral spring arranged to act as a brake to control the movement of the carbon feeding mechanism, in combination with mechanism G for regulating the tension of said spring, substantially as shown and described. 4th. In an electric arc lamp, a spiral spring arranged to act as a brake for the carbon feeding mechanism, the helices of said spring being elongated for a portion of the length of the spring, substantially as shown and described. 5th. In an electric arc lamp, the combination of the carbon rod provided with a rack, of a pinion adapted to engage therewith, of a brake wheel rigidly secured to the shaft carrying said pinion, of a spiral spring adapted to bear against the periphery of said wheel, and means, substantially as shown, for varying the length of said spring in accordance with changes in the resistance of the lamp circuit, substantially as shown and described. 6th. In an electric lamp, the combination of the carbon rod, of a rack secured thereto, of a pinion adapted to engage with said rack, of a wheel arranged to revolve with said pinion, of a spiral spring arranged to bear against the periphery of said wheel, of a lever connected with said spring, of a differential solenoid, the core of which is connected with said lever, and of mechanism, substantially as shown, for adjusting the tension of said spring, substantially as and for the purposes herein shown and described.

No. 39,693. Apparatus for Killing Poultry.

(*Appareil pour tuer les volailles.*)

August Schonemann, Wernigerode, Prussia, German Empire, 5th August, 1892; 6 years.

Claim.—In an apparatus for killing fowls, the employment of a pan B, with a hinged lid B¹, the former being provided with a suitable recess C formed in a ledge to receive the neck of the bird and the stream of blood, and over which is hinged a cover or hood D, in which is fastened the bar *b*, operating by means of knob *g* and spring *i* on the decapitating knife, overreaching the recess C and frame B, substantially as described.

No. 39,694. Frame for Railway Cars.

(*Châssis pour chars de chemin de fer.*)

Max A. Zurcher, Montreal, Quebec, Canada, 5th August, 1892; 6 years.

Claim.—1st. A railway car frame having two or more longitudinal trusses or girders extending throughout the length of the car, having increased depth at or near the centre of the car, and connected together at or near their upper and lower cords by trussed girders adapted to resist lateral strains, the whole being joined together to form a statically-trussed frame, substantially as shown and described. 2nd. A railway-car frame consisting of two or more longitudinal supporting trusses or girders having increased depth at or near the centre of the car, connected at or near the top and bottom by longitudinal trusses or girders, with one or more intermediate cross or tie trusses or bracing uniting said longitudinal trusses, so as to form a solid or statically-constructed structure, substantially as described. 3rd. A railway-car frame consisting of an external skeleton body having vertical longitudinal trusses of increased centre depth, with one or more vertical transverse statically-constructed overhead roof-trusses having rigid and non-adjustable web members throughout their entire length, substantially as described. 4th. A railway-car frame consisting of an external skeleton body having vertical longitudinal trusses of increased depth between the truck supports, with one or more interior transverse trusses and one or more vertical transverse statically-constructed overhead roof-trusses having rigid and non-adjustable web-members throughout their entire length, substantially as described. 5th. A railway car frame consisting of an external skeleton body whose vertical longitudinal trusses are of increased depth between the truck-supports, with one or more interior longitudinal trusses, and one or more vertical transverse statically-constructed overhead roof trusses having rigid and non-adjustable web members throughout their whole length, substantially as described. 6th. A railway-car frame consisting of an external skeleton body, with vertical longitudinal trusses of

increased depth between the truck-supports, and one or more interior longitudinal trusses, and one or more interior transverse vibration trusses, and one or more vertical transverse statically-constructed over head roof trusses having rigid and non-adjustable web members throughout their whole length, substantially as described. 7th. A railway-car frame having four or more longitudinal external members, any of which may be of irregular shape, with diagonal and normal members connecting the sides of said frame to said longitudinal members, and diagonal and normal members connecting the top and bottoms of such frame to said longitudinal members, substantially as described. 8th. A railway-car frame having normal and diagonal braces in its side faces, the latter of variable depth in combination with diagonal and normal braces in its top and bottom faces, and knee braces between the sides and top and bottom faces, substantially as described. 9th. A railway-car frame consisting of trussed lateral top, bottom and side faces, the latter of variable depth in combination with a trussed roof-supporting frame or auxiliary body, substantially as described. 10th. A railway-car frame consisting of trussed lateral top, bottom and side faces, the latter of variable depth, in combination with a trussed floor supporting frame or auxiliary body, substantially as described. 11th. A railway-car frame consisting of trussed lateral top, bottom and side faces, the latter of variable depth, in combination with a trussed floor, and also a trussed roof-supporting frame forming each an auxiliary body, substantially as described. 12th. A statically-constructed railway-car frame wherein any or all exterior or interior faces are each constructed of two or more statically-constructed trusses integrally connected together for each face, so as to form one truss of variable depth, and having openings for windows and doors, substantially as described. 13th. A statically constructed railway-car, having longitudinal girders with a diminished depth at their ends, in combination with the top and bottom cords, the arrangement being such as to resist collision strains more evenly. 14th. A statically-constructed railway-car frame containing two or more statically-trussed floor frames, each integrally connected therewith, and each constituting the floor support, substantially as described. 15th. A statically constructed railway-car frame containing one or more trussed floor frames integrally connected therewith, each constituting a floor support, and any and all inclined in any various directions to assist in the discharge of the load, substantially as described. 16th. A statically constructed railway-car frame containing one or more trussed floor-frames integrally connected therewith, having longitudinal trusses, their greatest depth being at or near the centre of the car, while the top chords of the floor girders which sustain the floor are inclined, substantially as described.

No. 39,695. Hot Air Furnace. (Calorifère à air.)

Henry Cowles, Utica, New York, U.S.A., 5th August, 1892; 6 years.

Claim.—1st. The combination, with the combustion chamber, of an annular radiator surrounding the same and connected at its lower end with flues extending from the front and rear side of said combustion chamber, the smoke pipe connected with the rearwardly extending flue, and a damper arranged in said rearwardly extending flue between the smoke pipe and the combustion chamber, substantially as set forth. 2nd. In a furnace, the combination, of the dome or combustion chamber, a door casing or frame bolted to the front side of the same and having a hinged charging door, and provided with an opening in its upper side, an upwardly extending flue bolted to the rear side of said combustion chamber, an annular radiator surrounding the upper portion of the combustion chamber and connected with the opening in the upper side of the door casing and with the upwardly extending flue, a smoke pipe extending from the latter and having a damper or draft regulator, and a damper arranged in the upwardly extending flue between the smoke pipe and the combustion chamber, substantially as set forth. 3rd. In a furnace, the combination, of the combustion chamber, the door casing secured to the same and having an opening at its upper side, the flue secured to the rear side of the combustion chamber, the annular radiator secured or connected to said flue and to the opening of the door casing, and an opening in said radiator arranged directly above the opening in the door casing, substantially as and for the purpose set forth. 4th. In a furnace, the combination, of the combustion chamber, the door casing secured to the front side of the same and having an opening in its upper side, the upwardly extending flue secured to the rear side of said combustion chamber, the smoke pipe extending from said flue and having a damper or draft regulator, a damper arranged in said flue between the smoke pipe and the combustion chamber, and the annular radiator surrounding the upper portion of the combustion chamber and connected to the upper end of the flue and to the opening in the upper side of the door casing, said radiator being provided with a horizontal plate or deflector arranged directly above the said flue, substantially as and for the purpose herein set forth.

No. 39,696. Machine for Stamping Vignettes.

(Machine à imprimer et estamper les vignettes.)

Hermann Schwartz, Prague, Bohemia, Austria, 5th August, 1892; 6 years.

Claim.—1st. A machine for printing and simultaneously cutting labels, tickets and similar articles from continuous lengths of paper,

constructed, arranged and operated, substantially as described. 2nd. In a machine for printing and cutting labels and tickets simultaneously from continuous lengths of paper, the construction and arrangement of the endless web or band m , operating substantially as described. 3rd. In a machine for printing and cutting labels and tickets simultaneously from continuous lengths of paper, the combination and arrangement of the distributing roller q^1 , the weighted lever u^1 , the ink duct roller g , and the cam t , substantially as described. 4th. In a machine for printing and cutting labels and tickets simultaneously from continuous lengths of paper, the construction, combination and arrangement of the hollow roller r^1 , with the circular knives r^2 , substantially as described. 5th. In a machine for printing and cutting labels and tickets simultaneously from continuous lengths of paper, the construction and arrangement of the knives and holding plates upon the hollow roller r^1 , substantially as described.

No. 39,697. Apparatus for Cutting Grooves and Channels in Wood (Appareil pour faire des rainures et cannelures dans le bois.)

Edward Muller, Soran, Silesia, German Empire, 5th August, 1892; 6 years.

Claim.—1st. The new or improved appliance or apparatus for cutting or producing grooves, channels, or recesses in wood or similar material, as hereinbefore described and illustrated, the said appliance or apparatus comprising the frame work or carriage a, b, c , with plate d , rack and pinion E, f , and cutting tool h , as shown. 2nd. In the new or improved appliance or apparatus for the purposes specified herein, the combination of the rack and pinion E, f , with cutting tool h , said rack plate e provided with scale for registering or indicating the distance of vertical motion of the cutting tool h , as hereinbefore described and shown. 3rd. In the new or improved appliance or apparatus hereinbefore described, the combination of the screwed bars or rods b, c , passing through sleeves or collars a, a , and d, d , with hand wheel m for operating same to produce the requisite longitudinal motion backwards and forwards of the cutting tool h over or through the wood or material to be operated upon, as hereinbefore described and shown.

No. 39,698. Machinery for Measuring, Winding and Cutting off Lengths of Cloth. (Machine pour mesurer, enrouler et tailler des longueurs de drap.)

Anton Hahn, Amsterdam, Netherlands, 6th August, 1892; 6 years.

Claim.—1st. In a cloth measuring and cutting machine, the combination of a winding mechanism, cloth guides, a cutting mechanism, a driving shaft, two loose coupling clutches on said shaft connected respectively to the winding and cutting mechanism, a sliding double coupling clutch, a lever for shifting the sliding clutch, a spring acting on the lever to put the sliding clutch in engagement with the clutch of the cutting mechanism, a retaining catch whereby the lever is held in the clutch of the winding mechanism, a counter having a measuring wheel in contact with and rotated by the cloth while being drawn across the said cloth guides, a drop bar, mechanism in connection with counter and the drop bar whereby the latter is released after the measuring wheel has made a determinate number of revolutions and a spring pressed lever connecting the drop bar with the said retaining catch, so that when the drop bar is released, the catch will release the clutch shifting lever, substantially as specified. 2nd. In a cloth measuring and cutting machine the combination of a winding mechanism, cloth guides, a cutting mechanism, a driving shaft spring actuated, coupling mechanism for disconnecting the said driving shaft from the winding mechanism and connecting it with the cutting mechanism, a retaining catch 1^3 for said spring actuated mechanism, a counter consisting in a box with dial plates on its front wall, and division plate μ , having vertical slits μ^3 , a measuring wheel d^1 in contact with and rotated by the cloth, a train of gear wheels having axes V and connected to the measuring wheel, disks V^2 pivoted in a line with axes V in the front wall of said box and provided each with a pointed V^4 and notch V^5 , having one side bevelled, numeral disks V^1 arranged to rotate with and to slide lengthwise on axes V , and having each a pin V^3 adapted to engage in the respective notches V^5 , and peripheral groove V^7 , vertically movable drop bar U in connection with said retaining catch springs U^1 fixed thereto, engaging in grooves V^7 and pressing the disks V^1 towards disks V^2 , springs fixed to division plate μ and having shoulders μ^1 opposite to slits μ^3 , projections U^2 on springs U^1 , normally in engagement with shoulders μ^1 , and then operating to keep the drop bar raised, whereas when all the projections U^2 are disengaged from the shoulders μ^1 the drop bar will descend and cause the retaining catch to release the spring actuated coupling mechanism, substantially as described. 3rd. In a cloth measuring and cutting machine, the combination of a winding mechanism, cloth guides, a cutting mechanism, a driving shaft, spring actuated coupling mechanism for disconnecting the said driving shaft from the winding mechanism and connecting it with the cutting mechanism, a retaining catch 1^3 for said spring actuated mechanism, spring 1^5 acting on the catch, a counter having a measuring wheel rotated by the cloth and a drop bar U , mechanism in connection with the counter and the drop bar, whereby the latter is released after the measuring

wheel has made a determinate number of revolutions, a vertically movable bar *m* engaging drop bar *U*, spring *m*¹ depressing bar *m* when the drop bar is released by the counter, a spring nose 1² on retaining catch 1³, lever *l* pivoted at 1¹ and connected at one end to bar *m*, while its other end, which is bent upward, engages with nose 1², substantially as set forth. 4th. In a cloth measuring and cutting machine, the combination of a winding mechanism, cloth guide, a cutting mechanism having the vertically movable shear blade *h*¹, driving shaft *c*, coupling clutch *c*⁰ loose on shaft *c* and connected to the winding mechanism, pinion *c*⁶, with coupling clutch *c*⁴ also loose on shaft *c*, double coupling clutch *c*², *c*³, sliding on shaft *c* and adapted to engage with either of the two clutches *c*⁶ and *c*⁴, lever *i* for shifting clutch *c*², *c*³, spring *i*² acting on the lever to put the clutch *c*², *c*³, in engagement with clutch *c*⁴, spring pressed retaining catch 1³ bevelled at the bottom and adapted to keep lever *i* in the position in which it causes engagements of clutch *c*², *c*³, with clutch *c*⁶, a counter having a measuring wheel rotated by the cloth, means in connection with the counter for raising catch 1³, and thereby releasing lever *i*, pinion *c*⁷ keyed on shaft *c*, spur wheel *e*¹, ², having on its whole periphery teeth to gear with pinion *c*⁵, and on the part *c*² teeth to gear with pinion *c*⁷, a concentric cam *e*³ on the inner face of spur wheel *e*¹, *e*², and a projection *i*³ on lever *i*, on which cam *e*³ acts to push the lever back and into re-engagement with catch 1³, double crank shaft *g* rods *h* connecting the cranks thereof to the shear-blade *h*¹ and gearing for transmitting motion from spur-wheel *e*¹ *e*² to shaft *g*, substantially as described. 5th. In a cloth measuring and cutting machine, the combination of a winding mechanism, cloth guides, a cutting mechanism, a driving shaft, spring actuated coupling mechanism for disconnecting the said driving shaft from the winding mechanism and connecting it with the cutting mechanism, a retaining catch 1³ for said spring actuated mechanism spring 1⁵ acting on the catch, a counter having a measuring wheel rotated by the cloth, and a drop bar *U*, mechanism in connection with the counter and the drop bar whereby the latter is released after the measuring wheel has made a determinate number of revolutions, a vertically movable bar *m* engaging drop bar *U*, spring *m*¹ depressing bar *m* when the drop bar is released by the counter, a spring nose 1² on retaining catch 1³, lever *l* pivoted at 1¹ and connected at one end to bar *m* while its other end which is bent upward engages with nose 1², a lever *k* pivotally connected to the machine frame at *k*² and to the bar *m* at the other end a pawl *k*¹ also pivoted at *k*² and having shoulder *k*³ to rest on lever *k*, a ratchet wheel *e*² having pinion *e*⁹ fixed thereto both loosely mounted on the driving shaft *c*, a spur wheel *b*² keyed to the spindle *b* to engage said pinion *e*⁹ and suitable gearing to connect the driving shaft *c* and spindle *b*, substantially as described. 6th. In a cloth measuring and cutting machine, the combination of a winding mechanism, cloth guides, a cutting mechanism, a driving shaft, spring actuated, coupling mechanism for disconnecting the said driving shaft from the winding mechanism and connecting it with the cutting mechanism, a retaining catch 1³ for said spring actuated mechanism, spring 1⁵ acting on the catch, a counter having a measuring wheel rotated by the cloth, and a drop bar *U*, mechanism in connection with the counter and the drop bar whereby the latter is released after the measuring wheel has made a determinate number of revolutions, a vertically movable bar *m* engaging drop bar *U*, spring *m*¹ depressing bar *m* when the drop bar is released by the counter, an arm *n*¹ rigidly attached to said counter and pivoted to the machine from at *n*, a spring pressed rod *n*² projecting through the arm *n*¹ and having nut *n*⁴ and a spring *n*³, substantially as described.

No. 39,699. Rotary Pump. (*Pompe rotative.*)

Joseph Menge, New Orleans, Louisiana, U.S.A., 6th August, 1892; 6 years.

Claim.—1st. A free wheel of the character described, adapted for use in rotary pumps. 2nd. In a rotary pump, the combination with a suitable casing, of a wheel free from contact with said casing, and constructed with wings or blades open axially and radially, and rotating before an aperture in said casing, substantially as described. 3rd. In a rotary pump, the combination with a suitable casing, of a wheel free from contact with such casing, and constructed with wings upon top and bottom and radially, said wheel rotating between two suction openings in said casing, one at either side of said wheel. 4th. In a rotary pump, the combination, with a casing having two parallel circular apertures therein, of a shaft concentric with said apertures, and a free wheel on said shaft between said apertures, arranged substantially as shown. 5th. In a rotary pump, the combination, with a casing having two parallel circular apertures therein, of a shaft concentric with said apertures, a right handed free wheel rotating behind one of said apertures, and a left handed free wheel rotating behind the other of said apertures, as and for the purposes described. 6th. In a rotary pump of the character described, a wheel formed of a disc with a plurality of flat blades on said disc, and near the periphery thereof, the sides of the said blades forming curved channels for the passage of the fluid, substantially as for the purposes described. 7th. In a rotary pump, the combination with a pump casing having two oppositely disposed suction openings, of a disc revolving between the said openings, and a plurality of curved blades open axially and radially mounted near the periphery of and on both faces of said disc, for taking water from said suction openings.

No. 39,700. Car Coupler. (*Attelage de chars.*)

George Shipp Gaines and James D. Pickens, both of Corona, and Sylvester J. Gaines, Tuscaloosa, all in Alabama, U.S.A., 6th August, 1892; 6 years.

Claim.—1st. A car coupler constructed substantially as shown and described, consisting of a coupling bar *B*, provided with a lateral coupling hook at its front end, a draw head provided with a yielding bearing plate *C*, said plate secured at its forward end to the front end of the wall *A*¹, of the draw head, its rear end *a*³, adapted to bear against the inner face of said wall, substantially as and for the purpose described. 2nd. In a car coupling, the combination, with the draw head *A*, and the coupling pin *F*, the yielding bearing plate *C*, operating against the wall *A*¹, of the draw head, of the swinging fender *D*, hinged to wall *A*¹, its inner end adapted to bear against the front face of the coupling pin, and the coupling link *B*, provided with a straight face *40*, adapted to engage the yielding plate, and a bevelled end *10* formed with a coupling barb *20*, adapted to engage the pin *F*, substantially as and for the purpose described. 3rd. In a car coupling essentially as described, the swinging fender or guide plate hinged to one wall of the draw head, its free end adapted to engage the front face of the coupling pin, and close one portion of the mouth *a*¹, of said draw head, in combination with the yielding bearing *C* arranged on the inner face of the opposite wall of said draw head, said fender adapted to guide the coupling link against said plate *C*, in coupling, substantially as and for the purpose described. 4th. The combination, with the draw head *A*, the pin *F*, and the yielding plate *C*, secured to the inner face of the wall *A*¹, of the swinging fender plate *D*, hinged to the outer end of the wall *A*², a detent or holding device for automatically locking said fender in its open or swinging out position, substantially as and for the purpose described.

No. 39,701. Automatic Fire Extinguisher.

(*Extincteur automatique d'incendie.*)

Charles Wesley Kersteter and William E. Smith, both of Chicago, Illinois, U.S.A., 6th August, 1892, 6 years.

Claim.—1st. In an automatic fire extinguisher, the combination of a nozzle, a yoke projecting beyond the orifice of the nozzle, and having retaining lugs on each of its upright portions, a cap valve adapted to close the nozzle orifice, levers adapted to engage the lugs of the yoke uprights, and having short arms bearing on the valve, and a fusible strip connected at its respective ends by arms and links to the upper ends of the levers, substantially as described. 2nd. In an automatic fire extinguisher, the combination of a nozzle, a yoke projecting beyond the orifice of a nozzle, and having lugs toward each end of its upright portions, a valve adapted to close the nozzle orifice, levers having projections to engage the lower lugs of the yoke uprights, and having their upper ends extended to bear upon the outer side of the upper lugs, and provided with short arms adapted to bear on the valve, and a fusible strip connected at its respective ends by arms and links to the upper ends of the levers, substantially as described. 3rd. In an automatic sprinkler, a deflector, secured over the nozzle orifice, said deflector comprising a disk slitted radially and having the metal thereof turned down at the edges of the slits at a screw pitch, whereby to break the water into spray, substantially as described.

No. 39,702. Anti-friction Bearing.

(*Coussinet de tourillon sans friction.*)

Seely Williams Ashmead, Joseph Mary O'Shea and Thomas Bouldin Crews, all of St. Louis, Missouri, U.S.A., 6th August, 1892; 6 years.

Claim.—1st. An anti-friction bearing, consisting of a box having an imperforate bottom provided in its upper face with a series of superficial depressions, a lid secured to and closing the top of the box, and provided with a series of openings corresponding with said recesses in number and position, and a series of balls resting in said depressions and projecting through the cover apertures, substantially as set forth. 2nd. In an anti-friction bearing, the combination, with a box provided with a series of depressions in one inner face, arranged in pairs and diagonally of said face, and a lid or cover provided with openings corresponding in location and number with said depressions, of a ball located in each depression, and extending through the opposed cover aperture, substantially as shown and described.

No. 39,703. Machine for Cutting and Trimming Trees. (*Machine pour tailler et ébrancher les arbres.*)

Nelson Goodwin, Baie Verte, New Brunswick, Canada, 6th August, 1892; 6 years.

Claim.—The avoid or pear shaped blade *A*, and the double faced base or rest *B*, and the combination, thereof as above described, and as for the purposes hereinbefore set forth.

No. 39,704. Rotary Engine. (*Machine rotative.*)

Henry Sewrey, Barrie, Ontario, Canada, 6th August, 1892; 6 years.

Claim.—1st. A cylinder of two diameters, a cylindrical piston fitted to the smaller diameter of the cylinder, plates radiating from the said piston, and extending to the largest diameter of the cylinder.

der, in combination, with two valves located in the said cylinder opposite to each other, steam ports extending from the said valve to the interior of the cylinder at its smallest diameter, exhaust ports extending from the interior to the exterior of the cylinder, and of strips located between the stem and exhaust ports, substantially as and for the purpose specified. 2nd. A cylinder C of two diameters, a piston A fitted to the smaller diameter of the cylinder, and provided with plates D, acted upon by steam admitted through the centre of the piston rings F, fitted into grooves made in the head E, and actuated by springs G, substantially as and for the purpose specified. 3rd. A cylinder of two diameters, a cylindrical piston fitted to the smaller diameter of the cylinder in which the steam and exhaust ports are located, plates radiating from the said piston and designed to extend to the largest diameter of the cylinder, in combination with two strips located between the steam and exhaust ports, and each strip slanting in the opposite direction towards the ends of the cylinder, substantially as and for the purpose specified.

No. 39,705. Odometer. (Odomètre.)

Edwin James Merry, Magog, Quebec, Canada, 6th August, 1892; 6 years.

Claim.—1st. The combination, with the hub or knave of a vehicle wheel, of the toothed or friction wheel W, engaging or gearing with the wheel B, and thereby imparting motion to the train wheels C, D and E, provided with screw pinions for that purpose, and so arranged as to indicate by means of the hand M, on the dial L, and counting wheel F, operated by the cam G, and detent K, and the dial R, the number of miles and the fractions thereof travelled by a vehicle, substantially as and for the purpose hereinbefore set forth.

No. 39,706. Boarded Floor.

(*Méthode de poser les planchers.*)

Otto Hetzer, 24 Etterburger Strasse, Weimar, German Empire, 6th August, 1892; 6 years.

Claim.—1st. In a boarded floor, the combination, of the free sliding panels or boards *a*, the frame timbers *g*, and the ventilated skirting boards *b*, all constructed and arranged, substantially as and for the purpose hereinbefore described and illustrated. 2nd. A boarded floor, constructed and arranged, substantially as and for the purpose hereinbefore described and illustrated.

No. 39,707. Heater. (Calorifère.)

George W. Harris, Mount Zion, Illinois, U.S.A., 6th August, 1892; 6 years.

Claim.—1st. The combination, of drum 5, tubes 1, head 2, and tube cleaners composed of bars 7, rings 8, and heads 9, as set forth. 2nd. A tube cleaner for tubes of heaters, comprising bars 7, formed of a single bar bent at the centre, head 9, to which the bars are bolted, and ring 8, secured to the ends of the bars, as set forth.

No. 39,708. Can Opener.

(*Machine à ouvrir les boîtes métalliques.*)

William Arthur Hungerford, Belleville, Ontario, Canada, 6th August, 1892; 6 years.

Claim.—1st. A can opener, comprised of a knife corresponding to the shape of the top of the can and having sharpened serrated teeth, the knife being held over the can and designed to be brought down so as to cut open the top of the can at one motion, as and for the purpose specified. 2nd. The knife *g*, having serrated teeth and securely held in the gate *f*, which is held in grooves in the vertical guide posts 8, and means whereby said gate and knife may be vertically adjusted, as and for the purpose specified. 3rd. The knife *g*, having serrated teeth and dovetailed projections made on the top, which projections fit into grooves in the gate *f*, in combination, with the guide posts 8, having dovetailed grooves to receive the downwardly projecting sides of the gate, as and for the purpose specified. 4th. The knife *g*, having serrated teeth and openings *h*, and securely held in the gate *f*, which is held in grooves in the vertical guide posts 8, and means whereby said gate and knife may be vertically adjusted, as and for the purpose specified. 5th. The knife *g*, having serrated teeth and dovetailed projections made on the top, which projections fit into corresponding grooves in the gate *f*, in combination, with the guide posts 8, having grooves to receive the downwardly projecting sides of the gate, and the lever E, having a U-shaped end, which is pivoted on the bolts C, the sides of the U-shaped ends extending through the notches made in the inner edge of the sides of the gate, as and for the purpose specified. 6th. The knife *g*, having serrated teeth and secured in position in the gate *f*, in combination, with the guide posts 8, lever E, with a U-shaped end pivoted C, and extending through the notches in the gate and the base D, having a rearward extension *d*, as and for the purpose specified.

No. 39,709. Brake for Railway Cars. (Frein de chars.)

Richard Fallis, P. mtypool, and Roswell H. Staples, Bethelamy, both in Ontario, Canada, 6th August, 1892; 6 years.

Claim.—1st. The combination of a rod attached to each brake beam, the said rods being connected together by means of a lever provided with a chain extending around sheaves arranged below the

car, the said chain being connected to a sheaf suitably journaled on the back of the car and provided with a long lever extending above the car and arranged to work in conjunction with notches formed in a bracket attached to the top of the car, substantially as and for the purpose specified. 2nd. The combination of a rod attached to each brake beam, the said rods being connected together by means of a lever provided with a chain extending around sheaves arranged below the car, the said chain being connected to a sheaf suitably journaled on the back of the car and provided with a long lever extending above the car and arranged to work in conjunction with notches formed in a bracket attached to the top of the car in proximity to a foot plate provided with steps, by which the brakeman can brace himself while operating the lever, substantially as and for the purpose specified.

No. 39,710. Valve. (Soupape.)

The Birkery Manufacturing Company, assignee of Cornelius Birkery, all of Hartford, Connecticut, U.S.A., 6th August, 1892; 6 years.

Claim.—A valve consisting of a body having a water-way with a port, a valve seat around the port, and a piston chamber supported in the water-way upon the pressure side of the port, an outlet-bib screwed upon the body adjacent to the port, a piston movable in the piston chamber in the water-way on the pressure side of the port, a spindle connected with the piston and supported at its outer end by a hub projecting from the outlet-bib, a float lever bearing a float attached to the end of the spindle, and a valve borne by the spindle on the escape side of the port, substantially as specified.

No. 39,711. Mechanical Movement.

(*Mouvement mécanique.*)

Alfred Buckingham Willecox, Chicago, Illinois, and Edward Loder Whittemore, Toledo, Ohio, both in the U.S.A., 6th August, 1892; 6 years.

Claim.—1st. The combination of a revolving shaft carrying a crank, having two crank pins in the same radial line, but one more distant from the centre of motion than the other, an oscillating shaft, an arm projecting radially from said oscillatory shaft, and carrying a projecting crank pin, two connecting rods arranged on the crank pin of the said oscillating shaft, the said connecting rods joined respectively to the two crank pins of the revolving shaft, the said connecting rods constructed for a pre-determined length of lost motion between the crank pin of the oscillating shaft and the two crank pins of the revolving shaft, substantially as and for the purpose described. 2nd. The combination of a revolving shaft, carrying a crank having two crank pins in the same radial line, but one more distant from the centre of motion than the other, an oscillating shaft, an arm projecting radially from said oscillatory shaft, and carrying a projecting crank pin, two connecting rods arranged on the crank pin of the said oscillating shaft, the said connecting rods joined respectively to the two crank pins of the revolving shaft, the said connecting rods constructed for a pre-determined length of lost motion between the crank pin of the oscillating shaft and the two crank pins of the revolving shaft, the arm of the oscillating shaft constructed with a segment concentric with the axis of the driving shaft as the said arm of the oscillating shaft stands in its nearest position to the said revolving shaft, the length of the said segments corresponding to the time of the said lost motion, and the revolving shaft provided with a projecting pin corresponding to the outer surface of said segment, and in the position relative to said segments, substantially as and for the purpose described.

No. 39,712. Turbine. (Turbine.)

George Munro, Peterborough, Ontario, Canada,, 6th August, 1892; 6 years.

Claim.—1st. A turbine water wheel case, having a top ring *a*¹, and bottom ring *a*², stationary guide *b*, and fender *b*², and draft tube B, as set forth. 2nd. The gate ring C, provided with openings *c*, coinciding with the chutes *a* in the wheel case, said chutes provided with stationary guide *b*, anti-friction balls or rollers *y*, interposed as bearings between the gate ring and wheel case, and travelling in an annular groove, as set forth. 3rd. The dome D, having an upwardly extending neck N, provided with a recess to receive the sleeve *e*, of the stuffing box E, as set forth. 4th. The dome D, having an extending neck on one side, and an annular recess for the sleeve *f*, of the stuffing box F, to allow of removal of the rack and pinion, for repairs without removal of the dome, as set forth. 5th. The stuffing box E, constructed in two halves or sections bolted together and having a sleeve *e*, in combination, with a dome D, having an upwardly extending neck N, provided with a recess to receive said sleeve, and fastened by bolts P to the dome, as set forth. 6th. The step S, having a tractory curve formation for the pivot bearing of wheel spindle, in combination, with a thimble T, having holes V, for water lubrication of the step, as set forth.

No. 39,713. Telegraphic Transmitter.*(Appareil transmetteur de télégraphie.)*

Samuel W. Smith, New York, State of New York, U. S. A., 6th August, 1892; 6 years.

Claim.—1st. A telegraphic transmitter, having a series of vertically moving keys, oscillating carriages having one and beneath the keys and the other provided with a weight, said carriages having segmental racks, as shown, shafts mounted in suitable supports, said shafts carrying discs having projections thereon corresponding to the characters to be transmitted, means for closing the circuit through said projections, ratchet wheels fixed to the shafts adjacent to the discs, and pinions mounted loosely upon the shafts so as to mesh with the carriage racks, said pinions being provided with a pawl to operate the ratchet wheels, substantially as described. 2nd. A telegraphic transmitter consisting essentially of a series of independent electrically connected shafts, each carrying a disc having contact projections thereon adapted to transmit characters as described, insulating discs mounted on each side of the character disk so as to extend beyond the body of the same, a trailer electrically connected and pressing upon the insulating discs so as to engage the projections of the character disc and close the circuit, a ratchet wheel fixed to the shaft, a pinion carrying an arm having at the end a spring-pressed pawl to engage the ratchet wheel, an oscillating carriage having a rack to engage the pinion of the shafts, and having a weight at one end thereof, and key mounted above the carriage and adapted to move the same in opposition to the weight, substantially as described. 3rd. In a telegraphic transmitter, the combination with an electrically connected shaft mounted in suitable supports, a disc fixed to the shaft and having contact projections on the edge thereof, insulating discs mounted on each side the contact disc, so as to extend beyond the body of the same, a ratchet wheel fixed to the shaft, a pinion loosely mounted on the shaft and provided with a spring-pressed pawl to engage the ratchet wheel, and eccentric wheel fixed to the shaft, and a spring mounted on a support so as to press against the eccentric wheel and govern the movement of the shaft, of an oscillating carriage pivoted in a support, said carriage having a rack to engage the pinion of the shaft, a weighted end to hold it in a depressed position and a lever like extension as shown, and a key mounted above the extension of the carriage, so as to engage the same and move the carriage, substantially as described. 4th. In a telegraphic transmitter, the combination with a revolvable electrically connected shaft carrying a character disc, and a pinion and ratchet wheel mechanism as shown, of a pin-wheel fixed to the shaft, a stop mounted upon a support, and adapted to engage the pin-wheel and limit the movement of the shaft, an oscillating carriage having a rack meshing with the pinion to turn the shaft, and a laterally extending arm fixed to the carriage and adapted to engage the spring stop and automatically release it from engagement with the pin-wheel, substantially as described. 5th. In a telegraphic transmitter, the combination, with an electrically connected revolvable shaft having sending mechanism thereon adapted to be operated by the movement of the shaft, of an eccentric wheel fixed to the shaft, and a spring mounted upon a support so as to press against the wheel and regulate the movement of the shaft, substantially as described. 6th. In a telegraphic transmitter of the character described, the combination of the revolvable shaft carrying the sending mechanism, the pin-wheel fixed to the shaft and a stop for the pin-wheel, substantially as described. 7th. A telegraphic transmitter comprising a series of keys, and independent sending mechanism for each key, the sending mechanism of each key being isolated from the sending mechanism of every other key, substantially as described. 8th. In a telegraphic transmitter, the combination, with an oscillating carriage provided with a segmental rack, of a shaft carrying a disc having projections, a ratchet wheel on the shaft, a pinion loosely mounted on the shaft and carrying a pawl, and means for regulating the revolvable movement of the shaft, substantially as described. 9th. In a telegraphic transmitter, the combination, with a weighted oscillating carriage provided with a segmental rack, of a shaft carrying a disc having projections, a ratchet wheel on the shaft, a pinion loosely mounted on the shaft and carrying a pawl, and means for regulating the revolvable movement of the shaft, and a trailer bearing on the disc, substantially as described. 10th. In a telegraphic transmitter the combination, with a weighted oscillating carriage provided with a segmental rack, of a shaft carrying a disc having projections, a ratchet wheel on the shaft, a pinion loosely mounted on the shaft and carrying a pawl, for regulating the revolvable movement of the shaft, and a trailer bearing on the disc, substantially as described. 11th. In a telegraphic transmitter, an oscillating carriage provided with mechanism by means of which a character is made after the key is released, and on the return of the carriage to its normal position, as substantially shown and described. 12th. In a telegraphic transmitter, the combination, with the mechanism for making a character, of an oscillating carriage with weight, for restoring the said carriage to normal position, and causing a character or characters to be made upon the releases of the key, as substantially shown and described. 13th. A telegraphic transmitter, consisting of a series of independent transmitters, each transmitter being complete in itself and in no way mechanically connected with any other of the series, as substantially shown and described. 14th. A telegraphic transmitter, in which the whole operation is

performed by the pressure upon the button without the aid of clock-work or other motive power, and the character is made after the button is released and returned to its normal position by might or spring, as substantially shown and described.

No. 39,714. Grain Binder. (Lieuse à grain.)

Watson Martin Holmes, Hoosick Falls, New York, U. S. A., 6th August, 1892; 6 years.

Claim.—1st. The combination, with the knotter and its pinion, of an intermeshing pinion journaled on the knotter frame, the knotter driving disc, a segmental rack thereon to operate the knotter pinion, and a second segmental rack on the disc to engage the intermeshing pinion, thereby imparting a reverse rotation to the knotter, substantially as and for the purpose specified. 2nd. The combination, with the knotter driving disc, of the knotter and its pinion, an intermeshing idle pinion journaled in the knotter frame, the axis of rotation of the pinions being in a plane making an angle with the plane of rotation of the driving disc, and segmental racks on the driving disc, meshing, respectively, with the intermeshing pinions, substantially as and for the purpose specified. 3rd. The combination, with the knotter and its pinion, of an intermeshing idle pinion journaled in the knotter frame, and mechanism to successively drive the pinions, as and for the purpose specified. 4th. The combination, with the knotter driving disc, of the knotter pinion having long teeth meshing with a segmental rack on the driving disc, an idle pinion of shorter teeth meshing with the knotter pinion, and a segmental rack formed on an offset from the periphery of the driving disc to drive the idle pinion after the knotter hooks have reached the limit of their forward rotation, substantially as and for the purpose specified. 5th. The combination of the upper and lower knotter hooks, the spindle of the lower hook being journaled within the spindle of the upper hook, and the frame which supports the knotter frame, formed with a bearing for the upper end of the inner spindle, substantially as and for the purpose specified. 6th. The combination, with the hollow spindle of the upper knotter hook, of the spindle of the lower hook, journaled within the hollow spindle of the upper hook, a spring secured to the spindles, whereby they are both caused to normally rotate together, stops on the knotter frame and on the spindle of the lower hook to stop the forward rotation of the latter, a driving pinion on the spindle of the upper hook, and an intermeshing idle pinion journaled in the knotter frame, and driving racks on the knotter driving disc, one to engage the pinion on the knotter and the other to engage the idle pinion, substantially as and for the purpose specified. 7th. The combination, with the knotter driving disc, and the knotter supporting frame of the grasper frame pivoted therein, the inwardly extending arm on the grasper frame, the cam groove on the disc into which the arm takes, to positively reciprocate the grasper frame, the grasper jaw pivoted to the grasper frame transversely to the movement of the latter, and the cam on the driving disc to positively open and close the grasper jaw. 8th. The combination, with the knotter driving disc, and knotter supporting frame, of the grasper frame pivoted thereon, the inwardly extending arm on the grasper frame, the cam groove on the disc into which the arm takes to positively reciprocate the grasper frame, the grasper jaw pivoted to the grasper frame transversely to the movement of the latter, the cam on the driving disc to positively open and the grasper jaw, and the spring interposed between the pivoted grasper jaw, and the grasper frame to hold the grasper jaw closed during the formation of the bundle, as specified. 9th. The combination of the grasper jaw pivoted to the grasper frame, a pin sliding through a projection on the grasper frame, and a spring surrounding the sliding pin and interposed between its head, articulating by a universal or swivelled joint with the grasper jaw, and the projection on the grasper frame, substantially as and for the purpose specified. 10th. The combination of the grasper frame, the grasper jaw pivoted thereto, the knotter driving disc adapted to actuate the grasper jaw, and a spring interposed between the grasper frame and the grasper jaw so that its force is greatest when the grasper is closed, substantially as and for the purpose specified. 11th. The combination, with a longitudinally sliding packer driving shaft, and a constantly revolving driver mounted loosely thereon, and a clutch collar secured thereto, of a clutch on the driver, the gear wheel on the binder shaft, and a cam groove formed on the face thereof, a lever journaled in the binder frame and having a roller on one end taking into the cam groove, and a yoke at the other end bearing against the packer driving shaft, whereby the initial movement of the gear wheel on the binder shaft operates the lever to slide the packer driving shaft through the driver, so that the clutch collar on the packer driving shaft will be disengaged from the clutch on the driver, substantially as and for the purpose specified. 12th. The combination, with the longitudinally sliding packer driver shaft, and a driver mounted loosely thereon, and provided on either side with clutching mechanism, of a clutch collar fast on the shaft, a spring actuated clutch pinion loose on the shaft, said collar and pinion being on opposite sides of the driver, the binder driving gear wheel, and mechanism connecting the binder driving gear wheel with the spring actuated clutch pinion to slide the latter, and a spring interposed between the loose clutch pinion and a collar fast on the shaft, whereby the sliding of the clutch pinion out of mesh with the driver moves the shaft longitudinally, substantially as and for the purpose specified. 13th. The combination, with the tripping shaft and its dependent arm, of a yoke

pivoted at its lower end thereto and straddling the hub of a clutch pinion, and having flanges taking over the periphery of the binder driving gear, a spring actuated clutch pinion, a spring interposed between the lower end of the yoke and a projection on the lower end of the dependent arm of the trip shaft, and lugs on the binder driving gear to engage the flanges on the yoke, substantially as and for the purpose described. 14th. The combination, with a constantly revolving driver and its clutch, of a clutch pinion engaged thereby to drive the binder, the binder driving gear, the tripping shaft, its dependent arm, a yoke pivoted thereon at its lower end and at its upper end on the clutch pinion, a spring interposed between the lower end of the yoke and dependent arm of the tripping shaft, lugs on either side of the binder driving gear, and the flanges on the yoke engaged by the lugs of the binder driving gear, whereby the latter in disengaging the clutches compresses the spring to continue the separation of the clutches, substantially as and for the purpose specified. 15th. In combination, with the binder driving gear wheel and its wedge shaped lug for partially disengaging the clutches, of a second lug on the opposite side of the binder driving gear, a yoke pivoted on or straddling the loose clutch pinion on the main driving shaft, and a spring compressed by the partial disengagement of the clutches, and then suddenly released to continue the separation of the clutches, substantially as and for the purpose specified. 16th. The combination, with the constantly revolving driver loose on its shaft and provided with clutches on either side of the driver, of a clutched collar fast on the shaft, a clutched pinion loose on the shaft, the clutched pinion and the clutched collar being on opposite sides of the driver, a spring interposed between the clutched pinion and a collar fast on the shaft, and means to slide the clutched pinion out of engagement with the driver, whereby the disengagement of the clutched pinion causes the engagement of the clutched collar and driver, substantially as and for the purpose specified. 17th. The combination, with the continuously revolving driver loose on the main driving shaft, and provided on either side with clutch teeth of a clutch pinion meshing with the driving gear wheel on the binder shaft, a spring interposed between the pinion and a collar on the shaft, the longitudinally main sliding shaft, a clutch collar secured thereto, and means, substantially as described, for alternately sliding the shaft and the clutch pinion. 18th. The combination, with the gear-wheel C² and arm H¹ of the tripping shaft, of the yoke H², having the dependent flanges h³, h⁴, the lugs a³ e¹ on gear-wheel C², the spring h⁵, and the spring actuated clutch pinion a⁶, substantially as and for the purpose specified. 19th. The combination, with a constantly revolving driver loose on its shaft and provided on either side with clutching mechanism, of a clutch on one side to operate the packer means to disengage the binder clutch from the driver, and hold it disengaged, and a spring compressed by the disengagement of the binder clutch, and then released to throw the packer clutch into engagement with the driver, substantially as and for the purpose specified. 20th. The combination, with a constantly revolving driver, loose on its shaft and having clutches on either side of a clutch on one side of the driver to operate the packers, and a clutch on the other side of the driver to operate the binder, a spring interposed between the packer and binder clutches to force the binder clutch and packer clutch into engagement with the driver, means to positively partially disengage and hold disengaged the binder clutch from the driver, and a second spring positively compressed as the binder clutch is partially disengaged, and then suddenly released to continue the separation of the binder clutch from its driver, substantially as and for the purpose specified. 21st. The combination with the constantly revolving driver having clutch faces on either side and loose on its shaft, of its longitudinally sliding shaft provided with a clutch to drive the packers, a clutch pinion loose on the shaft to drive the binder, a spring interposed between the clutch pinion and a collar on the shaft, and means to positively disengage the clutches, whereby the spring is adapted to force both the clutches alternately into engagement with the driver, substantially as and for the purpose specified. 22nd. The combination, with the constantly revolving driver loose on its shaft, and provided on either side with clutches, of a clutch fast on the shaft to operate the packers, a clutch pinion loose on its shaft to operate the binder driving gear, a cam groove on the binder driving gear, a lever taking into the cam groove and operated thereby to disengage and hold disengaged the packer clutch from the driver, a depression in the cam on the binder driving gear, a spring interposed between the binder clutch pinion and a collar fast on the driving shaft, and means to positively disengage and hold disengaged the binder clutch pinion from the driver, whereby the spring is compressed until the lever registers with the depression in the cam when it is free to act, to slide the packer into engagement with the driver, substantially as and for the purpose specified.

No. 39,715. Egg Carrying Package. (*Boîte à œufs.*)

Robert G. Dale & Walter S. Weightman, both of Durango, Colorado, U.S.A., 6th August, 1892; 6 years.

Claim.—1st. An egg carrying package or case composed of an outer body part made of pasteboard or thick paper, bent or folded to form two tubular sections lying side by side, with their inner walls dividing them but left free to open, and of inner thin paper or flexible strips looped to form a series of separate egg chambers in each tubular section of the case, substantially as specified. 2nd. In a

divided or sectional egg carrying package or case of the character described, the two folded tubular sections of the opening and closing case provided with a series of slots in two of their opposite outer walls, in combination with thin paper or flexible strips folded over upon themselves and looped to form a series of separate egg chambers within the tubular sections, and constructed at their folding portions with incisions in their edges forming locking tongues which engage with the slotted portions of the tubular sections, essentially as shown and described. 3rd. The blank for a sectional egg carrying package or case of the character described, composed of a strip of pasteboard of stiff paper creased or marked as at *b, b', c, c', and d, d'*, to fold over from reverse ends, and having a series of slots *s* in the portions *c c'* between the folding lines or creases *b c* and *b' c'*, substantially as described.

No. 37,916. Method of Producing Paper with Hidden Designs. (*Méthode de produire des dessins invisibles sur papier.*)

Thomas Beecham, St. Helens, Lancashire, England, 6th August, 1892; 6 years.

Claim.—1st. The process of applying invisible designs, devices, letters, figures and other characters to paper and similar materials, the same consisting in applying the said design, device, letter, figure or character to the paper by printing, pressing or stamping the same in a saturated solution of chemicals that burn the paper in the lines of the design, &c., when ignited by a glowing substance, without flame, substantially as specified. 2nd. The process of applying invisible designs, devices, letters, figures and other characters to paper and similar substances, the same consisting in applying the said design, device, letter, figure or character to the paper by printing, pressing or stamping the same in a saturated solution of nitrate or chlorate of potassium, substantially as specified. 3rd. The process of producing designs, devices, letters, figures and other characters in paper and similar materials, the same consisting in applying the design, device, letter, figure or other character to the paper by pressing, stamping, or printing the same invisibly in a saturated solution of nitrate or chlorate of potassium or other suitable chemical, and then developing the same by burning the paper in the lines of the design without flame, by means of the chemical, substantially as specified. 4th. A paper provided with invisible designs, devices, figures, characters, &c., traced by a saturated solution of a chemical such as nitrate or chlorate of potash, which design, device, letter, figure or character may be developed by causing the chemical to burn the paper in the lines of the designs, &c., without flame, substantially as specified.

No. 39,717. Sampling Apparatus for Ore.

(*Appareil pour échantillonner les minerais.*)

Robert Charles Hawley, Pueblo, Colorado, U. S. A., 6th August, 1892; 6 years.

Claim.—1st. An ore sampling device, comprising a delivery device for the ore, a dividing or oscillating wing arranged under the said delivery device, branch hoppers into which the ore divided by the said wings passes, and a casing having a transverse partition to form two compartments, each provided with hoppers arranged one above the other, and also with oscillating wings arranged alternately with the hoppers in each compartment, the wings of the two compartments oscillating simultaneously, substantially as described. 2nd. An ore sampling device, comprising a main hopper, a dividing or oscillating wing arranged under the said main hopper, branch hoppers into which the ore divided by the said wing passes, a casing having a transverse partition to form two compartments, each provided with hoppers arranged one above the other and also with oscillating wings arranged alternately, with the hoppers in each compartment, and a base formed with an outlet, into which the said compartments discharge and provided with sampling compartments into which the lowermost set of wings discharge, substantially as shown and described.

No. 39,718. Envelope Moistener and Opener.

(*Machine pour humecter et ouvrir les enveloppes.*)

William J. Dyas and Edwin M. Marshall, both of Strathroy, Ontario, Canada, 6th August, 1892; 6 years.

Claim.—1st. A section M, cut away at B, and a sponge or other absorbent material S secured therein, in combination with the tube T, formed with the partition P, and water reservoir R, substantially as shown and described, and for the purpose specified. 2nd. A tube T, formed with a partition P, and provided with a reservoir R, and a shot E or other suitable or similar object, placed in said reservoir, in combination with a section M, and sponge or other suitable absorbent material S secured therein, substantially as shown and described, and for the purpose specified. 3rd. A section M, cut away at B, and a sponge or other suitable absorbent material S secured therein, by the projections or spikes A, the tube B, formed with the partition T, the reservoir R, and shot E, in combination with the section O, provided with the cutting instrument K, substantially as shown and described, and for the purpose specified.

No. 39,719. Grain Binder. (*Lieuse à grain.*)

Earl G. Watrous, Hoosick Falls, New York, U.S.A., 6th August, 1892; 6 years.

Claim.—1st. The combination with the constantly revolving driving gear of an intermittently revolving gear wheel serving to actuate the binding mechanism, and having a portion of its rim pivoted thereto, so as to be swung inwardly toward the centre of the gear wheel and out of mesh with the driver, and a lever adapted to engage a projection on the pivoted rim, and to be disengaged therefrom by the accumulation of grain in the binder receptacle, substantially as and for the purpose specified. 2nd. The combination with the binder driving gear having a portion of its rim pivoted thereto, of a lever adapted to engage the pivoted portion of the rim to rock the latter inwardly, and to be disengaged therefrom by the accumulation of grain in the binder receptacle, and a spring interposed between the pivoted segment of the rim and one of the spokes of the wheel, substantially as and for the purpose described. 3rd. The combination of the binder driving gear, having a gear segment pivoted thereto, a spring to force the segment outwardly, and a spring actuated arm or plunger to engage a projection on the gear segment, and adapted to be disengaged therefrom by the accumulation of the grain in the binder receptacle, substantially as and for the purpose specified. 4th. The combination of the binder driving gear having a gear segment pivoted thereto, a spring to force the gear segment outwardly, and an arm adapted to engage a projection in the gear segment and actuated by a stronger spring, and a flange under which the gear segment passes to positively compress the stronger spring, substantially as and for the purpose specified.

No. 39,720. Switch for Electric Locomotives.

(*Commutateur pour locomotives électriques.*)

Frank Bankson Rae, Detroit, Michigan, U.S.A., 6th August, 1892; 6 years.

Claim.—1st. A switch consisting of a cylindrical body of insulating material, provided with two strips of conducting material surrounding the body, intervening strips partially surrounding the body, and a plate having steps and contacts arranged to bear on the strips and plate, substantially as described. 2nd. A switch consisting of a cylindrical body of insulating material, two strips of conducting material entirely surrounding the body, four intervening strips partially surrounding the body and connected to the first strips, and a plate having stepped sides and contacts arranged to bear on the strips and plate, substantially as described. 3rd. The combination with a switch body having strips and plate of conducting material secured thereto, substantially as described, of a series of contacts arranged to bear on said strips and plate, there being separate contacts for the field magnets, the armature, and the several resistance devices, the said resistance devices being arranged in multiple arc, whereby the circuit is completed through a resistance device, and the field magnets, armature, and other resistance devices are successively brought into circuit in multiple arc as the switch is turned, substantially as described. 4th. The combination, with the field magnets and armatures of a motor, the coils of each having separate terminals, of a resistance device consisting of a number of resistance coils arranged in multiple arc, and each having a separate terminal, and a switch having a series of conducting plates arranged to close the circuits through the field and armature coils and to include more or less of the resistance coils in multiple arc, substantially as described. 5th. The combination with a switch consisting of an insulating body having a series of conducting plates thereon and contact pieces connecting with the plates, of a shaft having a terminal of irregular shape and a removable handle adapted to fit said terminal in one position only, substantially as described.

No. 39,721. Process of and Apparatus for Making Salt. (*Procédé et appareil pour la fabrication du sel.*)

Cassius C. Peck, Warsaw, New York, U.S.A., 6th August, 1892; 6 years.

Claim.—1st. In apparatus substantially such as described, the combination of a vacuum chamber, and an exterior tank for heating the liquid under atmospheric pressure, and apparatus for enforcing a circulation of the heated liquid through and between the said vacuum chamber and heating tank, substantially in the manner and for the purpose described. 2nd. In evaporating apparatus substantially such as described, the combination of a vacuum chamber, an exterior tank for heating the liquid under atmospheric pressure, apparatus for enforcing a circulation of heated liquid through and between the said vacuum chamber and heating tank, and an automatic conveyor for removing the solid products of evaporation, substantially in the manner and for the purpose described. 3rd. In evaporating apparatus substantially such as described, the combination of a vacuum chamber formed with converging side walls which concentrate the solid products of evaporation at the bottom of the chamber, an exterior tank for heating liquid under atmospheric pressure, apparatus for enforcing a circulation of heated liquid through and between the said vacuum chamber, and exterior heating tank, and an automatic conveyor for removing the solid products of evaporation from the lower portion of the vacuum chamber, substantially in the manner and for the purpose described. 4th. A

vacuum chamber constructed wholly of masonry, for the purpose and substantially in the manner described. 5th. A vacuum chamber constructed of masonry and coated on the outside surface with thin sheet metal, or other thin air proof material, for the object and substantially in the manner set forth. 6th. In evaporating apparatus substantially such as described, the combination of a vacuum pan, an exterior tank for heating liquid under atmospheric pressure, a heating coil situated in said liquid heating tank, and communicating with the vacuum space in the said vacuum chamber, and apparatus for exhausting the vapour from said vacuum chamber through the said heating coil, substantially in the manner and for the purpose described. 7th. In evaporating apparatus substantially such as described, two or more vacuum chambers, two or more exterior tanks for heating liquid under atmospheric pressure, heating coils arranged in the said exterior heating tanks, and each communicating with the vacuum space in the next preceding vacuum chamber, and apparatus for withdrawing the vapour from the vacuum chambers through the said heating coils, in such manner that the vapour from one vacuum chamber is utilized to heat the liquid for the next succeeding vacuum chamber, substantially in the manner described. 8th. In evaporating apparatus substantially such as described, the combination of two or more vacuum chambers, two or more exterior tanks for heating liquid under atmospheric pressure, heating coils situated in said exterior tanks, and communicating with the vapour spaces of the said vacuum chambers and a duplex exhaust pump connected with said heating coils and provided with valves by which the action of the pump upon the respective coils may be varied, substantially in the manner and for the purpose specified. 9th. The process of manufacturing salt continuously, consisting in separating the salt from the brine by evaporation, removing the salt from the evaporator automatically and drying it in the process of removal by keeping it in an agitated state, and passing a current of air through it, the air and the salt moving in opposite directions substantially in the manner herein set forth. 10th. The process herein set forth of augmenting the evaporation of brine or other liquid in vacuum apparatus, consisting in heating the liquid under atmospheric pressure, and forcibly circulating it through and between the open heating tank and the vacuum chamber, substantially in the manner described. 11th. In the manufacture of salt and the evaporation of liquids leaving solid residuum the process herein described of removing the solid products of evaporation from the vacuum chamber by a forced circulation of brine, or other liquid being evaporated, through and between said vacuum chamber and a tank in which the brine or other liquid is heated under atmospheric pressure, substantially in the manner and for the purpose set forth. 12th. In vacuum apparatus the combination substantially as and for the purpose set forth, of a tank open to the atmosphere for containing the liquid to be evaporated, a vacuum chamber opening at its lower end into said tank and sealed by the liquid therein, and a heater arranged to impart heat to the liquid in the tank to effect its evaporation within the said vacuum chamber. 13th. The combination substantially as set forth, of a series of separate evaporating apparatus each consisting of a tank open to the atmosphere for containing the liquid to be evaporated, a vacuum chamber opening at its lower end into said tank and sealed by the liquid therein, and a heater arranged to impart heat to the liquid in the tank to effect its evaporation within the said vacuum chamber, the upper portion of the vacuum chamber in one tank being connected with the combined condensing and heating coil in the next succeeding tank or member of the series for the purpose described. 14th. In a vacuum apparatus, the combination substantially as and for the purpose set forth, of a tank open to the atmosphere for containing the liquid to be evaporated, a vacuum chamber opening at its lower end into said tank and sealed by the liquid therein, a heater arranged to impart heat to the liquid in the tank to effect its evaporation within the said vacuum chamber, a conveyor for removing solid matters from the tank or tanks, and a second conveyor formed with a steam chamber for heating the said conveyor and its contents. 15th. In vacuum apparatus arranged in series for multiple effect, substantially as described, the tanks A, A¹, A², sufficiently open at the top to receive atmospheric pressure, a vacuum cylinder arranged in each tank, and supplied therefrom, and a condenser coil in each tank, excepting the first, connected with the upper portion of the vacuum cylinder in the next preceding tank of the series, each condenser coil having a greater surface than the next preceding one, substantially as described. 16th. The process of evaporating liquids consisting in imparting the heat to effect the evaporation in the vacuum chamber to the liquid in the separate heater and then transferring such heated liquid into the vacuum chamber, substantially as and for the purpose set forth. 17th. The process of evaporating liquids consisting in imparting the heat to effect the evaporation in the vacuum chamber to the liquid in the separate closed heater, and then transferring such heated liquid into the vacuum chamber, substantially as and for the purpose set forth. 18th. The process of evaporating liquids substantially as and for the purpose set forth, consisting of imparting the heat to effect the evaporation in the vacuum chamber to the liquid in a separate closed heater, and causing the liquid to circulate in and between said heater and the vacuum chamber. 19th. The process of evaporating liquids substantially as and for the purpose set forth, consisting in imparting the heat to effect the evaporation in the vacuum chamber to the said liquid in a separate closed heater, and causing the liquid to circulate in and between said heater and vacuum

chamber by means of a forced circulation. 20th. The process of evaporating liquids substantially as and for the purpose herein set forth, consisting in imparting the heat to effect the evaporation in the vacuum chamber to the said liquid in a separate heater, and injecting said heated liquid into the vacuum chamber in a line which is substantially tangential thereto in such manner as to impart a gyratory motion to the liquid. 21st. The process of evaporating liquids substantially as and for the purpose herein set forth, consisting in imparting the heat to effect the evaporation in the vacuum chamber to the said liquid in the separate heater, injecting said heated liquid into the vacuum chamber in a line which is substantially tangential thereto in such manner as to impart a gyratory motion to the liquid to effect the collection of the crystals, and returning the unevaporated liquid to the exterior heater to be reheated and again introduced into the vacuum chamber. 22nd. The process of evaporating liquids substantially as and for the purpose set forth consisting in imparting the heat to effect the evaporation within the vacuum chamber to the said liquid by means of an exterior heater, introducing the heated liquid into the vacuum chamber, and discharging the products of evaporation therefrom into a separating basin in such manner as to create therein a vortex movement by which the crystals are separated from the liquid constituent. 23rd. The process of evaporating liquids, substantially as and for the purpose herein set forth, consisting in imparting the heat to effect the evaporation within the vacuum chamber to the said liquid by means of an exterior heater, introducing the said liquid into the vacuum chamber, discharging the products of evaporation therefrom into a separating basin in such manner as to create therein a vortex movement by which the crystals are separated from the liquid constituent, and returning said liquid constituent to the said exterior heating apparatus to be reheated and again introduced into the vacuum chamber. 24th. The process of evaporating liquids, substantially as and for the purpose herein set forth, consisting in imparting the heat to effect the evaporation within the vacuum chamber to the liquid by means of an exterior heater, injecting the said heated liquid into the vacuum chamber at an angle substantially tangential thereto, to facilitate the concentration of the products of evaporation, and discharging said products of evaporation from the vacuum chamber into a separating basin at an angle substantially tangential thereto, to separate the crystals from the liquid constituent. 25th. The process of evaporating liquids, substantially as and for the purpose herein set forth, consisting in imparting the heat to effect the evaporation within the vacuum chamber to the said liquid by means of an exterior heater, injecting the said heated liquid into the vacuum chamber at an angle substantially tangential thereto, to facilitate the concentration of the products of evaporation, discharging the products of evaporation from the vacuum chamber into a separating basin at an angle substantially tangential thereto, to separate the crystals from the liquid constituent, and returning said liquid constituent to the said exterior heater to be reheated and again introduced into the vacuum chamber. 26th. The process of evaporating liquids, substantially as and for the purpose set forth, consisting in imparting the heat to effect the evaporation within the vacuum chamber to the liquid by means of an exterior heater, injecting the said heated liquid into the vacuum chamber at an angle substantially tangential thereto, to facilitate the concentration of the products of evaporation, discharging the said products of evaporation from the vacuum chamber into a separating basin at an angle substantially tangential thereto to separate the crystals from the liquid constituent and returning said liquid constituent to the said exterior heater to be reheated and again introduced into the vacuum chamber, the whole process and operation being effected and maintained continuously by a forced circulation of the liquid under treatment, substantially in the manner described.

No. 39,722. Car Coupler. (*Attelage de chars.*)

Richard Chandler, Lone Star, Texas, U.S.A., 6th August, 1892; 6 years.

Claim.—1st. In an automatic car coupler, the combination of a vertical frame embracing the draw head, and adapted to move up or down in vertical grooves in the sides of the draw head, its cross head being provided with a vertical hole in the centre adapted to carry the coupling pin, its side bars being provided with the notches G, and its lower cross bar with the fixed guide pin F, a tripping plate adapted to engage said notches and to hold said frame when raised, projecting fingers B¹, securely fastened into the front edge of said tripping plate, and operating through parallel holes in the face of the draw head and in the same plane with the draw head, a spring adapted to force said tripping plate and said fingers to the front, a coupling pin, and of a link, as and for the purposes substantially as set forth and described. 2nd. In an automatic car coupler, the combination of the frame A, the tripping plate B, the fingers B¹, the spring C, the draw head D, the coupling pin E, the guide pin F, the notches G, and the link I, all in combination as and for the purposes substantially as set forth and described.

No. 39,723. Steam Boiler and Furnace.

(*Chaudière à vapeur et fourneau.*)

George Alfred Ayer, Worcester, Massachusetts, U.S.A., 6th August, 1892; 6 years.

Claim.—1st. The fire box formed with a depending water leg or wall, and the water grate connecting at its inner end directly

with the lower part of such leg or wall, in combination with the water box connected to the opposite end of the grate tubes, and with the feed pipes leading obliquely upward from the lower part of the boiler to said water box, whereby water is supplied from the bottom of the boiler direct to the grate, substantially as set forth. 2nd. The fire box formed with a depending water leg or wall, and the independent water box free from attachment to the fire box shell, in combination with the water grate connecting said water leg and box, and with the oblique and radially arranged supply pipes connecting said water box with the bottom of the boiler, substantially as set forth. 3rd. The boiler shell A, fire box B, inclosed therein, and depending water leg E, with the vertical chamber F behind it, in combination with the water grate G, box H, and supply pipes J within the fire box, and flues P, leading from said chamber, substantially as set forth. 4th. The boiler shell A, fire boxes B, B, with their respective vertical extensions F, F, separated by a water passage and placed side by side within said shell, and the distinct series of flues P, P, appertaining thereto, in combination with a water grate suitably supplied with water, and a depending water leg or back enforcing a downward draft through said grate, substantially as set forth.

No. 39,724. Apparatus for Testing Substances.

(*Appareil pour éprouver les substances.*)

Thomas Clement, Glasgow, Lancashire, Scotland, 6th August, 1892; 6 years.

Claim.—1st. In combination, a testing tube or receptacle I, having an inlet, a reservoir A, connected to said testing tube or receptacle and an agitator or mixer M, substantially as and for the purpose specified. 2nd. In combination, a testing tube or receptacle I, a reservoir A, connected to said testing tube or receptacle, and a rectilinearly moving agitator M, substantially as and for the purpose set forth. 3rd. In combination, a testing tube or receptacle I, a reservoir A, connected to said testing tube or receptacle, an agitator frame m, and perforated discs m¹, substantially as and for the purpose specified. 4th. The combination, of a base H, a hinged testing tube or receptacle I, having an inlet, a reservoir A, connected to said testing tube, and graduations i, substantially as and for the purpose set forth. 5th. The combination, with the support K, a hinged testing tube or receptacle I, and a clamp K¹, substantially as and for the purpose specified. 6th. In an apparatus for testing the acidity of materials, the combination, of a support K, a hinged receptacle I, a spring clamp K¹, and a second receptacle A, connected to the former receptacle, substantially as and for the purpose set forth. 7th. The combination, with the support K, a hinged testing tube I, and a clamp K¹, having spring arms k, substantially as and for the purpose specified. 8th. In combination, a reservoir A, a hinged testing tube I, connected to said reservoir, and a tray or receptacle N, substantially as and for the purpose set forth. 9th. In combination, a supporting base H, a reservoir I, hinged thereto, a reservoir A, connected to the former reservoir, and a tray N, substantially as and for the purpose specified.

No. 39,725. Machine for Cutting Green Corn off the Cob. (*Machine pour épier le blé d'inde.*)

Welcome Sprague, Farnham, New York, U.S.A., 6th August, 1892; 6 years.

Claim.—1st. The combination with the stationary frame of the machine, of two horizontal arms pivoted at one end to the stationary frame and capable of moving vertically at their opposite end, spring secured to said frame, a yoke embracing said springs and pressing the arms toward each other, horizontal shafts journaled in said arms and feed wheels mounted on said shafts, substantially as set forth. 2nd. The combination with the stationary frame, of two horizontal arms pivoted at one end to the frame and guided at their opposite free ends in vertical ways in the frame, flat springs secured at one end to said arms and bearing with their free ends upon the arms, an adjustable yoke embracing said springs horizontal shafts journaled in said arms, and feed wheels mounted on said shafts, substantially as set forth. 3rd. The combination with the cutters, of a feed roller provided in its face with transverse blades extending from side to side of the roller, substantially as set forth. 4th. The combination with the cutters, of a feed roller having a concave face and provided in its face with transverse radial blades extending from side to side of the roller, substantially as set forth. 5th. The combination with the carrying apron, the feed rollers and the cutters, of guides arranged in front of said feed rollers above and below the path of the ear of corn, and a second set of guides arranged between the feed rollers and the cutters above and below the cutters, substantially as set forth. 6th. The combination, with a pair of feed wheels and the cutters, of a second set of feed wheels arranged in rear of the cutters and deflectors arranged in front of the second set of feed wheels whereby the kernels removed by the cutters are diverted out of the path of said feed wheels, substantially as set forth. 7th. The combination, with the arms E, F capable of movement toward and from each other, of horizontal shafts journaled in said arms one above the other, feed wheels mounted on said shafts, and cutters attached to said arms in rear of the feed wheels, substantially as set forth. 8th. The combination, with the arms E, F capable of movement toward and from each other, of horizontal shafts journaled in said arms one above the other, feed wheels mounted on said shafts, cutters attached

to said arms in rear of the feed wheels, and deflectors a^1 attached to said movable arms, above and below the cutters, substantially as set forth. 9th. The combination, with the horizontal adjustable shafts c and the feed rollers mounted thereon, of cutters arranged in rear of said feed rollers, and guides arranged between the feed rollers and the cutters, and made movable with the feed rollers, substantially as set forth.

No. 39,726. Clutch Controller. (*Embrayage à contrôle.*)

David Riceing Steele, Waterloo, New York, U. S. A., 6th August, 1892; 6 years.

Claim.—The combination, in a hoisting machine, of a drum shaft B having a slotted hollow portion b ; the sliding drum D, loosely mounted on the said shaft, and having on one end thereof the cap or retainer J; the screw-rod F; the fixed nut G, engaging the said rod and one or more blocks or keys I, L, engaging the said rod loosely and freely entering the said cap behind its flange or outer rim, the said drum and its driver being adapted for frictional engagement with each other, substantially as and for the purpose specified.

No. 39,727. Mechanical Movement.

(*Mouvement mécanique.*)

Alfred Buckingham Willcox, Chicago, Illinois, and Edward Leder Whittemore, Toledo, Ohio, both in the U. S. A., 6th August, 1892; 6 years.

Claim.—1st. The combination of a revolving shaft carrying a crank, having two crank-pins in the same radial line, but one more distant from the centre of motion than the other, an oscillating shaft, an arm projecting radially from said oscillating shaft and in substantially the same plane as the plane of the said crank, the said arm carrying a projecting crank-pin, two connecting rods arranged on the crank-pin of the said oscillating shaft, the said connecting rods joined respectively to two crank-pins on the said revolving shaft, the said connecting rods constructed for a predetermined length of lost motion between the crank-pin and the oscillating shaft, and the two crank-pins of the revolving shaft, the periphery of the crank and the adjacent surface of the said arm curved corresponding to the points of contact between the said crank and arm in the revolution of the crank, substantially as and for the purpose described. 2nd. The combination of a revolving shaft carrying a crank having two crank-pins in the same radial line, but one more distant from the centre of motion than the other, an oscillating shaft, an arm projecting radially from said oscillating shaft and carrying a projecting crank-pin, two connecting rods arranged on the said crank-pin of the oscillating shaft, the said connecting rods joined respectively to the two crank-pins on the revolving shaft, the said connecting rods constructed for a predetermined length of lost motion between the crank-pin of the oscillating shaft, and the two crank-pins of the revolving shaft, the crank constructed with a cam surface P, and the arm with a corresponding bearing surface O, the said surfaces adapted to come gradually together as the return movement of the arm commences, substantially as and for the purpose described.

No. 39,728. Coal Moving Machine.

(*Transport à charbon.*)

Joseph Ambrose Russell, assignee of William Henderson Russell, both of Vancouver, British Columbia, Canada, 6th August, 1892; 6 years.

Claim.—1st. An apparatus for elevating and transporting coal, comprising an elevator provided with buckets carried on endless chains over driving pulleys journaled in an upright frame having an angular head, and sections of conveyors pivotally connected to one another and to the elevator, and consisting mainly of an endless apron running over drums journaled near the ends of a portable frame and over friction rollers journaled upon said frame, substantially as set forth. 2nd. In an elevator comprised in an apparatus for elevating and transporting coal, the combination of a frame A, A^1 , A^{11} , constructed to form a straight body with an angularly inclined head, three chain pulley drums journaled in said frame, one at each end and one at the angular bend, a pair of guide pulleys journaled at the inner angle of the bend, a pair of endless pitch chains running over the pulleys on said drums and the guide pulleys, a series of buckets secured to said chains by cross bars, friction rollers journaled upon the frame and supporting said chains, and driving pulleys secured upon one or more of the pulley drums, substantially as set forth. 3rd. In an elevator comprised in an apparatus for elevating and transporting coal, the combination of a frame A, A^1 , A^{11} , constructed to form a straight body with an angularly inclined end or head, the bearings b^1 held between the parallel rails A of said frame, one pair near each end and one at the angular bend, and one or both the end bearings being held adjustably, the axles b of pulley drums B journaled in said bearings, and one or more of them provided with sprocket wheels W, guide pulleys C^{11} journaled at the inner angle of the head, a series of buckets C carried by means of cross bars c on pitch chains C^1 running over said pulleys B, the plate A^{11} forming the channel upon the angular head, and the

friction rollers a , on the front rail A, supporting the bucket chains, substantially as set forth. 4th. The combination of the frame A, A^1 , A^{11} , arms a^4 secured to the rails A, guard rails A^4 held in said arms, the hopper D secured to the lower end of said frame, the plate A^5 secured to said rails and provided with swing studs a^5 , and the chute E pivoted to the braces A^{11} and suspended by chains, substantially as set forth. 5th. In a conveyor comprised in an apparatus for elevating and transporting coal, the combination of a frame consisting of a pair of rails F on each side, secured to the cross pieces F^1 , hinge plates secured at or near the ends of said frames, journal bearings g held between the side rails near each end, drums G journaled in said bearings, an endless apron H running over said drums, friction rollers a journaled on said frame, and means for driving one or both of said drums, substantially as set forth. 6th. In a conveyor, the combination of a pair of parallel rails F on each side, secured to cross pieces F^1 , bearings g held adjustably between each pair of rails, forming a side and near the ends of said frame, drums G journaled in said bearings, sprocket wheels G^1 secured upon the axle of one of said drums, an endless apron H running over said drums, friction rollers a journaled upon the upper side of the rails, side guards I, I^1 , I^{11} , removably held in clevises i on the upper rail F, and hinge plates secured at or near the ends of said frames, substantially as set forth. 7th. The combination of rails F secured in pairs to each end of a cross piece F^1 to form a frame, bearings g held between said rails, drums G journaled in said bearings, an endless apron H running over said drums, friction rollers a supporting said apron, said guards I, I^1 , I^{11} , removably held in clevises on the upper rail F, a hinge plate F^{11} at one end of said frame, and a hinge plate F^{11} at the other end, substantially as set forth. 8th. The combination of rails F secured in pairs a little distance apart to each end of a cross piece F^1 to form a frame, drums G journaled near the ends of said frame, an endless apron H running over said drums, side guards consisting of boards I and I^1 secured to transverse bars I^{11} , clevises i secured to the upper rail F and adapted to hold said bars, and hinge plate F^{11} secured to said frame near the ends, at one end above and at the other below the axes of the drums G, substantially as set forth. 9th. The combination in an endless apron for coal conveyors, of a series of metal faced rabbit jointed slats b , forming a continuous surface, and endless wire ropes H^1 , to which each of said slats is secured, substantially as set forth.

No. 39,729. Process of and Apparatus for Manufacturing Wire. (*Procédé et appareil pour la fabrication du fil de fer.*)

The Val D'Aosta Syndicate, assignees of Alphonse Edouard Tavernier and John Charles Howell, all of London, England, 6th August, 1892; 6 years.

Claim.—1st. The improved process for the manufacture of wire or strip for transmitting electric currents, consisting in the electro-chemical deposition of copper or other metal upon a mother wire or strip of small diameter, the said wire or strip being caused to travel through the bath in which the electro deposition takes place, and in subsequently subjecting such electro deposited wire or strip to rolling and drawing operations under the action of heat, substantially in the manner described. 2nd. The process of rolling and drawing wire or strip obtained in the manner referred to in the preceding claiming clause, under the action of heat produced by an electric current, substantially as and for the purpose described. 3rd. In rolling and drawing an electro-deposited wire or strip, heating such wire or strip by an electric current or partly by an electric current and partly by other means, substantially in the manner described. 4th. An electrolytical apparatus for causing a metallic deposit upon wire, consisting of a tank or casing a intended to contain a suitable electrolytic liquid and fitted with a series of grooved rollers b , b^1 , arranged as shown and adapted by suitable means to revolve in the said tank or casing for the purpose of giving motion to endless wires placed in the grooves of the said rollers; and a number of plates k , k , k , forming the anode suspended in the tank by hooks l , l , from bars m , m , extending across the top of the tank and connected to the positive conductor of an electric circuit whilst the negative conductor is in connection with the wires, substantially as described. 5th. An electrolytical apparatus for causing a metallic deposit upon wire or strip, consisting of a tank or casing fitted with elastic bearings, a series of vertical grooved rollers arranged in the manner described at each end of the said tank or casing and adapted, by suitable means, to revolve in the said elastic bearings for the purpose of giving motion to endless wires or strips placed in the grooves of each pair of the said rollers, and a number of porous cells containing the anodes of the apparatus, and surrounded by the travelling wires and strips which constitute the cathodes of the apparatus, substantially as set forth. 6th. An electrolytical apparatus for causing a metallic deposit upon wire or strip, consisting of a tank or casing fitted with several series of rollers arranged in arcs or circles over or around cylindrical porous cells containing the anodes of the apparatus, the said rollers serving to receive endless wire or strips, constituting the cathodes of the apparatus, and which are caused to travel over the said rollers by also passing over other rollers to which motion is transmitted by suitable mechanism, substantially as set forth. 7th. The manufacture of copper wire, strip, sheets or the like, by passing a mother wire or strip of continuous

or unlimited length in a straight line through an electrolytic tank to rolls and draw-plates, so as to avoid curving or bending the wire or the like during its passage through the tank and before its passage through the rolls and draw-plates, the said wire or the like being heated during its passage through the rolls and draw-plates, substantially as hereinbefore described.

No. 39,730. Electro-Heating Apparatus.

(Appareil de chauffage électrique.)

Charles E. Carpenter, Minneapolis, Minnesota, George H. Finn, St. Paul, Minnesota, and William S. Andrews, New York, State of New York, all in the U.S.A., 6th August, 1892; 6 years.

Claim.—1st. In an electro-heating apparatus, the combination, with the heated surface plate and the resistance, of a coating of enamel or its equivalent, securing the resistance to but insulating it from said plate, substantially as and for the purpose described. 2nd. In an electro-heating apparatus, the combination, with the plate to be heated and the resistance, of a coating of adhesive enamel or its equivalent for securing the resistance to but insulating it from said plate, substantially as described.

No. 39,731. Machine for Making Fabrics.

(Machine pour la fabrication des tissus.)

William Vaughan Williams, assignee of Caroline Augusta Whipple, both of London, England, 6th August, 1892; 6 years.

Claim.—1st. In a machine such as described, the combination, and arrangement of parts constituting the mechanism for horizontally reciprocating the needle plate, and consisting substantially of the eccentric rod E, the link L, the rocking arm M, pawl M², ratchet wheel O, eccentric P, and eccentric rod P¹, the whole constructed and operating substantially as described and illustrated in the accompanying drawings. 2nd. In a machine such as described, the combination, with the eccentric rod and rocking arm, of a link provided with a ball and socket joint or joints for the purpose of accommodating the various motions of the said eccentric rod and rocking arm, substantially as described and illustrated in the accompanying drawings. 3rd. In a machine such as described, the combination, with the eccentric rod which imparts vertical motion to the needles, and having a pawl adjustably secured thereto, of a ratchet wheel for driving one of the rollers which causes the cloth to travel, substantially as described and illustrated in the accompanying drawings. 4th. In a machine such as described, the combination, with the bar C, having longitudinal slots C¹, of the needle plate B, carrying jaws or brackets B¹, lightly grasping the bar C, and bolts D, passing through the brackets B¹, and the slots C¹, substantially as and for the purpose described and illustrated in the accompanying drawings. 5th. In an apparatus such as described, the roll of finished fabric driven by direct contact with one of the revolving shafts or rollers of the machine, substantially as described.

No. 39,732. Pocket Case for Tobacco.

(Blague à tabac de poche.)

The Curio Company, Chicago, Illinois, assignees of James Potter, of the same place and Frederick James Hubbard, Jackson, Michigan, all in the U.S.A., 6th August, 1892; 6 years.

Claim.—1st. In combination, a pocket case for plug tobacco, having an open end *t*, a stop *h* hinged to the case, and extending over the said open end, a lever fulcrumed near the said open end on the outside of the case, thereby forming a long arm and a short arm, and a cutter blade upon the short arm of the lever adapted by manipulating the lever from its long arm to cut across the end *t*, between the end and stop, substantially as described. 2nd. In combination, a pocket case for plug tobacco, having an open end *t*, a hinged stop *h* on the case, and adjustable upon the latter toward and from the said open end, and extending over said end, a lever fulcrumed near the said end on the outside of the case, thereby forming a long arm and a short arm, and a cutter blade, upon the short arm of the lever, adapted by manipulating the lever from its long arm to cut across the end *t*, between the said end and stop, substantially as described. 3rd. In combination, a pocket case for plug tobacco, having an open end *t*, a projection *t*¹ on an edge of the said open end, a lever fulcrumed on the outside of the case near the said open end, thereby forming a long arm and a short arm, and a cutter blade on the short arm of the lever adapted by manipulating the lever from its long arm to cut across the open end *t*, and then across the said projection, substantially as described.

No. 39,733. Self Lubricating Trolley Wheel.

(Graisseur automatique pour poulies trolleyes.)

John Charles Mullin, John Bell McRae and Sidney Leroy Keighley, all of Ottawa, Ontario, Canada, 6th August, 1892; 6 years.

Claim.—1st. A trolley wheel provided with a groove, and hub connected by sides forming a hollow chamber, an aperture formed in one of the said sides for admitting oil, a cap for closing the said aperture, the said hub being provided with a series of perforations, substantially as set forth. 2nd. In a self lubricating trolley wheel, the combination, with a wheel having a groove running around its periphery A, a side D, connecting the said portion to the hub B, of

the annular plate C, having threads on its periphery, fitly corresponding threads on the portion A, an aperture *c*, to fit the hub B, an oil hole fitted with a cap in said annular plate, and perforations *b*, in the said hub B, substantially as set forth.

No. 39,734. Crucible for Casting Dental Plates.

(Crucet pour la fonte des plaques dentaires.)

Frederick Fenner, Luther Todd White and Mason Boyington Ingalls, all of Cortland, New York, U.S.A., 6th August, 1892; 6 years.

Claim.—1st. A crucible for casting plates, consisting of a chamber for heating the metal, and a receptacle for holding the molds, and a duct leading from the heating chamber to the mold receptacle. 2nd. A crucible for casting plates, consisting of a chamber for heating the metal, a receptacle for holding the molds, and a duct leading from the heating chamber to the mold receptacle and means for forcing the metal through said duct. 3rd. A crucible for casting plates, consisting of a chamber for holding the metal, a receptacle for holding the mold, the lateral faces of said receptacle being perforated and a duct leading from the metal chamber to the mold receptacle, and means for forcing the metal into the molds. 4th. A crucible for casting plates, constructed in two parts, substantially as shown, hinged together at their lower ends, and means for securing them together at or adjacent to their upper ends. 5th. A crucible for casting plates, constructed in two parts, substantially as shown, adapted to be secured together at their lower ends and means for securing them together at or adjacent to their upper parts, the lateral face of the lower chamber being perforated. 6th. The combination with a crucible for casting plates, consisting of a chamber for heating the metal, of a receptacle for holding the molds, and a duct leading from the heating chamber to the mold holder, of a gas furnace and hood. 7th. The combination with a crucible for casting dental plates, consisting of a chamber for heating the metal and a receptacle for holding the mold and a duct leading from the heating chamber to the mold holder, of a gas furnace and a conical-shaped hood, as set forth.

No. 39,735. Mould for Butter. (Moule à beurre.)

William Foster, Timgamah, Victoria, Australia, 8th August, 1892; 6 years.

Claim.—1st. The press box constructed with one or more holes at its fore end and furnished with a hinged top, having within it a movable presser plate or piston acted on by a screw rod, substantially as herein described and as illustrated. 2nd. The press box as above claimed furnished with inclined rails in combination with removable roller trays to receive the butter bars, substantially as herein described and as illustrated. 3rd. The press box as per claims 1 and 2 in combination with a hinged frame having wires stretched across it to cut the butter into "parts" or "points," substantially as herein described and as illustrated. 4th. In combination with machines for pressing butter into bars, a print roller engraved to print the desired description or design upon the upper surface of the bars, substantially as described and as illustrated. 5th. In machines for pressing butter into bars the arrangement of adjustable slides over the openings for the purposes specified, and substantially as illustrated. 6th. In machines for pressing butter into bars the use of a detachable nozzle piece or die. 7th. The general combination and arrangement of parts forming a machine for moulding or shaping butter, substantially as herein described and explained and as illustrated.

No. 39,736. Railway Car. (Char de chemin de fer.)

Max A. Zucher, Montreal, Quebec, Canada, 8th August, 1892; 6 years.

Claim.—1st. A hopper bottom railway car body or frame consisting of statically trussed side, end, and bottom faces and one or more transverse interior girders, all rigidly connected together, substantially as described. 2nd. A hopper bottom railway car body or frame statically constructed and having one or more transverse and longitudinal interior trusses, substantially as described. 3rd. A hopper bottom railway car body statically constructed, having corrugated metal plate wall and floor linings to retain the load, substantially as described. 4th. A hopper bottom railway car body or frame whose sides and ends and floor and interior girders consist each of a statically constructed truss of a corrugated plate web, substantially as described. 5th. A hopper bottom railway car body or frame statically constructed, having one or more interior trusses, any of which in connection with any of the exterior sides and ends form the support for an overhead floor to carry load, substantially as described. 6th. A hopper bottom railway car body or frame statically constructed whose exterior faces, any or all, are inclined, substantially as shown and described. 7th. A hopper bottom railway car body or frame statically constructed, and having one or more interior girders, whose external faces, any or all, are inclined, substantially as described. 8th. A hopper bottom railway car body or frame externally and internally statically constructed, any of whose exterior girders are inclined, the various girders also forming an overhead floor support to carry load, substantially as described. 9th. A hopper bottom railway car body or frame statically constructed, any of the chords of the longitudinal sustaining girders of which are securely held in place by knee braces, substantially as described. 10th. A

hopper bottom railway car body or frame externally and internally statically constructed with an overhead floor and one or more variously placed and constructed and operated doors, substantially as described. 11th. An externally and internally statically constructed railway car body or frame whose central compartment is of hopper bottom construction, and suitable truss work extending therefrom to transfer said loads to the trucks and to resist impacts, substantially as shown and described. 12th. An externally and internally statically constructed railway car body or frame whose end compartments are of hopper bottom construction, and suitable truss work connecting these two compartments, substantially as shown and described. 13th. An externally and internally statically constructed hopper bottom car body or frame of maximum permissible car height, any or all of its girders also forming the support for one or more upper floors, each to carry load, substantially as described. 14th. A multiple deck car having a statically constructed frame work and a pipe or race way extending downward to enable the filling of the lower compartment and the discharging of the upper, substantially as described. 15th. A statically externally and internally constructed compartment car having a hopper bottom compartment centrally located, and single and multiple deck compartments on either side, substantially as described. 16th. A statically externally and internally constructed compartment car having a hopper bottom compartment over each truck, and centrally located a single or multiple deck compartment connecting the two, substantially as described. 17th. A composite multiple deck railway car externally and internally statically constructed, having a central compartment partly extending downward between the two trucks, of the greatest permissible dimensions, able to carry maximum loads, substantially as described. 18th. A hopper bottom railway car frame or body statically constructed, whose longitudinal girders have a bottom chord s^1 , substantially as shown and described. 19th. A railway car body or frame consisting of statically constructed trusses, any or all of which have latticed webs, to which are secured corrugated or buckle plates or sheets adapted to act as livings, and thereby increase the strength of the structure, substantially as described. 20th. A railway car body or frame consisting of statically constructed trusses combined with corrugated plate and latticed webs, the whole being joined together in such manner as to withstand strains in all directions, substantially as described. 21st. A hopper bottom railway car body or frame having an externally trussed body with statically constructed side girders, said side girders being inclined, substantially as described. 22nd. A statically constructed hopper bottom railway car body or frame having one or more double acting slide doors, in combination, with a lever and connecting mechanism for operating the same, substantially as described. 23rd. A statically constructed railway car body or frame having one more continuous transversely located stiffening frames Z, the whole being so arranged as to give great strength against collisions and accidents due to derailment, substantially as described. 24th. A statically constructed hopper bottom railway car body or frame having one or more double acting sliding doors provided with a lever and connecting mechanism, substantially as described, for operating the same. 25th. A statically constructed car body having all of its exterior faces trussed except the top face, and having one or more transverse girders r^1 , and knee brace o^1 , extending from r^1 upward, the whole being designed and arranged to operate substantially as described.

No. 39,737. Envelope. (Enveloppe.)

Edward Hugh Moss, North Ferriby, Yorkshire, England, 8th August, 1892; 6 years.

Claim. The improved letter envelope, having the two side portions a , a^1 , the lower portion b , and the flap c , and the transverse creases a^2 , a^3 , as and for the purpose herein specified.

No. 3,738. Apparatus for Automatically Displaying Advertisements. (Appareil automatique de montre pour les annonces.)

John Stirling Yule, 139 West George Street, Glasgow, Lanark, Scotland, 8th August, 1892; 6 years.

Claim. 1st. In an apparatus for automatically displaying advertisements, pictures and the like, the combination, with one or more rollers or drums whereon the matter to be displayed is contained, of a motor mechanism, an escapement mechanism including a cam carried by the main spindle of the motor mechanism, and a pivoted lever provided with a pin with which said cam coacts, and a plate secured to the end of the spindle of the display drum, and with which said escapement mechanism co-operates, substantially as set forth. 2nd. In an apparatus for automatically displaying advertisements, pictures and the like, the combination, with a drum or roller suitably supported in a frame or casing, and having its spindle provided at one end with plate H studded with pins, as b , and a motor mechanism having its main spindle provided with cam A, of lever arm D, separately centered and provided with a pin, as d , a spring or pawl secured to lever arm D, and a spring operating to restore said lever arm, when depressed to its normal position, and cause said pawl to give to the drum a partial rotation, substantially as set forth. 3rd. In combination, with the supported drum or roller F, and the clock work mechanism C, of cam A, keyed upon the main spindle of the clock work mechanism, the lever arm D separately centered, and carrying pin d in its side and curved at its forward end, spring or pawl E, secured to the side of said lever arm, with its face pro-

jecting beyond the curved end of the lever arm, the studded plate H secured to the end of the drum's spindle, and having its sides curved to correspond with the curved end of the lever arm D, and spring G, connected to the lever arm D at one end, and at its opposite end to the frame of the apparatus, substantially as set forth.

No. 39,739. Fluid for Generating Motive Power.

(*Fluide pour la génération de la force motrice.*)

William Hawkins and Thomas Hawkins, both of 41 Hale Street, Lake Road, Landport, Portsmouth, Hants, England, 8th August, 1892; 6 years.

Claim.—1st. The use of the metals, zinc and iron, intimately combined preferably in the form of spongy metallic cakes or blocks consisting of zinc, steel and iron, or zinc and steel, or zinc and iron, prepared substantially in about the proportions and for the purposes as described and set forth. 2nd. An apparatus for the production of gas, consisting of one or more generators in combination with a reservoir or tank, a pipe communicating between the said vessels for the acidulated water, and a pipe for the passage of the gas leading from the upper part of the generator to the upper part of said tank, a discharge or outlet pipe leading from the upper part of the said tank, pressure and water gauges and other fittings, the whole being constructed and arranged substantially as and for the purposes herein described and illustrated. 3rd. The use of a gas produced substantially in the manner and for the purposes hereinbefore described and set forth.

No. 39,740. Electrical Liquid Alarm.

(*Indicateur d'eau électrique.*)

Frederick Charles Skelton, Montreal, Quebec, Canada, 8th August, 1892; 6 years.

Claim.—1st. The combination, with a tank or other vessel containing a fluid, of a float arranged with a cord having its tension maintained by a weight or other contrivance, an electrical alarm mechanism, and adjustable nut or nuts fixed on the cord, to close circuit by pressing one terminal against the other, substantially as set forth. 2nd. The combination, with a tank or other vessel containing a fluid, of a float having an upright bar or stiff connection, an electrical alarm mechanism, and adjustable nut or nuts fixed on the upright bar or stiff connection to close circuit by pressing one terminal against the other, substantially as set forth. 3rd. The combination of adjustable nuts on a bar or cord passing through the overlapping terminals of an open alarm circuit, the bar or cord being moved by a float, substantially as set forth and for the purposes as above set forth.

No. 39,741. Joint for Flexible Shafting.

(*Joint pour arbre de couche flexible.*)

John Howard, Sydney, New South Wales, Australia, 8th August, 1892; 6 years.

Claim.—1st. In flexible shafting, the forked or bifurcated articulated sleeve C, as specified and as illustrated in the drawing. 2nd. In flexible shafting, connecting the opposing ends of the rigid sectional rods or tubes together by means of a helix of wire or other flexible joint that is protected and guided by a pair of articulated forked sleeves, as described and as illustrated in the drawing.

No. 39,742. Offset for Saw Mill Carriages.

(*Compensateur pour charriots de scierie.*)

William Gowen, Wausau, Wisconsin, U.S.A., 8th August, 1892; 6 years.

Claim.—1st. The combination, in a saw mill carriage, of a log frame movable laterally upon its supporting axles, one set of boxes connected with said log frame, another set of boxes connected with its axles, a shaft supported lengthwise of said carriage in one set of boxes, eccentrics fixed upon said shaft and working in the other set of boxes, and means for turning the eccentric shaft, whereby said frame is moved lengthwise of said axles, substantially as and for the purposes set forth. 2nd. The combination, in a saw mill carriage, of a log frame movable laterally upon its supporting axle, a shaft journaled lengthwise of said carriage in cross boxes mounted upon said axles, eccentrics fixed upon said shaft, straps or links hinged to said log frame and working with the peripheries of said eccentrics, and means for turning said eccentric shaft, substantially as and for the purposes set forth. 3rd. The combination in a saw mill carriage, of a log frame movable laterally upon its supporting axles, of a shaft supported in suitable bearings lengthwise of the carriage, eccentrics fixed upon said shaft and working in bearings attached to said frame, a shaft journaled transversely to the carriage and geared with the eccentric shaft, and an arm or lever attached to said transverse shaft, substantially as and for the purposes set forth. 4th. The combination, in a saw mill carriage, of a log frame movable laterally upon its supporting axles, eccentrics mounted upon a shaft set lengthwise of said carriage and working in bearings attached to said frame, a transverse shaft geared with said eccentric shaft, and an arm mounted upon said transverse shaft and working in the direction of the travel of the carriage, and a rack or rail to actuate said eccentrics, and move said log frame lengthwise of its axles, substantially as and for the purposes set forth.

No. 39,743. Offset for Saw Mill Carriages.*(Compensateur pour charriots de scierie.)*

William Gowen, Wausau, Wisconsin, U.S.A., 8th August, 1892; 6 years.

Claim.—The combination, in a saw mill carriage, with a guiding track, of a log supporting frame, and its wheels and axles having a fixed position transversely to said track, cross boxes mounted upon said axles and restrained from endwise movement thereon, a rock shaft journaled lengthwise of said carriage in said cross boxes and connected with said log supporting frame, and a lever connected with said rock shaft and arranged to turn the same and to move said log supporting frame transversely with reference to the track upon which the carriage travels, substantially as and for the purposes set forth.

No. 39,744. Offset for Saw Mill Carriages.*(Compensateur pour charriots de scierie.)*

William Gowen, Wausau, Wisconsin, U.S.A., 8th August, 1892; 6 years.

Claim.—1st. The combination, in a saw mill, with a carriage having a log supporting frame laterally movable upon its axles, of a yoke mounted and laterally immovable upon its axles, offsetting mechanism connecting said frame and yoke, a crank connected with and arranged to operate said offsetting mechanism, and a carriage feeding piston having a sliding connection with said frame and connected with said crank, substantially as and for the purposes set forth. 2nd. The combination, in a saw mill, of a carriage having a log supporting frame laterally movable upon its wheels and axles, offsetting mechanism connecting said frame with said axles and wheels, a carriage feeding piston having a sliding connection with said frame and detachable connection with said offsetting mechanism, substantially as and for the purposes set forth. 3rd. The combination, in a saw mill, with a carriage having a log supporting frame laterally movable on its wheels and axles, of a yoke mounted upon two or more of said axles and laterally immovable thereon and a screw shaft connecting said frame and yoke and arranged to shift said frame laterally upon its axles, substantially as and for the purposes set forth. 4th. The combination, in a saw mill, with a carriage having a log supporting frame laterally movable on its wheels and axles, of yokes each mounted upon two or more of said axles and laterally immovable thereon, screw shafts connecting said yokes with the log frame and a rod connecting said cranks, substantially as and for the purposes set forth.

No. 39,745. Hitching Strap. (Courroie d'entraînement.)

Harrison Cole, Columbus, Ohio, U.S.A., 8th August, 1892; 6 years.

Claim.—1st. The combination, of the case, the single spring actuated reel mounted therein, said reel having a central peripheral flange separating two coils of the strap, which are wound on the reel and whose outer ends pass through openings in the case diametrically opposite each other, and suitable hooks at the outer ends of said strap for attaching to the bridle and hitching post, as set forth. 2nd. The combination, of the case, the reel therein, the strap secured upon said reel and passing through the case, the arm pivoted on the case and bearing on the strap, and the spring secured to the case and bearing on said arm, substantially as set forth.

No. 39,746. Gear Connection for Vehicles.*(Connexion de train de voiture.)*

Garland Brainard St. John, Kalamazoo, Michigan, U.S.A., 8th August, 1892; 6 years.

Claim.—1st. The combination, of a conical socket closed at the bottom for the front running gear of vehicles, and a corresponding conical pivot pin secured to the rear gear, substantially as described, whereby the socket is adapted to hold oil for the continuous lubrication of the parts, and the front and rear gear are adapted to separate in the event of over turning. 2nd. The combination, of the herein described socket A, pivot pin B, and the forward axle having an aperture through the middle to receive said socket, substantially as and for the purpose set forth. 3rd. The combination, of a socket A, pivot pin B, and an axle composed of side pieces F², F², separated in the middle to admit the socket and connected at the end by clips and skeins, substantially as described.

No. 39,747. Composition to be used as Varnish, Lacquer, Glue, etc. (Composition devant servir comme vernis, colle forte, etc.)

Thomas B. Osborne, New Haven, Connecticut, U.S.A., 9th August, 1892; 6 years.

Claim.—The herein described composition of the matter, consisting of zelm, a resinous gum, and a neutral solvent thereof, substantially in the proportions herein specified.

No. 39,748. Method of Making Oxygen Gas.*(Méthode de fabrication de gaz oxygène.)*

George Webb, Jr. and George Henry Rayner, both of London, England, 9th August, 1892; 6 years.

Claim.—In a process of obtaining oxygen gas from atmospheric air, the rolling in powdered peroxide of manganese, of a compound formed of the following substances in about the proportions given,

viz.: 16 ozs. of caustic soda, dissolve in 40 ozs. of water, 16 ozs. of peroxide of manganese and 16 ozs. of manganate of soda, substantially as described, and for the purposes specified.

No. 39,749. Machine Sheep Shears.*(Appareil pour tondre les moutons.)*

John Howard and John Henry Geddes, both of Sydney, New South Wales, Australia, 9th August, 1892; 6 years.

Claim.—1st. In machine sheep shears, the combination of the adjustable fulcrum or pivot pin E, with the lock nut K, for the purpose of securing the permanency of any desired amount of tension on the cutter B. 2nd. In machine sheep shears, the segmental roller or rocker J, supporting and carrying the rear end of the lever F, and constructed of such a form that the lever F shall always reciprocate in one horizontal plane, as described. 3rd. In machine sheep shears, the socket in the lever F, to receive the end of the pivot pin E, provided with an under cut annular cap for the purpose of retaining the lubricating material within the recess of the socket, no matter in what position the machine may be placed. 4th. In machine sheep shears, the first class lever F supported at both ends, rocking on a pivot pin or fulcrum placed above it, and receiving its motion direct from the driving shaft, as herein specified.

No. 39,750. Electric Machine for Covering Wire, etc.*(Machine électrique pour couvrir le fil de fer, etc.)*

John Scott, Plymouth, and Frank Elmer Davis, Somerville, both of Massachusetts, U.S.A., 9th August, 1892; 6 years.

Claim.—1st. An electric motor having a hollow armature shaft for the passage of the material operated on, in combination with the devices carried by the armature shaft adapted for operating on such material. 2nd. An electric motor having a hollow armature shaft for the passage of the core, and a flier carried by the armature shaft adapted to wind covering material on the core, in combination with a winding drum and mechanism operated by the motor to actuate the winding drum to draw the core through the hollow armature shaft. 3rd. An electric motor having a hollow armature shaft for the passage of the core, and a flier carried by the armature shaft for winding covering material on the core, in combination with devices for shutting down the motor, and devices adapted to be actuated by the failure of the covering material for releasing said first named devices. 4th. An electric motor having a hollow armature shaft for the passage of the material operated on, and devices carried by the armature shaft adapted to operate on the material as it passes through the armature shaft, the armature and field coils of the motor being on separate circuits, in combination with a switch in the armature circuits, and automatic means for operating the switch to successively insert resistances in the circuit, break the circuit and short circuit the armature. 5th. An electric motor having a hollow armature shaft for the passage of a core, the armature being provided with a flier for winding covering material on the core, the armature and the field coils of the motor being arranged in separate circuits, in combination with a switch in the armature circuit, a spring for operating the switch to successively insert resistances in the circuit, break the circuit, and short circuit the armature, a catch engaging the switch, an electro-magnet arranged to operate the catch, and devices carried by the flier in engagement with the covering material and in circuit with the electro-magnet, whereby on failure of the covering material the electro-magnet is actuated to operate the catch and release the switch. 6th. An electric motor having a hollow armature shaft for the passage of a core, and a flier carried by the armature shaft for winding covering material on the core, the armature and the field coils of the motor being on separate circuits, and a switch in the armature circuit, automatic means for operating the switch to successively insert resistances in the circuit, break the circuit, and short circuit the armature, in combination with a winding drum adapted to draw the coil through the hollow armature shaft and mechanism operated by the motor to actuate the drum. 7th. A plurality of electric motors each having a hollow armature shaft for the passage of a core, each armature shaft carrying a flier for winding covering material on the core, the field coils of all the motors being in a single circuit, and the armatures being all in a single circuit separate from the field magnet circuit. 8th. A plurality of electric motors, each having a hollow armature shaft for the passage of the material operated on, each armature shaft carrying devices for operating on the material as it passes through the hollow armature shaft, the field coils of all the motors being in a single circuit, and the armatures being all in a single circuit separate from the field magnet circuit, in combination with a switch in the armature circuit, and means for operating the switch to successively insert resistances in the armature circuit, break the circuit through the armatures and short circuit the armature. 9th. A plurality of electric motors having all their armatures in the same circuit, in combination with a switch in said circuit, and means for operating the switch to successively insert resistances in the circuit, break the circuit and short circuit the armature. 10th. A plurality of electric motors having all their armatures in the same circuit, in combination with a switch in said circuit, automatic means for operating the switch to successively insert resistances in the circuit, break the circuit and short circuit the armatures, and automatic means for releasing the switch to permit it to be operated by said first named means. 11th. A plurality of electric

motors having all their armatures in the same circuit, in combination with a switch in said circuit, a spring for operating the switch to successively insert resistances in the circuit, break the circuit and short circuit the armatures, a catch engaging the switch lever, and an electro-magnet arranged to operate the catch to release the switch lever. 12th. A plurality of electric motors, each having a hollow armature shaft for the passage of a core, each armature shaft carrying a flier for winding covering material on the core, the armatures of all the motors being arranged in a single circuit, a switch in the armature circuit, a spring for operating the switch to successively insert resistances in the circuit, break the circuit and short circuit the armatures, a catch engaging the switch lever, an electro-magnet arranged to operate the catch and devices carried by the fliers in engagement with the covering material and in circuit with the electro-magnet, whereby on failure of the covering material the electro-magnet is actuated to operate the catch and release the switch lever. 13th. A multiple pole piece arranged to receive a plurality of armatures, in combination with armatures, each having a hollow shaft provided with a flier. 14th. A multiple pole piece arranged to receive a plurality of armatures and having a plurality of field coils thereon, in combination with armatures, each having a hollow shaft provided with a flier, the several coils of the multiple pole piece being all in the same circuit, and the armature being each in a circuit separate from the field circuit and from the other armature circuits. 15th. A multiple pole piece arranged to receive a plurality of armatures and having a plurality of field coils thereon, in combination with armatures, each having a hollow shaft provided with a flier, the several coils of the multiple pole piece being all in the same circuit, and the armatures being each in a circuit separate from the field circuit and from the other armature circuits, and a switch in each of the armature circuits and automatic means for actuating each switch to successively insert resistance in the circuits, break the circuit and short circuit the armature. 16th. Two or more multiple pole pieces, each arranged to receive a plurality of armatures, and each having a plurality of field coils thereon, in combination with armatures having hollow shafts and carrying fliers, the several coils of the several multiple pole pieces being all in the same circuit, and each armature in one multiple pole piece and the corresponding armature in the other multiple pole pieces being in a circuit separate from the field circuit and from the other armature circuits. 17th. Two or more multiple pole pieces, each arranged to receive a plurality of armatures, and having a plurality of field coils thereon, in combination with armatures having hollow shafts and carrying fliers, the several coils of the several multiple pole pieces being all in the same circuit, and each armature in one multiple pole piece, and the corresponding armatures in the other multiple pole piece being in a circuit separate from the field circuit and from the other armature circuit, and a switch in each of the separate armature circuits, and automatic means for operating each switch to successively insert resistances in the circuit, break the circuit and short circuit the armature.

No. 39,751. Machine for Covering Wire and Cores.

(*Machine pour couvrir le fil de fer et les parties.*)

John Scott, Plymouth, and Frank Elmer Davis, Somerville, both of Massachusetts, U. S. A., 9th August, 1892; 6 years.

Claim. 1st. In combination, a shaft, having its end slotted, a pulley mounted upon said shaft, and having one end of its hub substantially in the plane of the end of the shaft and slotted to correspond therewith, a plate having projections adapted to enter the slots of both pulley and shaft, whereby the pulley may be engaged with or disengaged from said shaft, and a support upon which said plate is free to rotate, substantially as shown and described. 2nd. The combination, with an electric circuit, including a generator, a magnet and contact points normally separated, and means to close the circuit, of a shaft having its end slotted, a pulley mounted thereon having one end of its hub slotted to correspond with the slots of the shaft, a plate having projections adapted to enter the slots of both pulley and shaft, said plate constituting the armature of the magnet, a support upon which said plate is rotatably mounted, and a spring acting normally to press said plate against the end of the shaft and hub, and adapted to yield when the circuit is completed, and the magnet energized to permit the removal of the projections from the slots, and the disengagement of the pulley from the shaft, substantially as shown and described. 3rd. The combination, with a flier, and an electric circuit including a magnet, and contact points adapted to be held apart by the tension of the thread, of an armature for said magnet, driving mechanism, means for throwing said driving mechanism out of operation, and connections therefrom to the armature, whereby on the failure of the thread and the closing of the circuit, the armature is attracted and the machine stopped, substantially as shown and described. 4th. In combination, a flier, an insulated conducting ring carried thereby, an insulated contact point also carried by said flier and electrically connected with said ring, and adapted to be held from contact with the flier by the tension of a thread carried by the flier, a generator, a magnet, electrical connections from the ring to the flier through the generator and the magnet, an armature, mechanism for driving the flier, means for disconnecting said driving mechanism, and connections therefrom to the armature, whereby, on the failure of the thread and the closing of the circuit, the armature is attracted and the driving mechanism is disconnected, substantially as shown and described. 5th. In a machine for covering wire, the combination with a flier

adapted to carry the covering thread or material, and an electric circuit including a generator, a magnet, and contact points upon the flier adapted to be held apart by the tension of the thread, of a winding drum, a shaft upon which it is mounted, the ends of the shaft and of the hub of the drum being in substantially the same plane and correspondingly slotted, and a plate rotatably supported and having projections adapted to engage the slots of the drum and its shaft, said plate constituting the armature of the magnet, substantially as shown and described. 6th. The combination with means for covering a wire and driving means, of devices providing for throwing the driving means into and out of operation, an electric circuit, including a generator, a magnet, and contact points, one of which is adapted to rest upon the wire after it is covered, and the other to rest upon the bare wire, an armature for the magnet and means intermediate said armature and said provisions for throwing the driving means into and out of operation, whereby upon failure of the covering material to cover completely the wire, the circuit is completed through the wire and the machine is stopped, substantially as shown and described. 7th. In a machine for covering wire, &c., the combination with a flier adapted to carry the covering thread or material, and an electric circuit including a generator, a magnet, and contact points upon the flier adapted to be held apart by the tension of the thread, of an armature for said magnet, driving mechanism including fast and loose pulleys, a spring actuated belt shifter and a detent carried by the armature and adapted to engage the shifter and hold the belt upon the fast pulley, whereby, on the failure of the thread the armature is attracted and the belt shifter released, substantially as shown and described.

No. 39,752. Axle Cutter. (*Coupoir à essieux.*)

Almond C. Parsons, assignee of John Swegles, both of Wayne, Michigan, U. S. A., 9th August, 1892; 6 years.

Claim.—1st. In an axle cutter, the combination, with opposite plates having opposite central bearing openings, a sleeve mounted therein and adapted to receive the spindle of an axle, said sleeve being provided with a radiating lug, of a pair of reciprocating shafts, one mounted at each side of said sleeve and having their ends extended beyond the plates, a handle connecting said shafts and rigid therewith, a cutter mounted on the handle and terminating opposite the central bearing openings of the plates, and a sleeve mounted upon one of the shafts and interiorly threaded to engage threads upon the same and provided with radiating arms or lugs adapted to be engaged by the arm or lug of the first mentioned sleeve, substantially as specified. 2nd. In an axle cutter, the combination, with the frame, the hollow loosely journaled axle receiving sleeve, means for tightening the same upon the axle, an axle cutting knife mounted for movement on the frame and having its cutting edge terminating opposite the axle cutting sleeve, and devices operated by the axle receiving sleeve and adapted to operate or feed the knife, substantially as specified. 3rd. In an axle cutter, the combination, with the opposite plates 1 and 2, having the transversely opposite bearing openings 4, the diagonally opposite connecting strips 3, and the diagonally opposite bearing openings 9, of the sleeve 5, adapted to receive the axle provided with oppositely reduced bearing ends 6, received by the openings 4, set screws mounted in the sleeve and a lug extending from the same, reciprocating shafts 10, mounted in the bearings 9, one of said shafts being provided with a screw thread and each terminating beyond the plate 1, the crank or handle 12, connecting said shafts and cut away at its centre opposite the opening 4, the knife 13, mounted in the cut away portion and terminating opposite said opening, and the sleeve 14, internally threaded, mounted upon and engaging the threads of the threaded shaft 10 and provided with a series of radiating bevel faced arms or lugs extending into the path of the arm or lug of the sleeve 5, substantially as specified.

No. 39,753. Autographic Telegraph.

(*Télégraphe Autographique.*)

The Writing Telegraph Company, New York, Assignee of Harry Etheridge, Pittsburg, both in the U. S. A., 9th August, 1892; 6 years.

Claim.—1st. In an autographic telegraph, two series of contacts in which the contacts of each series are separated from each other, two series of resistances each graded from a maximum to a minimum resistance and two movable contact bars each arranged at an angle to its series of contacts, in combination with a stylus arranged when operated to press against said contact bars, and press the latter against said contacts, subsequently as described. 2nd. In an autographic telegraph, two series of movable contacts in which the contacts of each series are arranged in line with but separated from each other, and are movable at right angles to said line, two series of resistances, each graded from a maximum to a minimum resistance and two movable contact bars each arranged at an angle to its series of contacts, in combination with a stylus arranged when operated to press against said contact bars, and press the latter against said contacts, substantially as described. 3rd. In an autographic telegraph, two series of flexible contacts, in which the contacts of each series are separated from each other, and two movable contact bars each carried by flexible supports and arranged at an angle to its series of contacts, in combination with a stylus arranged when operated to press against said contact bars, and press the latter against said contacts, substantially as described. 4th. In an

autographic telegraph transmitter a series of contacts connected to flexible supports, insulated from each other and arranged in line with and movable at right angles to said line, in combination with a laterally movable contact bar arranged at an angle to said contacts and to press laterally against the same, substantially as described.

5th. The combination with a transmitting stylus, provided with a pressure block, of two contact bars carried by flexible supports and arranged to be moved by the operation of said stylus, substantially as described.

6th. The combination with a transmitting stylus of a pressure block secured directly thereto, and provided with a pressure head, a movable contact bar provided with a projection co-operating with said pressure head, and a series of electrically separate contacts, substantially as described.

7th. The combination with a transmitting stylus, a top plate provided with a notched opening and contacts in said notch arranged to co-operate with the stylus rods, of the stylus rod arranged to pass through said opening and a spring for returning the stylus rod to its normal position in said notch, substantially as described.

8th. The combination with a transmitting stylus and a top plate provided with a notched opening arranged to co-operate with a stylus rod, and a stylus rod arranged to pass through said opening and to be pressed against said contacts in the said notch, substantially as described.

9th. In an autographic telegraph transmitter, the combination with two sets of contacts and connecting means for electrically connecting the contacts of each set, of two sets of resistances, each set arranged to act in parallel arc, and a stylus rod co-operating with said connecting means, substantially as described.

10th. In an autographic telegraph transmitter the combination with two sets of contacts and connecting means for electrically connecting the contacts of two sets of resistances, each set arranged to act in parallel arc, and two sets of resistances, each set arranged in series, substantially as described.

11th. In an autographic telegraph transmitter two sets of resistances connected two contacts, and each set arranged to act in parallel arc, in combination with two sets of resistances, each set arranged in series, substantially as described.

12th. In an autographic telegraph transmitter the combination with two sets of contacts of two sets of graded resistances, each set arranged to act in parallel arc, and graded from a maximum to a minimum resistance, substantially as described.

13th. In an autographic telegraph transmitter, the combination, with two sets of contacts, of two sets of graded resistances, each set arranged to act in parallel arc, and two sets of graded resistances, each set arranged in series, substantially as described.

14th. In an autographic telegraph, the combination, with the receiver and transmitter of two sets of contacts and two sets of graded resistances, each set arranged to act in parallel arc, the lowest resistance of each set arranged nearest the receiver, substantially as described.

15th. The combination, with the transmitting stylus, provided with an uninsulated pressure block and a contact bar co-operating therewith, of a set of contacts and a set of graded resistances arranged with the lowest resistance next to the receiver, said contact bar arranged to make contact with the contact of least resistance last, substantially as described.

16th. In an autographic or writing telegraph, the combination, with a transmitting stylus electrically connected to ground, of contact points electrically connected to the line, and shifting means arranged to automatically move and press said stylus against said contact points, substantially as described.

17th. In a writing telegraph, the combination, with a transmitting stylus electrically connected to ground, of contact points electrically connected to the line, and a spring arranged to automatically press said stylus against said contact points, substantially as described.

18th. In a writing telegraph, the combination, with a transmitting stylus electrically connected to ground, of contact points electrically connected with the receiving and transmitting instruments, and a spring arranged to automatically press said stylus against said contact points, substantially as described.

19th. In a writing telegraph, the combination, with a transmitting stylus electrically connected to ground, of a contact point connected by a line to a central office annunciator, said stylus being arranged in proximity to said contact point so that it can be brought into contact with the same to close the circuit through the annunciator, to drop the shutter, substantially as described.

20th. In a writing telegraph, the combination, with a transmitting stylus electrically connected to ground, of two contact points each connected to both receiver and transmitter, and shifting means arranged to automatically move and press said stylus against said contact points, substantially as described.

21st. In a writing telegraph, the combination, with a transmitting stylus electrically connected to ground, of contact points electrically connected to receiver and transmitter, said receiver being connected to transmitter and through transmitter to ground, and shifting means arranged to automatically move and press said stylus against said contact points, substantially as described.

22nd. In a writing telegraph, the combination, with a transmitter and a receiver of contact points in connection with said receiver, an independent contact point in communication with the main line, and a grounded stylus normally resting against the contact points communicating with the receiver, thereby normally maintaining the apparatus in condition to receive a message, and arranged to be moved against said independent contact point, to momentarily close the circuit through the central office annunciator magnet, substantially as described.

No. 39,754. Finger Bar for Harvesters.*(Partie pointée pour fauchuses.)*

The Massey-Harris Company, assignee of Lyman Melvin Jones and James Kent Wedlake, all of Toronto, Ontario, Canada, 9th August, 1892; 6 years.

Claim.—1st. As an improved finger bar for harvesters, a T-headed angle bar having one-half a , of the head deeper than the other half b , the narrow half b , being arranged to carry the bottom support C , while the deep half a is desired to hold the strip E , substantially as and for the purpose specified. 2nd. The combination with a cutter bar of an angle plate H , securely fastened to the cutter bar at the inner end of the canvas, and shaped so as to project above the side of the cutter bar to form a guide, substantially as and for the purpose specified. 3rd. A strip fixed to the finger bar and rabbeted to form a recess for the front edge of the canvas, substantially as and for the purpose specified.

No. 39,755. Apparatus for Condensing and Enriching Gas. *(Appareil pour condenser et enrichir le gaz.)*

Ernest Arthur Harris and James Leonard Stamford, both of Victoria, British Columbia, Canada, 9th August, 1892; 6 years.

Claim.—1st. The process in the manufacture of gas, of passing the gas below the surface of and through the coal tar in the tar tank instead of simply passing it over same, substantially as shown and for the purpose specified. 2nd. In gas condensers, the combination of the entrance pipe E , together with the rose ended nozzle on end, substantially as and for the purpose specified. 3rd. In the manufacture of gas, the fixed scale of degrees of heat on entering and leaving the condenser being 110° on entering and 75° on leaving, substantially as and for the purpose specified. 4th. The combination, in a gas condenser, of the condenser tubes, together with the feed of coal tar direct from the hydraulic main down said tubes, substantially as specified. 5th. In a circulating water condenser for gas, the combination of condenser, together with the equalizing pipe H , substantially as and for the purpose specified.

No. 39,756. Apparatus for Firing and Heating Steam Boilers and the like. *(Appareil pour alimenter et chauffer les chaudières à vapeur, etc.)*

Edwin Marsh, Leeds, England, 9th August, 1892; 6 years.

Claim.—1st. The combination of mechanical firing hopper S , in which the fuel falls vertically into a chamber B , having adjustable lower bars C , a sliding plate M , ashes hopper N , and a carrying belt O , all arranged and operated, substantially in the manner and for the purpose as hereinbefore set forth. 2nd. The combination of the lower bars C , and operating mechanism with chamber B , having a perforated and inclined back, and a sliding plate M , at the bottom, all arranged and operated, substantially in the manner and for the purpose as hereinbefore set forth.

No. 39,757. Combined Chamfer Cutter and Lathe. *(Tour et coupeur pour chanfreins combinés.)*

Christen Mattison, Minneapolis, Minnesota, U.S.A., 9th August, 1892; 6 years.

Claim.—1st. In a device of the class described, a cutter head provided upon its periphery with four series of oppositely inclined plane surfaces, two of said series being inclined to the left and two to the right, each oppositely inclined pair forming equal angles with the shaft of the cutter, but different angles from the other pair, knives arranged upon the surfaces having the less incline, provided with straight inclined cutting edges adapted to cut in alignment with each other and parallel with the shaft of the cutter head, and knives arranged upon said other plane surfaces provided with inclined cutting edges of ornamental design, combined and adapted to be operated, substantially as described. 2nd. In a device of the class described, provided with suitable table or other support, the combination of a cutter head having two series of oppositely inclined knives adapted to cut in alignment with each other and parallel with the cutter head shaft, and other series of oppositely inclined knives of ornamental design, adapted to finish the ends of the cut of the other knives, and a gauge secured upon said table and laterally and angularly adjustable with reference to the plane of said cutter head, substantially as described. 3rd. In a device of the class described, the combination with a cutter head provided with series of oppositely inclined knives cutting in alignment with each other and series of oppositely inclined finishing knives of an adjustable table or support through an opening in which said cutter head is arranged to rotate, a stop adjustably connected to said table, and head and tail stocks carried by said stop and adjustable longitudinally thereon, substantially as described. 4th. In a device of the class described, the combination, with a suitable table, of a cutter head rotating through an opening in the same and provided with series of oppositely inclined knives having inclined cutting edges, and adjustable gauge arranged upon said table parallel with the shaft of the cutter head, and rings adapted to be fitted upon a piece of stock to be formed and to be turned with their peripheries bearing upon said table and against said gauge, whereby the piece of stock is formed by the knives of the cutter head into the same shape in cross section as said rings, substantially as described. 5th. In

a device of the class described, the combination, with the table 3 and the gauge 13, adjustably secured thereto, of the cutter head 10, having peripheral series of oppositely inclined surfaces, the series of right and left hand knives 11, having inclined straight cutting edges, and a series of right and left hand finishing knives 12, having cutting edges or ornamental design, substantially as and for the purposes set forth. 6th. The combination, with the table 3, of the cutter head 10, rotating in an opening in the same, the gauge 13, angularly and laterally adjustable upon said table with reference to the shaft of said cutter head, the hand tail stocks 23 and 24, longitudinally adjustable on said gauge, and the rings 28, adapted to be secured upon the piece of stock and to be rotated in bearing contact both with said table and said gauge, substantially as described. 7th. In a device of the class described, the cutter head 10, having peripheral series of oppositely inclined surfaces, the series of right and left hand knives 11, having inclined straight cutting edges, and the series of right and left hand finishing knives 12, having cutting edges of ornamental design, substantially as described. 8th. In a device of the class described, the combination, of the cutter head, the adjustable gauge, the lead and tail stocks adjustably secured thereto, the screw threaded mandrel, the screw threaded ring or block engaged by the mandrel, adapted to be rotated in the head stock and provided with a peripheral groove and sockets in the bottom of said groove, and a spring controlled pin arranged in the head stock and projecting into said groove and adapted to be depressed against the tension of its spring into one of said sockets, substantially as described. 9th. The combination, with the cutter head, provided with the oppositely inclined and alternately arranged plane surfaces upon its periphery, of the right and left hand knives provided with the inclined cutting edges, and with the inclined wings projecting beyond the body of the knives, and provided also with an inclined cutting edge, substantially as described.

No. 39,758. Kiln and Drying Floor for Cement.

(*Four et plancher pour sécher le ciment.*)

Henry Faija, Westminster, England, 10th August, 1892; 6 years.

Claim.—1st. In a continuous or running kiln, a calcining chamber, having a suitable charging opening, a cooling chamber connected with and immediately below the said calcining chamber provided with fire bars, horizontal flues connected with the top of the said calcining chamber, the top of said flues forming the floor of a drying chamber, substantially as and for the purpose set forth. 2nd. In a continuous or running kiln, the combination, with the chamber C, the chamber B, directly below of larger cross sectional area and connected with the said chamber C, the chamber C, fire bars and dampers below, a charging opening on the top of said chamber C, the flues D, D, the dampers H of the floor E formed on the top of the said flues D, D, substantially as and for the purpose set forth.

No. 39,759. Gas Engine. (*Machine à gaz.*)

William Hecket, Findlay, Ohio, U.S.A., 10th August, 1892; 6 years.

Claim.—1st. In a gas engine, the combination of the inlet valve and the exhaust valve placed one over the other, their axes coinciding, the inlet valve having an upwardly projecting spindle, and the exhaust valve having a corresponding downwardly projecting spindle of larger diameter which is partly bored out to admit the spindle of the inlet valve, the longitudinal motion of said spindles one over the other when the valves are in place, being exactly equal to the normal opening of the exhaust valve, whereby the opening of said exhaust valve to its normal extent ensures the complete closure of the inlet valve, substantially as described. 2nd. In a gas engine the combination of the inlet valve, operated by suction, the reciprocating rod which, when in its lowest position, holds the valve shut, the sliding piece which controls the motion of said rod, and the elastic joint between the sliding piece and the rod, whereby all wear of the parts is taken up, substantially as described. 3rd. In a gas engine, the combination of a positively operated exhaust valve, opening downward, an inlet valve located beneath the exhaust valve and opened upward by suction together with a suitable extension of the exhaust valve which engages with the inlet valve, and positively closes it when the exhaust valve is open, the sliding piece and the reciprocating rod, together with the cam which forces the sliding piece downward, and the spring which forces the sliding piece and the reciprocating rod upward, substantially as described. 4th. In a gas engine, the combination of an exhaust valve, an adjustable double cam which operates the valve, one portion of which cam will hold the valve open while the engine cylinder is being exhausted, while the other portion will prolong the valve opening during a part or whole of the time during which the cylinder is being charged and an automatic governor which controls the adjustment of said double cam so that one or the other portion is brought into operation, substantially as described. 5th. The combination of the adjustable cam, capable of endwise motion on the stud upon which it is mounted, the gear-wheel connected to and revolving with said cam, the shrouded pinion with which said gear-wheel meshes, and which is also capable of endwise motion, together with the automatic governor which imparts endwise motion to the shrouded pinion, substantially as described. 6th. In an igniting device for gas engines, the combination of the thimble whose interior is connected with the engine cylinder, the hollow valve plunger seated in

said thimble and provided with a fine perforation by which the interior of the valve plunger is permanently connected with the engine cylinder, and also provided with other perforations which are uncovered when the valve is lifted off its seat, a barrel which slides on the thimble and terminates in a cap through which there are perforations for the passage of the igniting jet, an adjustable plug in the end of said cap so arranged as to strike the end of the hollow valve plunger, and to lift it from the seat, together with means for reciprocating said barrel, substantially as described. 7th. In an igniting device for gas engines the combination of the thimble whose interior is connected with the engine cylinder, the hollow valve plunger seated in said thimble and provided with a fine perforation by which the interior of the valve plunger is permanently connected with the engine cylinder, and also provided with other larger perforations which are uncovered when the valve is lifted off its seat, a barrel which slides on the thimble and terminates in a cap through which there are perforations for the passage of the igniting jet, an adjustable plug in the end of said cap so arranged as to lift it from its seat, and a projection of suitable incandescent material so placed as to be introduced into the interior of the hollow valve plunger when the end of the thimble is closed by the cap on the barrel, together with means for reciprocating said barrel, substantially as described. 8th. In an igniting device for gas engines, the combination of the thimble whose interior is connected with the engine cylinder, the hollow valve plunger seated in said thimble and provided with a fine perforation by which the interior of the valve plunger is permanently connected with the engine cylinder, and also provided with other larger perforations which are uncovered when the valve is lifted off its seat, together with the tip of incandescent material which is alternately introduced into the interior of said valve plunger, thereby lifting it from its seat, and withdrawn and exposed to a constantly burning flame, substantially as described. 9th. The combination of an oil reservoir, a main outlet and a valve for closing the same, together with several branch channels leading from said main outlet, and graduating valves for controlling the flow of oil in each, substantially as described. 10th. A lubricating bearing which has a suitable inlet for oil, circular grooves at or near the ends of the bearing, and suitable ducts or channels leading from said grooves to other bearings, substantially as described. 11th. The combination of an oil reservoir and a main outlet from said reservoir and a valve for closing the same, branch channels leading from said main outlet and graduating valves for controlling the flow of oil in the channels, together with lubricating bearings, each of which bearings has grooves near its ends, and channels leading from said grooves to other bearings, substantially as described.

No. 39,760. Apparatus for Making Illuminating Gas.

(*Appareil pour la fabrication du gaz d'éclairage.*)

Wallace Corodon Andrews, New York, State of New York, U.S.A., 10th August, 1892; 6 years.

Claim.—1st. In a gas purifier, the combination, with the casing, of a lower gas inlet and a gas outlet, a series of horizontal sectional floors, between the inlet and outlet, each floor comprising separate sections of intermediate grids, and mechanism for tilting said sections, as described. 2nd. In a gas purifier, the combination, with the casing, of a lower gas inlet and a gas outlet, a series of horizontal sectional floors, between the inlet and outlet, each floor comprising separate sections of intermeshing grids, supporting shafts for each section extending through the wall of the casing, and provided at their end with a crank, and horizontal rods connecting the free ends of the cranks in each floor, substantially as described.

No. 39,761. Method of Making Illuminating and Heating Gas. (*Méthode de fabrication du gaz combustible et d'éclairage.*)

Wallace Corodon Andrews, New York, State of New York, U.S.A., 10th August, 1892; 6 years.

Claim.—1st. The process of purifying gas, which consists in passing the gas upwardly through a body of solid purifying material, the purifying material being alternately at rest and moving in a shower progressively downward during the passage of the gas, substantially as described. 2nd. The process of purifying gas, which consists in passing the gas upwardly through successive layers of solid purifying material, and moving the layers of solid purifying material, and moving the layers in a shower progressively against the gas, discharging the last layer as spent, and re-supplying fresh material at will, substantially as described.

No. 39,762. Machine for Sizing and Painting Cloth.

(*Machine pour coller et peindre les draps.*)

Dustan Amos Page and Richard Christopher Bird, both of Chicago, Illinois, U.S.A., 10th August, 1892; 6 years.

Claim.—1st. In a cloth sizing machine, the combination, with a main frame and the sizing apparatus, of the carrier belts, each consisting of a cable and a series of short spiked sections recessed upon their under sides, in which recesses are secured the cables and grooved guides in which the said belts run, substantially as described. 2nd. In a machine for painting or sizing cloth, the combination, with the tank and the positive cloth feeding devices which engage

with the cloth after leaving the tank, of a winding shaft or drum for the finished cloth, provided at its end with a friction pulley K^3 , a friction driving wheel K^2 engaging with the pulley, a hinged arm in which said pulley is mounted, and a weight adjustable upon the said arm, substantially as described. 3rd. In a machine for sizing and painting cloth, the combination of the main frame, the size tank, the positive cloth moving and stretching belts engaging with the cloth after leaving the tank, the spreading brushes, the friction driving wheel and the friction driven winding shaft for receiving the cloth after leaving the painting device, substantially as set forth. 4th. In a machine for sizing and painting cloth, a sizing tank so constructed and arranged that the cloth is sized only on one side, substantially as shown and described. 5th. In a machine for sizing and painting cloth, the sizing tank A^2 , having the large roller X and idlers Y , Y^1 , whereby the cloth is sized only on one side in passing through tank, substantially as shown and described.

No. 39,763. Draw Bar. (Barre d'attelage.)

James Henry Elliott, Montreal, Quebec, Canada, 10th August, 1892; 6 years.

Claim.—1st. The combination, with two opposing draw bars, of a link pivotally connecting the heads thereof, and arranged to normally extend in an inclined direction relatively to the length of the draw bars and extensible in the direction of its length, as set forth. 2nd. The combination, with two opposing draw bars, of a link pivotally connected with the heads thereof, and provided at one end with an elongated slot, substantially as shown and for the purpose specified. 3rd. The combination, with two opposing draw bars, of two links, one upon the upper and the other upon the under side of said draw bars, pivotally connected at one end with the head of one of said draw bars, and at the other end provided with elongated slots, through which passes a pin connecting them to the other draw bar, substantially as described.

No. 39,764. Machine for Making Staves.

(Machine pour la fabrication des douelles.)

James Pleukharp, Columbus, Ohio, U.S.A., 10th August, 1892; 6 years.

Claim.—1st. In a stave making machine, the combination, with the revolving shaft and the heads B and D at opposite ends of the heads, of a series of independent stave holders mounted on said heads, the holders on one head being directly opposite the holders on the other head, each holder comprising a shank F , a plate e at right angles to the head, the supporting edge e^1 projecting from inner edge of the plate e , the flange e^2 , extending from the outer edge of plate e parallel with ledge e^1 , and the flange e^3 , projected from the rear edge of ledge e^1 , across the space between the ledge e^1 , and flange e^2 , substantially as and for the purpose described. 2nd. The combination, with the shaft and the heads, of the stave holders secured to the heads and comprising the plate e , the ledge e^1 , the flange e^2 , and the flange e^3 , the flange e^2 and the ledge e^1 being bevelled on their opposing sides, substantially as set forth. 3rd. The combination, with the shaft and the track I , of the head D , having holders, and the head B , having independent movable holders and adjustable to and from the track I , substantially as described. 4th. The combination, with the shaft having threaded portions near each end, of the heads mounted on the said threaded portions and held thereon against turning by feather and spline and having corresponding stave holders, of the flanged nuts b and b^1 , one on each side of the heads for holding and adjusting the heads on the said shaft, substantially as and for the purposes described. 5th. The combination, with the head, of the stave holder having a shank composed of two stems, the yoke having a roller, and the springs H , substantially as set forth. 6th. The hereinbefore specified stave holder, comprising shank F , plate e , ledge e^1 , and flange e^2 , at opposite edges of plate e , the spurs e^4 , between the said ledge and flange and the flange e^3 , at the rear edge of ledge e^1 , substantially as set forth.

No. 39,765. Liquid for Heating Systems.

(Liquide pour système de chauffage.)

Martin Wanner, Denver, Colorado, U.S.A., 10th August, 1892; 6 years.

Claim.—1st. A liquid composition for use in systems of heating, said composition being composed of any of the higher alcohols and the acetine of the same, in proportions giving the compound a high specific heat, a high boiling point and rendering it non-solidifiable under ordinary low temperatures, substantially as set forth. 2nd. A liquid composition for the absorption, transportation and diffusion of heat in fluid circulating heating systems, consisting of a higher alcohol and an ester or acetine thereof combined substantially in the proportions specified. 3rd. A liquid composition for use in fluid circulating heating systems consisting of a higher alcohol and an ester or acetine thereof combined in the proportions specified.

No. 39,766. Cable Propeller. (Propulseur à câble.)

Ernest Lotze, Spokane Falls, Washington, U.S.A., 10th August, 1892; 6 years.

Claim.—1st. The boat, substantially as described, provided with a main wheel and with guide rolls by which to direct the chain into contact with said wheel, the upper surface of the rolls adjacent to

the said main wheel being arranged above the lower surface of the main wheel, whereby the chain passed over such guide rolls, and under the main wheel, will be held firmly in contact with such main wheel and the chain passed over said guide rolls and under the main wheel, substantially as set forth. 2nd. An improved boat, substantially as described, provided with a shaft suitably journaled and having a wheel or wheels arranged to be turned by the current, a main wheel carried by and loose with reference to said shaft, a clutch by which to key the said wheel to such shaft, and guides located on said boat by which to direct an anchored chain into contact with said main wheel, substantially as set forth. 3rd. The combination, in a boat, substantially as described, of the boat, hull or body, the shaft journaled thereto and bearing the undershot side wheels at its ends, the main wheel C , loose on such shaft, the clutch by which such wheel may be keyed on the shaft, the brake consisting of disc D^1 on the shaft, the pawl f , and the vertical and horizontal guide rollers, and the chain guided by said rollers and engaging the main wheel, substantially as set forth.

No. 39,767. Coin Actuated Apparatus.

(Appareil actionné par une pièce de monnaie.)

Patrick Kennedy, Jr., Brooklyn, New York, U.S.A., 10th August, 1892; 6 years.

Claim.—1st. The combination, with the base A , body B , and plate C , having the circular slots 2 and 3, of a glass shade C^1 , resting at its edges upon the plate C , and the fixed central stem F , extending from the base A , and passing through and supporting the centre of the plate C , and holding the glass shade C^1 , in place, substantially as set forth. 2nd. The combination, with the base A , body B , and plate C , having the circular slots, of the central stem F , the tube E , around said stem, the collars I , attached to the tube, the shells, each having a circular range of ratchet teeth, the wires or arms carrying the toys or figures and the pawls upon the collars for giving motion to the shells and the parts carried by them, substantially as set forth. 3rd. The combination, with the shells, the arms or wires and the figures or toys carried by them, of ratchets and pawls, the tube to which the pawls are connected, an actuating lever L , the link 9 , and crank arm K , connected to the tube, and a lever M , for giving motion to the lever L , substantially as set forth. 4th. The combination, with coin slide having coin supporting lips at its lower end, of the actuating lever L , at one side of the lower end of the coin slide and having an opening opposite to the centre of the coin, the lever M , the pusher 11 , connected with the lever M , and adapted to pass across the slide into the opening in the lever L , in the absence of the coin, whereby the coin is carried out of the slide by the pusher, and the lever L , is moved by the lever M , and the coin is dropped by the lever M , moving back from the lever L , substantially as set forth. 5th. In a coin actuated device, the combination, with the coin receiver, having an angle to lessen the momentum of the coin, of a stationary magnet below the angle adapted to attract an iron disc or washer, and the vertical channels 16 and 17, separated by the partition 18, below the magnet, whereby an iron disc will be deflected by the magnetism from the coin channel into the channel 17, substantially as specified. 6th. The combination, with the coin receiver or channel and the coin holder at the lower end thereof, of the lever M , and the cutter therewith connected, having a V-shaped cutting edge and passing transversely through the slot in the coin channel to draw a string or similar device to the middle part of the slot and cut the same substantially as set forth.

No. 39,768. Harrow. (Herc.)

Aaron J. Nellis, Pittsburg, Pennsylvania, U.S.A., 10th August, 1892; 6 years.

Claim.—1st. The flanged metallic block C , having two of its flanges on opposite sides provided with recesses to embrace one of the bars, and the flanges on its other sides provided with notches for holding the other bar of the frame and having its under face provided with a curved surface, with side ribs for holding and adjusting the tooth, and a central hole for the reception of a fastening bolt, substantially as shown and described. 2nd. The combination, in a harrow, of the bars crossing each other, with the bar locking and tooth bearing block C , constructed substantially as described, whereby they are adapted to be secured rigidly in place and form a seat for the attachment and adjustment of a curved spring tooth by the use of a single bolt and nut, as set forth. 3rd. The combination, in a harrow, of a frame composed of the crossed metal bars, the block C , constructed substantially as described, the recurved spring tooth provided with a slot, and bolt a , with its nut b , all arranged substantially as and for the purpose set forth. 4th. The combination, in a harrow, of the recurved spring tooth B held rigidly in its seat, and the spring brace B^1 , both being provided with a slot, whereby they can both be held in place by the single bolt, and either or both can be adjusted by loosening a single nut, substantially as shown and described. 5th. The combination of the recurved spring tooth B , provided with a slot, and the curved spring brace B^1 , provided with a slot, the two being arranged in relation to each other, as shown, whereby both can be held in position and can also be adjusted by means of a single bolt, as set forth. 6th. In combination with a harrow, the recurved slotted bearer G secured to the frame by means

of a block H having a correspondingly curved seat, and a bolt I, the said parts being constructed and arranged to operate as set forth, whereby the bearer can be adjusted by merely loosening the nut on the bolt and sliding the bearer forward or back, as set forth.

No. 39,769. Scales. (Balance.)

Julius Henning, Langenweddingen, Prussia, German Empire, 10th August, 1892; 6 years.

Claim.—An automatic weighing machine with two changeable platforms or holders W, W', so arranged that by the placing of adjustable catches h, h', on the rails C at points determined upon, the quantity required is arrived at, the tare running into the receptacles W, W', by two pipes R, R', in such a way that owing to the descent of the receptacle at a ratio corresponding to the balance, a lever E with two arms lifts itself alternately from the corresponding side and disengages a lever H, by means of which a cock O is closed, the corresponding receptacle emptying itself by means of conical plugs which are struck open, after which the beam in rising determines the point when the tare is reached in the other receptacle after the cock O' opposite has been opened, substantially as described.

No. 39,770. Step Ladder. (Echelle à marches.)

Martin Croissant, Albany, New York, U.S.A., 10th August, 1892; 6 years.

Claim.—1st. The combination, with a carrying rail supported neighbouring the upper portion of the face side of a case of shelves, and a carriage mounted on said rail and capable of being freely moved thereon in either direction, of a step ladder, a swivel jointed connection between the latter and the said carriage, carrying wheels or rollers, and a guiding wheel secured to the foot end of the ladder and a guide-way or track provided with the floor, for the purposes set forth. 2nd. The combination, with the carrying rail B, made in the form of an inverted T rail, the tubular form of carriage D, having in its upper side the longitudinal slot d, receiving the web b, of the said rail, and the angular portions c, c, riding on the laterally extended limbs a, a, of the same, of the step ladder suspended by its upper portion from said carriage with its foot end supported by the floor, for the purposes set forth. 3rd. The combination, with a step ladder which is suspended from an overhead carrying rail by means of a carriage capable of being moved in either direction thereon, of carrying wheels and guide wheel on a shaft secured to the foot end of the ladder and a guide way or track having its place in the floor without projection above the plane of the top surface of the same, for the purposes set forth.

No. 39,771. Power Hammer. (Marteau Mécanique.)

William Hartill Law, Peterboro', Ontario, Canada, 10th August, 1892; 6 years.

Claim.—1st. In combination, the frame, the upper lever pivotally supported thereby, the ram connected to the upper lever, the lower lever, the pitman connecting the levers, and the crank shaft in sliding connection with the lower lever, substantially as described. 2nd. In combination, the frame, the upper lever pivotally supported thereby, the ram carried by the said lever, the lower lever, the pitman connecting the two levers, the means for operating the lower lever, and the adjustable fulcrum for the lower lever movable to and from the pitman, substantially as described. 3rd. In combination, the frame, the ram and the movable support therefor, the lever J, the pitman connected to said lever, and to the movable ram support, the cross head movable longitudinally of the lever, the fulcrums of the lever carried by said cross head movable longitudinally of the lever, the guide ways for the cross head and the means for moving the cross head with the fulcrum along said way and form the pitman, substantially as described. 4th. In combination in a power hammer, the frame, the ram, the movable support therefor, the operating lever J, the means for operating said lever, the pitman connected to the lever and the ram supporting the fulcrum consisting of the trunnions M, M', and the cross head carrying the same, said cross head with the fulcrum being movable along the lever, substantially as described. 5th. In combination, the frame, the ram, the movable support therefor, the operating lever J, the pitman connected thereto and to the movable support and the movable fulcrum for the lever adjustable so as to lie in the vertical plane of the pitman substantially as described. 6th. In combination the frame, the ram, the upper lever connected thereto and pivotally supported on the frame, the lower lever T, the pitman connecting the two levers, the adjustable fulcrum for the lower lever and the crank shaft for operating said lever connected thereto by the sliding block, R, substantially as described. 7th. In combination, the frame, the ram, the movable support therefor, the operating lever J, formed of parallel bars, the pitman connected thereto between the bars and connected also to the ram support, the adjustable fulcrum engaging the outside of the bars, whereby the longitudinal adjustment along the lever is permitted and the operating means for the lever J, substantially as described. 8th. In combination the frame, the ram, the movable support therefor, the operating lever J, composed of parallel bars, the pitman connected to the lever between the bars, and connected also to the ram support, the trunnions M, M', grooved on their inner faces to receive the bars and having journals on their outer sides, the cross head receiving said journals, the guide way for the cross head and the operating means for the lever J, substantially as described.

9th. In combination, the frame, the ram, the upper lever pivotally supported on the frame and connected to the ram, the lower lever the pitman connecting the levers, the cross head movable along the lower lever, the fulcrum carried by the cross head, the guide way for the cross head having tongues P, said cross head being grooved to receive said tongues and formed in two parts, the bolt o, for holding the two parts together and operating means for the lever J, substantially as described. 10th. In combination, the frame, the ram, the upper lever pivotally supported on the frame and connected to the ram, the lower lever J, the pitman connecting the two levers, the adjustable fulcrum, the guide way and the operating means for the fulcrum consisting of the treadle, the rock shaft and the arm and line U, V. 11th. In combination, the frame, the ram, the connections thereto including the pitman, the lever J, connected to said pitman, the adjustable fulcrum comprising the cross head, the guide way therefor, and the trunnions pivoted to the cross head and movably engaging the lever and having rounded lower edges to fit corresponding seats in the cross head, substantially as described. 12th. In combination, the frame, the ram, the upper lever connected thereto, the screw P, to which the lever is pivoted, the said frame having a rear extension G, to receive the screw, the nuts g, g', on the screw and the cushions H, I, on each side of the extension G, and between the nuts and said extension. 13th. In combination in a power hammer of the frame, the ram, the upper lever connected to the ram, the pitman connected to the lever for operating it, means for operating the pitman, said pitman being formed of the upper and lower lengths, with the socket connection between them, the right and left hand screw spindle arranged transversely of the pitman, the nuts 1, 2, on the screw, the links 3, 4, connected thereto, and to the pitman sections, said sections having the cross heads X, Y, substantially as described. 14th. In combination, the frame, the ram, the pivoted lever connected therewith, the pitman with the operating means therefor for operating the lever, said pitman being formed in two parts, one of which has a socket with slot y, and the other a reduced end x, fitted thereto, the right and left hand screw spindle extending through the slots and having a ball bearing 7, engaging with a seat in the end x, the nuts 1, 2, and the links with means for turning the spindle, substantially as described. 15th. In combination, the frame, the ram, the lever A, connected therewith, the pitman with operating means therefor for moving the lever A, the said pitman being formed in two parts with a sliding connection between them, the transverse right and left screw with the toggle mechanism for moving the sections, the pulley Z, on said screw, the pulley 9, on the frame, the adjustable support for said pulley, and the belt connection between the pulleys, substantially as described. 16th. In combination, the frame, the ram, the operating lever J, the pitman connected thereto, and in connection with the ram, the adjustable fulcrum comprising the cross head N, and the trunnions movably engaging the lever, the guide way for the cross head having the base plate P, with an opening therein and the extension K', on the pitman to enter the said opening in the plate P, substantially as described.

No. 39,772. Magazine Gun. (Fusil magasin.)

Robert Mayo Catlin, Tuscarora, Nevada, U. S. A., 10th August, 1892; 6 years.

Claim.—1st. The combination, with the longitudinally movable barrel, of a spring put under tension by the recoil of the barrel, and a breech bolt operated to open the breech by the return movement of the spring, substantially as described. 2nd. The combination, with the longitudinally movable barrel, of a spring put under tension by the recoil of the barrel, and a breech bolt and extractor operated by the return movement of the spring to open the breech and extract the empty shell, substantially as described. 3rd. The combination, with the longitudinally movable barrel, of a spring put under tension by the recoil of the barrel, a breech bolt operated by the return movement of the spring to open the breech, a firing pin, and a hammer cocked by the return movement of the spring, substantially as described. 4th. The combination, with a longitudinally movable barrel, of a spring put under tension by the recoil of the barrel, a breech bolt and extractor operated by the return movement of the spring to open the breech and extract the empty shell, a firing pin, and a hammer cocked by the return movement of the spring, substantially as described. 5th. The combination, with the longitudinally movable barrel, of a spring put under tension by the recoil of the barrel, a breech bolt operated by the return movement of the spring to open the breech, a magazine, and a spring actuated carrier for transferring the cartridges from the magazine to the barrel when the breech is open, substantially as described. 6th. The combination, with the longitudinally movable barrel, of a spring put under tension by the recoil of the barrel, a breech bolt and extractor operated by the return movement of the spring, to open the breech and extract the empty shell, a magazine, and a spring actuated carrier for transferring the cartridges from the magazine to the barrel when the breech is opened, substantially as described. 7th. The combination, with the barrel, of a spring put under tension by the recoil, a breech bolt operated by the return movement of the spring to open the breech, and a hand lever connected to said breech bolt for operating the latter independently of its automatic action, substantially as described. 8th. The combination, with the barrel, of a spring put under tension by the recoil, a breech bolt operated by

the return movement of the spring to open the breech, and another spring put under tension by the opening of the breech, and reacting upon the breech bolt to close the breech when the force of the breech opening spring is expended, substantially as described. 9th. The combination, with the longitudinally movable barrel, of a spring put under tension by the recoil of the barrel, a breech bolt operated by the return movement of the spring to open the breech, and another spring put under tension by the opening of the breech, and reacting upon the breech bolt to close the breech when the force of the breech opening spring is expended, substantially as described. 10th. The combination, with the longitudinally movable barrel, of a spring put under tension by the recoil of the barrel, a breech bolt operated by the return movement of the spring to open the breech, a latch for locking the breech bolt in position to close the breech, and a tripping device for operating the latch to release the bolt at or near the limit of the recoil movement, substantially as described. 11th. The combination, with the longitudinally movable barrel, of a spring put under tension by the recoil of the barrel, a breech bolt operated by the return movement of the spring to open the breech, a latch for locking the breech bolt in position to close the breech, a tripping device for operating the latch to release the bolt at or near the limit of the recoil movement, and a hand lever and connections for operating the bolt and latch independently of their automatic action, substantially as described. 12th. The combination, with the longitudinally movable barrel, of a spring put under tension by the recoil of the barrel and reacting to return the barrel to its normal position, and a breech bolt operated by the return movement of the spring to open the breech, substantially as described. 13th. The combination, with the longitudinally movable barrel, of a spring put under tension by the recoil of the barrel, and a breech bolt moving with the barrel during the recoil movement, said breech bolt and barrel being moved in opposite directions by the return movement of the spring to open the breech, substantially as described. 14th. The combination, with the longitudinally movable barrel, of a breech bolt moving with the barrel during the recoil, and a spring put under tension by the recoil of the barrel and moving the barrel and breech bolt simultaneously in opposite directions in resuming its normal condition, substantially as described. 15th. The combination, with the longitudinally movable barrel, of a spring put under tension by the recoil of the barrel and reacting to return the barrel to its normal position, and a breech bolt connected to the barrel and operated by its return movement to open the breech, substantially as described. 16th. The combination, with a longitudinally movable barrel, of a spring put under tension by the recoil of the barrel and reacting to return the barrel to its normal position, a breech bolt connected to and operated by the return movement of the barrel to open the breech, a latch for locking the breech bolt in position to close the breech, and a tripping device for operating the latch to release the bolt at or near the limit of the recoil movement, substantially as described. 17th. The combination, with the longitudinally movable barrel, of a spring put under tension by the recoil of the barrel, and reacting to return the barrel to its normal position, and a hammer cocked by said return movement of the spring, substantially as described. 18th. The combination, with the longitudinally movable barrel, of a spring put under tension by the recoil of the barrel, and hammer partially cocked by the recoil movement of the barrel and brought to full cock by the return movement of the spring, substantially as described. 19th. The combination, with the longitudinally movable barrel, of a spring put under tension by the recoil of the barrel, a breech bolt, a lever having a long arm connected to said breech bolt, and a short arm acted upon by the spring in its return movement, whereby the breech bolt is operated to open the breech, substantially as described. 20th. The combination, with the longitudinally movable barrel and its breech bolt, of a compound lever connected to and operating the breech, means for returning the barrel to its normal position after recoil, and a latch carried by the barrel and engaging and actuating the lever for the retraction of the breech bolt as the barrel returns to its normal position, substantially as described. 21st. The combination, with the longitudinally movable barrel and its breech bolt, of a compound lever connected to and operating the breech bolt to open the breech, means for returning the barrel to its normal position after recoil, a latch carried by the barrel and locking the breech bolt to the barrel during the recoil movement, and a tripping device moving said latch into position to release the breech bolt and to engage and operate the lever as the barrel returns to its normal position, substantially as described. 22nd. The combination, with the longitudinally movable barrel, of a breech bolt retracted to open the breech when the recoil movement is completed, a latch carried by the barrel, a spring for holding the latch in position to lock the bolt to the barrel during the recoil, and a cam surface for tripping the bolt at or near the limit of the recoil movement, substantially as described. 23rd. The combination, with the longitudinally movable barrel, of a breech bolt retraction to open the breech when the recoil movement is completed, a rocking latch carried by the barrel, means for rocking the latch into position to lock the bolt to the barrel when the latter is at or near the limit of its forward movement, and a tripping device rocking the latch to release the bolt when the barrel is at or near the limit of the recoil movement, substantially as described. 24th. The combination, with the longitudinally movable barrel and its breech bolt, of latch 31, carried by said barrel, a lever mechanism operated by said latch in the forward movement of the barrel for the retraction of the breech bolt, and a

tripping device throwing the latch out of engagement with the lever mechanism when the breech bolt has been fully retracted, substantially as described. 25th. The combination, with the longitudinally movable barrel, its breech piece and breech bolt, of the spring G, placed at the rear of the breech piece and surrounding the breech bolt, connections between the spring G and the breech bolt, whereby the return movement of the spring retracts the breech bolt, and a spring I inside the breech piece put under tension by the retraction of the breech bolt and operating to return the breech bolt to its normal position when the force of spring G is expended, substantially as described. 26th. The combination, with the hammer and its recoil operated cocking mechanism, of a sear for holding the hammer in its cocked position, a trigger carrying a pivoted lever arranged to engage with said sear to release the hammer, and a stud upon the hammer arranged to engage with said lever and rock the same to release the sear when the hammer falls, substantially as described. 27th. The combination, with the breech bolt H, of a spring pressed carrier 27, through which the breech bolt passes in closing the breech, and means for depressing the carrier after the breech bolt has passed through it, said carrier being provided with one or more spring flanges yielding to allow the carrier to be depressed and holding the carrier in its depressed position as the breech bolt is retracted, substantially as described. 28th. The combination, with the breech bolt H, of a spring pressed carrier 27, through which the breech bolt passes in closing the breech, pivoted arms 28, supporting said carrier and provided with cam surfaces engaged by the breech bolt in its forward movement, whereby the carrier is depressed against the tension of its spring, said carrier being provided with one or more spring flanges yielding to allow the carrier to be depressed and holding the carrier in its depressed position as the breech bolt is retracted, substantially as described. 29th. The carrier 27, composed of a rigid tube of sufficient size to admit the cartridge and having the spring flanges 19 on each side forming a slot normally of less width than the bore of the tube, substantially as described.

No. 39,773. Dry Cell. (*Pile sèche.*)

Dr. Hugo Koller, Vienna, Austria, 10th August, 1892; 6 years.

Claim.—A dry cell between the electrodes of which are interposed exciting plates made by mixing the salts suitable for producing the electrical excitation with agar-agar boiled in water, and to which syrup from potato starch, or sugar syrup or glycerine is added or not, in cases when the exciting plates contain several different metallic salts, and for the purpose of only allowing of a very slow diffusion, diaphragms are interposed between said plates, which diaphragms consist of perforated plates made of material impervious to water.

No. 39,774. Brake for Cars. (*Frein de chars.*)

Philip Walsh, Prescott, Ontario, Canada, 11th August, 1892; 6 years.

Claim.—1st. A car brake consisting of a grooved friction pulley secured on one of the axles of a car, a grooved friction pulley journaled in a lever suitably pivoted in brackets, a drum or drums secured to the axle of this lever, a chain or chains, one end of which is secured to the drum or drums operating the brake beam lever, a spring pressing the friction pulleys into contact, and means for disconnecting the said friction pulleys, substantially as set forth. 2nd. A car brake consisting of the friction pulley A, secured to the axle of a car, the lever B, carrying another friction pulley d, the spring E, the lever F, pivotally secured to the said lever B, the link G, pivotally connected to the said lever F, and carrying a pulley g, the chains K, the drums L, on which said chains are adapted to be wound, the rocking shaft I, arms h and J, and chain H, connecting one of the said arms with the lever 17 of the brake, beam a, continuous cord M, passing under the said pulley g, substantially as and for the purpose set forth. 3rd. In a car brake, the combination, with a grooved friction pulley secured to a car axle, of the friction pulley d, journaled in the lever B, the spring E, substantially as set forth. 4th. In a car brake, the combination, with the lever B, carrying a friction pulley, and means for operating the brakes of a car, of the lever F, link G, and pulley g, and guide pulleys S, S', the cord M, passing under said pulley g, and means for operating said cord, substantially as set forth. 5th. The combination in a car brake, with a lever operating the lever carrying the friction pulley, of the link G, pulley g, and cord M, having connecting hooks m, one end of said cord being secured to the arm N, the rocking shaft O, the arm P, and lever p, substantially as set forth. 6th. The combination in a car brake, with the cord M, passing under the pulley g, of the drum Q, and gear for operating it R, substantially as set forth.

No. 39,775. Wheel for Cars. (*Roue de chars.*)

Josiah Augustus Webber, Brooklyn, New York, U.S.A., 11th August, 1892; 18 years.

Claim.—1st. A car wheel comprising essentially a metallic hub, a non-metallic central portion composed of discs extending from the hub to the tread of the wheel, the edges of the discs constituting the tread of the wheel, and side plates, one of them provided with a flange for the wheel, and means whereby they and the central portion are clamped together, substantially as set forth. 2nd. A car wheel comprising essentially a metallic hub and side plate integral

therewith provided with a flange for the wheel, a central portion composed of non-metallic material in the form of discs extending from the hub to the tread of the wheel, the edges of the discs themselves forming the tread, another side plate and means whereby the entire structure is clamped together, substantially as set forth. 3rd. A car wheel comprising essentially a metallic hub, a central portion as wide as the normal tread of the wheel made of the edges of non-metallic discs which extend from the tread of the wheel inwardly to the hub, and side plates, one of them provided with a flange for the wheel, substantially as set forth. 4th. A car wheel, the central portion whereof in a circumferential radial plane is composed of discs of non-metallic material, which extend from the hub to the periphery of the wheel, the edges of which discs constitute the tread of the wheel, substantially as set forth.

No. 39,776. Heating Apparatus. (*Appareil de chauffage.*)

Otto Schulze, Berlin, Prussia, German Empire, 11th August, 1892; 6 years.

Claim.—A heating apparatus for the advantageous distribution and utilization of the heating gases, consisting of a series of elements, parts or drums, connected to one another by alternate tubes, and which, by means of a tube, receive the heating gases from the furnace, and utilize them by advantageous distribution, substantially as described.

No. 39,777. Velocipede. (*Vélocipède.*)

Thomas Fane and Charles F. Lavender, Toronto, Ontario, Canada, 11th August, 1892; 6 years.

Claim 1st. In a velocipede the combination of the crank axle bracket and a passage formed therethrough with the crank axle located within said passage, a crank located at the outer side of one of the ends of the crank axle bracket, the said crank and crank axle formed of one continuous piece of metal, substantially as described. 2nd. In a velocipede the combination of the crank axle bracket having a screw thread cut on either end with an end cap located at and fitting over either end of the crank axle bracket, a passage formed through the end caps and crank axle bracket, a crank axle located within said passage, a crank at the outer side of the end cap, said crank axle and crank formed of one continuous piece of metal, two bearing surfaces formed on the crank axle within the end cap and bracket, a corresponding bearing surface formed on the inner face of the end cap, substantially as described. 3rd. In a velocipede, the combination of the crank axle bracket, a passage formed therethrough, said crank axle bracket and passage located at right angles to the line of advance of the machine, each end of the crank axle bracket having a screw thread formed thereon, an end cap to fit over and close each end of the crank axle bracket, a circular opening in the said end caps, a crank axle passing through the circular openings in the end cap and the passage through the crank axle bracket, the circular opening in the end caps fitting closely the crank axle bearing surfaces formed on the crank axle within the end caps and crank axle bracket, a bearing surface formed on the inner face of each end cap, the crank axle projecting beyond the crank axle bracket and end caps, one end of the crank axle fitted to receive the hub of the chain wheel whilst at the other end is one of the cranks, said crank and crank axle formed of one continuous piece of metal, the chain wheel having a hub to fit the end of the crank axle and to receive the end of the second crank, and means for locking the second crank, the hub of the chain wheel and the crank axle together, substantially as described. 4th. In a velocipede the combination of the crank axle bracket having a passage formed therethrough at right angles to the line of advance of the machine, with an end cap fitting tightly over and closing each end of the passage, a circular opening formed through each end cap, the crank axle located in the said passage and extending through the openings in the end cap, two bearing surfaces fitted to the crank axle bearing surfaces on the inner face of each end cap to correspond with the bearing surfaces on the crank axle, one end of the crank axle screw-threaded and a recess formed in the said screw threaded end, a crank formed on the other end of the crank axle and at the outer side of the end caps, said crank and crank axle made of one continuous piece of metal, the chain wheel, one-half of the hub of which is fitted to receive the end of the crank axle, the other end fitted to receive the end of the second crank, the second crank having a projection to enter the recess in the crank axle and screw-threaded in the opposite direction to the screw thread of the crank axle, substantially as described.

No. 39,778. Plated Ware. (*Ouvrages en plaqué.*)

William E. Pleadwell, Bridgeport, Connecticut, U. S. A., 11th August, 1892; 6 years.

Claim.—The method of producing a plated article, reinforced at the wearing points, that consists in electro-plating such points in a blank and then subjecting the plated surface to pressure, then forming the article to shape, and finally plating and finishing the surface, including those parts previously plated, all substantially as described.

No. 39,779. Refrigerator. (*Garde-manger.*)

Ross C. Simmons, East Tawas, Michigan, U. S. A., 11th August, 1892; 6 years.

Claim.—1st. In a refrigerator, the combination, with a casing, the internal metal lining, the ice tank supported above the same, the water coil located in the ice tank, a supply pipe leading thereto, and a faucet connected to and extending through the wall of the casing, of a waste coil located between the metal lining and the wall of the casing, connections between one end of the coil and a drip opening in the ice tank, the opposite end of said coil passing through the casing and terminating in a discharge, a drip pan located upon the exterior of the casing above the drip coil and under the faucet of the water coil, and a connection between said drip pan and the drip water coil, substantially as specified. 2nd. In a refrigerator, the combination, with the outer casing, the internal metal lining spaced therefrom, and the water coil located above the same and provided with inlet and outlet passages, of a drip pan located upon the exterior of the casing below the outlet of the coil and a drip coil arranged between the casing and lining, one end of the coil being connected with the drip pan, and the other end extending through the casing to form a drip discharge, and a drain pipe connected to a lower intermediate point of the coil and terminating in a discharge faucet, substantially as specified.

No. 39,780. Controlling Device for Electric Motors.

(*Appareil à contrôle pour moteurs électriques.*)

Francis O. Blackwell, Lynn, Massachusetts, U.S.A., 11th August, 1892; 6 years.

Claim.—1st. The combination, with an electric motor, of a current controller and circuit reverser therefor, a common actuator positively actuating both, but allowing the controller a predetermined amount of lost movement relative to the reverser, for the purpose set forth. 2nd. The combination, with an electric motor, of a current controlling switch, a circuit reversing switch, a common pivoted actuator actuating both switches, positively a connection between the actuator and the controlling switch, such that the latter regulates the motor current correspondingly upon movement of the actuator in opposite direction from a central position, and a lost motion connection between the reversing switch and actuator, whereby the former is thrown by the actuator only when passing its central position, as set forth. 3rd. The combination, with an electric motor, of a circuit reverser moving in opposite directions, respectively, when and for reversing the motor circuit, a resistance or current regulator controlled by a contact moving in a constant direction when increasing or decreasing the motor current, and a common actuator with which both reverser and regulator are connected, as described. 4th. The combination, with an electric motor, of a current regulator and circuit reverser, a common pivoted actuator therefor, and intermediate connections, such that movement of the actuator in opposite directions from a central position imparts movement to the reverser in opposite directions, but to the regulator in the same direction, as described. 5th. The combination of an electric motor, a current regulator and circuit reversing switch in the motor circuit, with a common actuator connected positively with both, but allowed a predetermined amount of lost movement relatively to the reverser, and a locking device whereby the reverser is locked against movement except when the actuator is about to throw the same, as set forth. 6th. The combination, with an electric motor, of a resistance, an actuating handle therefor, an intermediate connection whereby the action of the handle upon opposite sides of the central point is duplicated, and a reversing switch actuated by the handle while passing the central position, the connections between reversing switch and handle allowing a certain amount of lost movement, for the purpose described. 7th. The combination, with an electric motor, of the resistance C in the motor circuit, an operating handle E, a reversing switch D, a power connection G, whereby throwing the handle E, upon opposite sides of a central position regulates the motor correspondingly, and a lever L, connected to the reversing switch D, and actuated by the handle E when passing over its central position, as set forth. 8th. The combination, with an electric motor, of a resistance and reversing switch therefor, a pivoted arm E, the lever L, provided with double cam surfaces, the arm and lever being connected, respectively, with the resistance and circuit reverser, and operating them successively, as described.

No. 39,781. Calk for Horseshoes.

(*Crampon de fer à cheval.*)

Alfred James Blake, Northlake, Surrey, England, 11th August, 1892; 6 years.

Claim.—The combination, with the calks *a*, of the arms *b*, substantially as and for the purpose set forth.

No. 39,782. Drill. (*Drille.*)

Percy John Ogle, London, England, 11th August, 1892; 6 years.

Claim.—1st. In a percussive drilling machine, the combination of the working cylinder, a drill spindle, two pistons secured to the said spindle and working in the said cylinder, a valve box, an aperture in said valve box for the admission of the motive fluid, a valve within said valve box, a series of ports entering said cylinder from said

valve box, and arranged to be closed by said valve, substantially as described. 2nd. In a percussive drilling machine, the combination of the working cylinder, a drill spindle, two pistons secured to the said spindle and working in the said cylinder, a valve box, an aperture in said valve box for the admission of the motive fluid, a valve within said valve box, a series of ports entering said cylinder from said valve box, and arranged to be closed by said valve, the said motive fluid after driving the piston in one direction adapted to be conveyed to the opposite end of the said cylinder by means of said ports and valves to drive the piston in the opposite direction, substantially as described. 3rd. In a percussive drilling machine, the combination of the working cylinder, a drill spindle within said working cylinder, two pistons secured to the said spindle, said pistons being of different dimensions, a valve box, an aperture within said valve box for the admission of the motive fluid, a valve within said valve box, two pistons within said valve box, one at either end and connected to the said valve, a series of ports entering the said cylinder from said valve box, and arranged to be closed by said valve, substantially as described. 4th. In a percussive drilling machine, the combination of the working cylinder and the drill spindle with the motive fluid, the said cylinder being arranged to allow the motive fluid to move the drill spindle in one direction and to then allow the motive fluid to expand into another part of the working cylinder to the said drill spindle in the reverse direction, substantially as described. 5th. In a percussive drilling machine, the combination of the working cylinder, the drill spindle and a distribution valve, with the motive fluid, the said cylinder being arranged to allow the motive fluid to move the drill spindle in one direction and to then allow the motive fluid to expand into another part of the working cylinder by means of the distribution valve to move the drill spindle in the reverse direction, substantially as described.

No. 39,783. Nut Lock. (*Arrêt-écrou.*)

Thomas Carlyle Harris, Rochester, Minnesota, U.S.A., 11th August, 1892; 6 years.

Claim.—1st. In a nut lock, the locking plate 15, formed with a series of longitudinally aligned apertures, the inner ends *c*, of which are round and the outer ends *d* angular, substantially as set forth. 2nd. In a nut lock, the plate 12, having bolt apertures and tenons or lugs 13, and the locking plate 15, apertured to receive said tenons or lugs, and formed with apertures registering with the bolt apertures, and having their inner ends *c*, circular, and their outer or nut receiving portions *d* angular, and fastenings for securing the plate 15, on the said tenons or lugs, substantially as set forth. 3rd. In a nut lock, the combination, with the inner fish plate, of an apertured and tenoned strip 12, a locking strip or plate 15, formed with apertures adapted to receive bolts and nuts, such apertures being formed with star-shaped sections *d*, and circular sections *c*, keys 16, which pass through apertures formed in the tenoned ends, and auxiliary keys 17, which engage the keys 16, substantially as described. 4th. In a nut lock, the combination, with a tenoned strip 12, of a locking plate apertured to receive said tenons, keys 16, which pass through apertures formed in the tenons, and auxiliary keys 17, formed with wards *f*, and keepers 18, substantially as described.

No. 39,784. Nut Lock. (*Arrêt-écrou.*)

Theodore Martin, Wallaceburg, Ontario, Canada, 11th August, 1892; 6 years.

Claim.—1st. The combination, of the projections H and B on the upper side of the plate A, and a key having thereon retaining shoulders adapted to be placed between the face of the nut and projections, substantially as shown and described. 2nd. The combination, of the projections H and B on the upper side of plate A, and a key having inclined portion G, adapted to receive projections B, a square portion E, for projection H to come against under each end, having bevelled corners *n*, to allow a chisel to enter to loosen key and retaining shoulders F, substantially as shown and described.

No. 39,785. Process of and Apparatus for Bleaching by Electrolysis. (*Procédé et appareil pour blanchir par l'électrolyse.*)

Thomas Henry Montgomery, assignee of Albert Edward Wolf, both of New York, State of New York, U.S.A., 11th August, 1892; 6 years.

Claim.—1st. In the art of bleaching, the process set forth, which consists in submitting sea water to electrolysis, forcing atmospheric air into the electrolyte and discharging the same between the electrodes and submitting the materials to be bleached to the action of the products of electrolysis in the same vat, or tank, substantially as described. 2nd. In the art of bleaching, the process set forth, which consists in submitting sea water to electrolysis, forcing atmospheric air into the electrolyte and discharging the same between the electrodes and submitting the materials to be bleached to the action of the products of electrolysis in the same vat, or tank, during agitation of the electrolyte, substantially as specified. 3rd. In a bleaching apparatus, the combination with a vat, or receiving tank, containing an electrolyte, of positive and negative electrodes arranged therein, a source of electric energy connected therewith, an air forcing device, and an air conduit, or tube, entering the electrolyte and having a discharging terminal lying between the electrodes,

substantially as described. 4th. In a bleaching apparatus, the combination, with a vat, or tank, of perforated positive and negative electrodes connected to wires entering the tank, a storage battery in circuit with said electrodes, an air forcing device, an air conduit, or tube, entering the tank, and having a terminal provided with air exits discharging between the electrodes, substantially as described.

No. 39,786. Apparatus for Stopping and Starting Vehicles. (*Appareil d'arrêt et de mise en mouvement des chars.*)

Joseph William Lee, Cambridge, and Samuel Burlingham, Hitchin, both in England, 11th August, 1892; 6 years.

Claim.—1st. Apparatus for storing the energy of momentum of tramway and other vehicles comprising a spring located within and having its outer end attached to a drum loose on the shaft or axle carrying it, the other end of the spring being attached to a boss or sleeve, also loose on the shaft or axle, and means for preventing the rotation of the boss or sleeve for connecting the drum with the shaft so that the spring will be wound up by the movement of the vehicle, and for releasing the spring and holding the drum stationary, substantially as and for the purpose hereinbefore described. 2nd. In apparatus of the kind herein described the use of a boss or sleeve loose on the shaft or axle of the vehicle, and to which is attached the inner end of the spring, substantially as described. 3rd. In apparatus of the kind herein described the combination with the spring drum, of a disc adapted to engage therewith by frictional contact, a boss or sleeve, a break pulley and a ratchet wheel adapted to engage with a pawl on the said pulley, substantially as and for the purpose described and illustrated in the accompanying drawings. 4th. The manufacture and use of the improved apparatus for storing the energy of momentum of tramway and other vehicles for starting the same, the said apparatus being arranged and operating, substantially as hereinbefore described and illustrated in the accompanying drawings.

No. 39,787. Electric Switch. (*Commutateur électrique.*)

Francis Broadnax, New York, State of New York, U.S.A., 11th August, 1892; 6 years.

Claim.—1st. In a double pole switch, a rotating cam provided with a series of faces of conducting material such as metal and non-conducting material such as glass in the form of steps, the contact plates of each set being placed diametrically opposite each other and connected together by a conductor upon and around which the insulating material of which the cam is formed is moulded. 2nd. In an electric switch, a rotating cam provided with a series of faces of conducting and non-conducting material in the form of steps, the conducting faces being provided with an insulating ledge 2, extending beyond and flush with the conducting plate. 3rd. In an electric switch, a coupling piece provided with a plurality of intersecting screw threaded apertures having an angular relation to each other, combined with a suitable set screw. 4th. In a double pole switch, a rotating cam provided with a series of faces of conducting material such as metal and non-conducting material such as glass in the form of steps, the contact plates of each set being placed diametrically opposite each other and connected together by a conductor of irregular form, upon and around which the insulating material of which the cam is formed is moulded.

No. 39,788. Railway Car. (*Char de chemin de fer.*)

Max A. Zucher, Montreal, Quebec, Canada, 11th August, 1892; 6 years.

Claim.—1st. A railway car frame statically constructed, having one or more sections each containing two or more sleeping berths, one above the other, whose fixed framework is statically constructed to strengthen and stiffen the car frame in various directions and integrally connected therewith, in combination with statically trussed interior horizontal girders rigidly connected to the interior framework and forming an overhead passage way (V), substantially as described. 2nd. A railway car frame statically constructed, having one or more sections each containing two or more sleeping berths, one above the other, and having each a fixed framework forming girders in a longitudinal as well as transverse direction, all integrally connected together and to the car frame, substantially as described. 3rd. A railway car frame having one or more sections each containing two or more sleeping berths, one above the other, having hinged folding beds working in a statically constructed frame or girder work in a longitudinal as well as a transverse direction, this girder work being integrally connected together and to the car frame, substantially as described. 4th. A railway car frame forming a statically constructed body externally and internally, in combination with an overhead passage way (V) to permit access to the upper row or rows of berths, said passage way forming a statically constructed interior girder to strengthen and stiffen the interior bracing, and also the whole car body, substantially as described. 5th. A railway car frame externally statically constructed, in combination with an internal statically constructed berth framework, consisting of one or more series of longitudinal interior girders or struts, each series consisting of two or more girders one above the other, and one or more transverse girders, and one or more horizontal longitudinal girders, all integrally connected together and to the exterior frame-

work, substantially as described. 6th. A sleeping car berth having suitable mechanism for raising it and lowering it, and additional means for securing it at various altitudes, in combination with statically constructed framework secured to the car body and having guide posts (s^2) and (s^4), forming guide ways for the berth, substantially as described. 7th. A sleeping berth for a railway car having a frame or shell constructed of thin ductile metallic plates, having its bottom raised, furrowed and panelled, to give it increased strength with decreased weight, in combination with vertical guide ways for the berth, substantially as described. 8th. A railway car frame having one or more sleeping berths whose bedding shelves and frames are held in position by vertical guide posts, in combination with wire ropes (y), connected to drums and pulleys (p), and suitable mechanism for elevating and lowering the same, substantially as described. 9th. A railway car having one or more seat frames statically constructed and integrally connected thereto, each seat frame consisting of panelled, furrowed and ductile metallic plates, in combination with horizontal and transverse bracing and trussing, substantially so described. 10. A statically constructed car frame divided into sections by transverse girders or frames substantially equal to the length of sleeping berths, in combination with sleeping berths adapted to assume various vertical positions in said compartments, and statically constructed seat frames integrally connected to the floor and the sides of the car, substantially as described. 11th. A railway car having a series of berths and seats located in fixed compartments on either side of a central aisle, in combination with an overhead passageway, the whole forming a statically constructed external and internal framework integrally connected together, and having a stairway connecting the lower frame with the overhead passageway, substantially as described. 12th. A railway car, having a series of seats arranged in separate compartments on the floor of the car about either side of an aisle, in combination with a series of berths located in compartments above said seats, an overhead passageway connected by a stairway to the lower floor of the car the whole forming a statically constructed framework, substantially as described. 13th. In a railway car, a series of seats located back to back on the floor of the car on opposite sides of a central aisle in separate compartments, in combination with a series of berths arranged in one or more tiers above said seats, and an overhead passageway connected by a stairway to the lower floor, the whole forming a statically constructed framework, and being arranged, substantially as described. 14th. In a railway car, a series of seats, located on opposite sides of a central aisle on the floor of the car, in combination with a series of berths arranged in tiers above said seats, and an overhead passageway connected by a stairway to the lower floor, said berths and seats being held in position in a series of compartments having vertical posts attached to the bottom, top and side walls of a statically trussed car frame, substantially as described. 15th. A railway car frame, externally and internally statically constructed, containing sleeping berths where any or all spaces not necessary for the easy access and exit, and for operating same are trussed and knee-braced, in any one or various directions to increase the strength and rigidity of the car body, substantially as described. 16th. A railway car frame, externally statically constructed, in combination with an internal statically constructed berth framework, consisting of one or more series of vertical and horizontal longitudinal interior girders or struts, each series consisting of two or more similarly placed girders one above the other, and one or more transverse girders, all integrally connected together, and to the exterior framework, substantially as described. 17th. A railway car frame, externally statically constructed, in combination with an internal statically constructed berth framework, consisting of one or more series of horizontal, vertical and inclined interior longitudinal girders or struts, each series consisting of two or more similarly placed girders one above the other, and one or more transverse girders, all integrally connected together, and to the exterior framework, substantially as described. 18th. A railway car, having one or more statically constructed seat frames, each having its sides worked into the requisite shape out of thin ductile metallic plates, in combination with trussing or bracing at the back of the seat, and additional bracing or trussing under the seat cushion adapted to support the latter, substantially as described. 19th. A railway car, having one or more statically constructed seat frames, each having one or more stands or sides which are formed with trussing and bracing, said trussing and bracing being embodied in the back and bottom of the seat, whereby additional strength is given to the seat, substantially as described.

No. 39,789. Handles for Caskets and Coffins.

(*Poignée de cercueil.*)

John Danford Rippon, John Joseph Franklin and Joseph Battle all of Thorold, Ontario, Canada, 11th August, 1892; 6 years.

Claim.—1st. The combination, with the handle and links of a casket, of a shank provided with an enlarged outer end in which is pivoted the upper end of the link, the said shank extending through the wall of the casket, and being secured in position as and for the purpose specified. 2nd. The combination, with the handle and links, of a casket of a shank having a shoulder a , formed at its outer end and having reverse U-shaped jaws c , within which is pivoted the end of the link B, and the feather key G, extending through the slot g , on the inner end of the shank c , as and for the

purpose specified. 3rd. The combination, with the handles and links of a casket, of a shank having a shoulder a , formed at its outer end and having reverse U-shaped jaws c , having a flattened top c^1 , within which is pivoted the end of the link B, and the feather key G, extending through the slot g , on the inner end of the shank c , as and for the purpose specified. 4th. The combination, with the handle A, and links B, of the trunions b , secured in the upper end of the link and pivoted on pins b^1 , journaled in the jaw c , and the feather key g , extending through the slot g , in the inner end of the shank c , as and for the purpose specified. 5th. The combination, with the handle a , provided with links B, pivoted in the jaw c , and the shank C, secured in position as specified, and having shoulders a , and a^1 , of the plate D, having a hole E, through which the shank extends, the edges of which hole fit behind the shoulder a^1 , as and for the purpose specified. 6th. The combination, with the handle A, provided with links B, pivoted in the jaw and the shank C, secured in position as specified and having a shoulder a , and a^1 and a projection a^2 , extending outwardly from the shoulder a , of the plate D, having the annular hole E, provided with a notch e , into which the projection a^2 , of the shoulder a fits; as and for the purpose specified. 7th. As a new article of manufacture and in combination with the shank C, provided with jaws c , and secured in position as specified, the links B, made of braded endless woven wire formed rigid, and having trunions in the upper ends, as and for the purpose specified.

No. 39,790. Grain Door for Railway Cars.

(*Porte de chars à grain.*)

William F. Lyon and William R. Champney, both of Detroit, Michigan, U.S.A., 11th August, 1892; 6 years.

Claim.—1st. A car door constructed of two sections pivoted together in the centre, means for fastening the same rigidly in the centre to form one solid door, lugs thereon to engage in corresponding elements integral with the car frame, in such manner that when the door is opened the lugs are disengaged, and when the door is closed they are firmly forced into position, substantially as described. 2nd. In a car door, the combination of two sections, means for firmly fastening the sections together to form one straight door, and means whereby the straightening and fastening of a door compels its engagement with the car frame, looped rods pivoted together in the centre upon which said door may be raised, and means for its engagement with the car to hold it in an elevated position, substantially as described. 3rd. In combination with a car, a door constructed in two sections pivoted together and adapted to break open outwardly, means for holding said door firmly in a rigid plane, and means whereby said door is locked in position with reference to the car frame, substantially as described. 4th. The combination, with a car frame, of a door adapted to open outwardly from the centre, pivoted together, looped rods pivoted together to correspond with the door and attached to the upper portion of the car frame, means for the engagement of the door with such rods, whereby the door may be raised by a sliding contact therewith, and means whereby said door may be swung up and held in an elevated position in the car roof, substantially as described. 5th. In a car, the combination of a door frame, a door constructed of two sections hinged together and adapted to open outwardly in the centre, means for engagement with the car frame when said door is closed, means for holding the door in position when closed, an angular rod pivoted in the centre of its lower side to correspond with the pivoting of the door, and pivoted at its upper extremities to the top of the door frame, loops whereby the said door is engaged with said rods, an upper door pivotally connected to said rods and adapted to raise independently of said lower door, and means for swinging up and holding both the upper and lower doors in position in the car roof, substantially as described.

No. 39,791. Mechanical Movement.

(*Mouvement mécanique.*)

Franklin Pierce Hummel and Anson C. Bartholomew, both of Blissfield, Michigan, U.S.A., 11th August, 1892; 18 years.

Claim.—1st. In a mechanical movement, an upper movable piston slide provided with a rack bar, a lower stationary rack bar, and a cylinder bed movable between the two, and a pinion carried thereby engaging the rack bars. 2nd. In a mechanical movement, an upper piston slide provided with a rack bar, a lower stationary rack bar, and a bed intermediate the two, a pinion carried thereby and engaging the rack bars, a power device upon the bed, and a piston rod connecting the same and the piston slide. 3rd. In a mechanical movement, a power device, a piston, and a piston slide attached thereto, and provided with a rack bar, a lower stationary rack bar, a cylinder bed intermediate the two, and provided with a pinion meshing with the two rack bars, said intermediate cylinder bed being connected to the device to be operated. 4th. In a mechanical movement, an upper piston slide, a rack bar secured thereon, a lower stationary rack bar, an intermediate cylinder bed, a power device secured thereon, and means for applying the power device to the upper piston slide, a pinion meshing with the two rack bars, and means for connecting the intermediate cylinder bed with the device to be operated.

No. 39,792. Steam Heating System.*(Système de calorifère à vapeur.)*

William Paul Skiffington, New York, and Andrew Greenleaf Paul, Boston, Massachusetts, both in the U.S.A., 11th August, 1892; 6 years.

Claim.—1st. In combination, with a heating system, an air pipe, in addition to the supply and return pipes, connecting in said system, and an exhauster for drawing air from the system through the said air pipe, substantially as described. 2nd. In combination, with a heating system, an air pipe connecting in said system, an exhauster for drawing air from the system through the said air pipe, and means for controlling or restricting the flow of the air through the said air pipe, substantially as described. 3rd. In combination, with a heating system, an air pipe, in addition to the supply and return pipes, connecting in said system, and an exhauster for drawing air from the system through the said air pipe, and a valve located in the system for controlling the escape of the air through said air pipe, substantially as described. 4th. In combination, with a heating system, an air pipe connecting in said system, and an exhauster for drawing air from said system through the said air pipe, and an automatic valve controlling the said air pipe, substantially as and for the purpose set forth. 5th. In combination, with a heating system, an air pipe, in addition to the supply and return pipes, connecting in said system, and an exhauster for drawing air from the system through said air pipe, and an automatic valve located in said air pipe, substantially as set forth. 6th. In combination, with a heating system, an air pipe, in addition to the supply and return pipes, connecting with a radiator above the part of the radiator where the water of condensation ordinarily collects, and an exhauster for drawing the air from the system through the said air pipe, and an automatic valve located in the said air pipe, substantially as set forth. 7th. In combination, with a heating system, consisting of radiators and connecting supply and return pipes, a suitable source of heat, an air pipe in addition to the supply and return pipes, having branches connecting it with each radiator, an automatic air valve connected with each of the branches of said air pipes, and an exhauster for drawing air from the system through said air pipe, substantially as set forth.

No. 39,793. Sink. (Evier.)

John Pickering Putnam, Boston, Massachusetts, U. S. A., 11th August, 1892; 6 years.

Claim.—1st. A sink, provided with a flush tank consisting of a receiving chamber and a discharging chamber, the former leading horizontally into the latter through a vertical opening or passage way reaching to the bottom of said receiving chamber and narrower than said receiving chamber, and the latter furnished with an automatic discharge siphon, the operative capacity of the passage way between the two chambers during the last part of the operation being smaller than that of the siphon, substantially as described. 2nd. A flush tank, consisting of two chambers, a receiving chamber, and a discharging chamber, provided with a siphon discharge pipe, the said receiving chamber leading horizontally into said discharging chamber through a vertical opening or passage way, while the bottom of said discharging chamber is sunk below the level of the bottom of said receiving chamber, and the inlet mouth of said siphon is in said sinkage, the operative capacity of the passage way between the two chambers during the last part of the operation being smaller than that of the siphon, substantially as described.

No. 39,794. Rotary Reversible Steam Engine.*(Machine à vapeur rotative à renversement.)*

John James Edward Henry Payne, Lipscomb, Texas, U.S.A., 12th August, 1892; 6 years.

Claim.—1st. In a rotary engine, the combination, with the rotary piston and oppositely arranged movable abutments of the oppositely arranged reversing and exhaust valves, having passages therein for the live and exhaust steam and connected to work in unison, substantially as described. 2nd. In a rotary engine, the combination, with the rotary piston and oppositely arranged movable abutments, of the oppositely arranged reversing valves connected to work in unison, and having passages through the same at substantially right angles for the live and exhaust steam, arranged and combined for working, substantially as described. 3rd. In a rotary engine, the combination, with the rotary piston and cylinder having a movable head with recesses in said piston and cylinder, of the removable blocks fitting in said recesses and the movable abutment pivoted in said block, substantially as described. 4th. In a rotary engine, the combination, with the rotary piston, of the sliding abutments pivoted in removable blocks dove-tailed in the casing, substantially as described. 5th. In a rotary reversible engine, the combination, with the rotary piston, oppositely arranged reversing valves and corresponding movable abutments with steam ports on each side of the same, of the cylinders in communication with the valve chambers, the pistons working in said cylinders and connected to the abutments for keeping the same pressed out, substantially as described. 6th. In a rotary reversible engine, the combination, with the rotary piston, reversing valve, and movable abutment having steam ports on each side of the same, of the cylinder having a single port, which is in

communication with the steam supply, a piston working in said cylinder, and a link connecting said piston and movable abutment, whereby the abutment is held in at all times, substantially as described. 7th. In a rotary engine, the combination, with the cylinder having the movable abutments pivoted in blocks dove-tailed therein, of the rotary piston having the movable abutments pivoted in blocks dove-tailed in the wall of the piston, substantially as described. 8th. In a rotary engine the combination with the rotary piston and sliding abutments, of the valve having the passages passing through the same at right angles and the packing for defining the chambers with which said passages open, substantially as described. 9th. In a rotary engine the combination, with the rotary piston and movable abutments, of the reversing valves formed of the cylinders having the ports through the same for the passage of steam, said cylinder fitted loosely within the valve casing, and the packing located in seats in the cylinder between the ports, whereby chambers are formed into which the ports open, and ports for opening communication between the said chambers and engine cylinder or exhaust, substantially as described. 10th. In a rotary engine, the combination with the rotary piston, movable abutments, and diametrically opposite reversing valves connected for simultaneous movement, of the rotary cut-off valves, one in the supply to each reversing valve, the rod connecting said valves, and a crank connection between said rod and engine shaft, substantially as described. 11th. In a rotary engine, the combination with the cylinder and rotary piston, of the movable abutments, the blocks in which they take their bearings recessed into the cylinder, and the wedges for lightening said blocks, substantially as described.

No. 39,795. Cash Recorder. (Registre de monnaie.)

Charles Edwin Stone, Baltimore, Maryland, U.S.A., 12th August, 1892; 6 years.

Claim.—In a cash recorder, a cabinet having a slot in its front side, and immediately beneath the said slot a glass plate in a vertical position, and below the glass plate a drawer, combined with a roll of paper situated in the rear of the slot and glass plate, an opening lever and mechanism substantially as described, whereby the paper is made to move a certain distance across the slot and down the glass plate, and the drawer opened at one operation, substantially as and for the purpose specified.

No. 39,796. Dynamo Electric Machine.*(Machine dynamo électrique.)*

Justice Bulkley Entz, New York, State of New York, U.S.A., 12th August, 1892; 6 years.

Claim.—1st. In a multipolar dynamo-electric machine, the combination, with a ring armature, of a field magnet having all its poles of one polarity inside the armature, and all those of the opposite polarity outside of said armature, substantially as set forth. 2nd. In a multipolar dynamo-electric machine, the combination, with a ring armature, of a field magnet, having a substantially circular yoke and poles extending from said yoke alternately outside and inside of said armature, substantially as set forth. 3rd. In a multipolar dynamo electric machine, the combination, with a ring-armature, of a field magnet having a substantially circular yoke provided with alternate internal and external lugs, and poles extending from said lugs alternately inside and outside of said armature, substantially as set forth. 4th. In a multipolar dynamo-electric machine, the combination, with a ring-armature, of a field magnet having poles extending alternately inside and outside of said armature, all said inside poles being of one polarity, and all said outside poles being of the opposite polarity, substantially as set forth. 5th. In a multipolar dynamo-electric machine, the combination, with the armature and the alternating poles of opposite polarity, of an exciting coil wound outside of all the poles of one polarity and inside of those of the opposite polarity, substantially as set forth. 6th. In a multipolar dynamo-electric machine, the combination, with the armature, of the field magnet having poles of alternating polarities extending in one substantially circular line and those of the opposite polarity in a line concentric therewith, and a single exciting coil wound outside the poles of one polarity and inside those of the other polarity, substantially as set forth. 7th. In a multipolar dynamo-electric machine, the combination, with a ring-armature, of a field magnet, having poles extending alternately inside and outside of said armature, and a single exciting coil for all said poles, substantially as set forth. 8th. In a multipolar dynamo-electric machine, the combination, with a ring armature, of a field magnet having poles extending alternately inside and outside of said armature, and a single exciting coil wound outside of said inner poles and inside of said outer poles, substantially as set forth. 9th. In a multipolar dynamo-electric machine, the combination, with an armature shaft, of spokes radiating therefrom, a ring armature carried by said spokes, a substantially circular field magnet yoke concentric with said shaft, and poles extending from said yoke into proximity with said armature, substantially as set forth. 10th. In a multipolar dynamo-electric machine, the combination, with an armature shaft, of spokes radiating therefrom, a ring core carried by said spokes, a substantially circular yoke concentric with said shaft, poles extending from said yoke alternately inside and outside of said core, an annular exciting coil wound outside of said inner poles and inside of said outer poles, substantially as set forth.

No. 39,797. Water Feed Regulator and Low Water Alarm. (*Régulateur de l'eau d'alimentation et indicateur du niveau d'eau.*)

James Murrie, Glasgow, Lanark, Scotland, 12th August, 1892; 6 years.

Claim.—1st. The general construction or arrangement and combination of the parts for automatically regulating the supply of water to a steam boiler, substantially as described, and shown on the drawings. 2nd. The arrangement and combination of the parts of the float, lever, and escape valve apparatus for giving an alarm when the water in the boiler falls below a certain level, substantially as described, and shown on the drawings. 3rd. The combination, with a steam boiler, of an accumulator fitted in connection with the boiler, and having float valve mechanism fitted therein for automatically regulating the steam supply to the pump, and for sounding an alarm, substantially as described, and shown on the drawings. 4th. The combination, with the steam boiler of an accumulator fitted in connection therewith, and of a tank for supplying water to said accumulator by gravitation, substantially as described, and shown on the drawings. 5th. The arrangement for testing the action of the alarm whistle, substantially as described, and shown on the drawings. 6th. The forming and use of hollow metal shell floats, filled with water or other liquid for boiler feed or low water alarm apparatus, or for steam traps substantially as described, and shown on the drawings. 7th. The arrangement and combination of the parts of float lever apparatus as a steam trap, as and for the purpose hereinbefore described, and illustrated in figure 6 of the accompanying drawings.

No. 39,798. Sifter for Ashes and Coal.

(*Tamis à cendre et charbon.*)

Robert Magee, St. John, New Brunswick, Canada, 12th August, 1892; 6 years.

Claim.—An ash sifter, comprising a body A, having rockers C attached to the bottom, a sieve B secured within the body A, and cover a, having any suitable fastening device to secure the same to the body A, all arranged and combined, as and for the purpose hereinbefore set forth.

No. 39,799. Artificial Fuel. (*Combustible artificiel.*)

George Y. Smith, Minneapolis, Minnesota, U. S. A., 12th August, 1892; 6 years.

Claim.—A compound for the manufacture of artificial fuel, consisting of the following ingredients, combined in the proportions specified, viz.: peat, about twelve hundred pounds; culm, about six hundred pounds; rosin, about one hundred pounds; pitch, about one hundred pounds; rye flour, about five pounds; lime, about five pounds, substantially as and for the purpose specified.

No. 39,800. Method of and Apparatus for Manufacturing Artificial Fuel. (*Méthode et appareil pour la fabrication de combustible artificiel.*)

George Y. Smith, Minneapolis, Minnesota, U. S. A., 12th August, 1892; 6 years.

Claim.—1st. The method of manufacturing artificial fuel, consisting in first severing fibrous material into short bits or pieces; second, thoroughly mixing and saturating the same with oil or other inflammable mixture; third, compressing this material to free it from surplus oil; fourth, disintegrating the compressed material, and, fifth, molding or pressing it into the form of bricks or blocks, substantially as and for the purpose specified. 2nd. The method of manufacturing artificial fuel, consisting in first mixing and saturating fibrous material with an inflammable mixture; second, compressing the material into the form of a flat sheet and expressing the surplus mixture therefrom; third, disintegrating the sheet; fourth, cooling the disintegrated material, and, fifth, compressing it into the form of bricks or blocks. 3rd. The method of manufacturing artificial fuel, comprising the following steps: First, cutting fibrous material into short bits or pieces; second, thoroughly mixing and saturating these pieces with oil or other inflammable material; third, compressing the material; fourth, breaking up and disintegrating the material; fifth, cooling the same, and, sixth, molding it into the desired form, substantially as set forth. 4th. An apparatus for the manufacture of artificial fuel, comprising means for feeding and severing fibrous material into short bits or pieces, a vat or receptacle for receiving said pieces, and means therein for mixing and incorporating them with an oily mixture, and rollers at the end of said vat for compressing the material into the form of a flat sheet and expressing the surplus oil therefrom, substantially as set forth. 5th. An apparatus for the manufacture of artificial fuel, comprising means for feeding fibrous material and for severing it into short bits or pieces, a vat for receiving said pieces in communication with a tank containing a supply of oil or other inflammable material, a screw in said vat for thoroughly mixing and incorporating the ingredients, rollers at the end of the vat for compressing the material into the form of a flat sheet and expressing the surplus oil therefrom, and a toothed cylinder and concave for breaking up and disintegrating said sheet, substantially as and for the purpose set forth. 6th. An apparatus for the manufacture of artificial fuel, comprising means for severing fibrous material into short bits or pieces, a steam

heated vat containing a supply of oil for receiving said pieces, a screw in said vat for mixing and feeding along the contents of said vat, and a pair of steam heated rolls at the end of said vat, substantially as and for the purpose set forth. 7th. An apparatus for the manufacture of artificial fuel, comprising means for mixing fibrous material with oil or other inflammable substance, rollers for compressing the material into sheet form, a toothed cylinder and concave, an elevator, and means for delivering a blast of air upon the material as it is being carried up by the elevator, substantially as set forth. 8th. In an apparatus for the manufacture of artificial fuel, the combination of a steam heated vat, a feed screw in said vat, rollers at the end of the vat, a toothed cylinder and concave, an elevator, a fan and fan case, and devices for molding the material delivered by the elevator, substantially as set forth. 9th. A portable apparatus for manufacturing artificial fuel comprising the following instrumentalities in combination: devices for feeding and severing fibrous material into short bits or pieces, a vat for receiving said pieces, a feed screw in said vat, rollers at the end of the vat, means for breaking up and disintegrating the material delivered from the rollers, an elevator, a fan and fan case, and a pair of wheels having devices for molding the material, substantially as and for the purpose set forth. 10th. The combination, with a wheel having a peripheral mold, of a radially movable piston in said mold, a block having a threaded opening between the piston and the bottom wall of the mold, and a screw having its head seated in the piston and its threaded portion entering said block, substantially as and for the purpose set forth. 11th. An apparatus for manufacturing artificial fuel, comprising a vat, a feed device in said vat, rollers at the end of the vat, a toothed cylinder and concave, an elevator, and device for molding the material delivered by the elevator, substantially as and for the purpose specified.

No. 39,801. Dipping Tub for Potteries.

(*Cave pour le troupage de la poterie.*)

Cassius C. Thompson, East Liverpool, Ohio, U. S. A., 12th August, 1892; 6 years.

Claim.—1st. The combination, with a pottery glazier's dipping tub, and an agitator placed in the bottom thereof and causing an upward current of the material placed in the tub, of a screen which covers the entire surface above the agitator, for the purpose of modifying the upward current, substantially as shown and described. 2nd. The combination, with a pottery glazier's dipping tub, having its lower end reduced in size, and a screen which covers the top of the reduced portion, of an agitator placed within the reduced portion beneath the screen, which causes an upward current of the material and which is modified by the screen, substantially as set forth.

No. 39,802. Explosive. (*Explosif.*)

Silas Reynolds Divine, Loeh Sheldrake, New York, U. S. A., 12th August, 1892; 18 years.

Claim.—1st. An explosive compound, composed of a powdered solid oxidant ingredient, as crushed or pulverized chlorate of potash, and a fluid combustion ingredient consisting of the light oil of coal tar nitrated to have a specific gravity of from about twenty-four degrees to about thirty-four degrees Baume, incorporated in about the proportions stated, with the pulverent mass of the solid ingredient, as specified. 2nd. A fluid combustion ingredient for use in fabricating an explosive compound in mixture with a powdered oxidant ingredient, as crushed or powdered chlorate of potash, consisting of the light oil of coal tar, containing benzal, toluol and oxylal in varying proportions, nitrated to have a specific gravity of about twenty-eight degrees Baume, as specified.

No. 39,803. Sheet Iron Pipe. (*Tuyau en feuille de tôle.*)

Joel H. Hollowell and Albert L. France, both of Covington, Kentucky, U. S. A., 12th August, 1892; 6 years.

Claim.—1st. Making a male and female screw joint for a pipe for a sheet of metal larger one end than the other by the thickness of the sheet iron, substantially as shown and described. 2nd. Making male and female segmental screw joint for stove or water pipe, from a sheet of metal larger one end than the other by the thickness of the sheet iron, substantially as shown and described. 3rd. Making a male and female segmental notched screw joint for stoves or water pipes, from a sheet of metal larger one end than the other by the thickness of the sheet metal, substantially as shown and described.

No. 39,804. Weighing Machine. (*Base à peser.*)

The National Weighing Machine Company, assignee of Frederick John Lancaster, all of New York, State of New York, and Joseph Henry Lancaster, Arlington, New Jersey, U. S. A., 12th August, 1892; 6 years.

Claim.—1st. The combination, with weighing scales, of a rack disconnected therefrom, an index spindle, a pinion on said spindle gearing with said rack, a ratchet wheel also on said spindle, a pawl for engaging said ratchet wheel, supported by the said rack when the latter is raised, substantially as specified. 2nd. The combination, with weighing scales, of a rack disconnected therefrom, an index spindle, a pinion on said spindle gearing with said rack, a ratchet

wheel also on said spindle, a pawl for engaging said ratchet wheel, supported by the said rack when the latter is raised, and a retarding device for preventing a too sudden engagement of the pawl with the ratchet wheel teeth on the removal of said support, substantially as specified. 3rd. In a weighing machine, the combination, with an index shaft, of ratchet wheels on said shaft, the teeth upon one wheel being inclined in a reverse direction to those upon the other, pawls for engaging the teeth on said wheels but normally out of engagement therewith, and a retarding device for preventing a too sudden engagement of the pawls with the ratchet wheel teeth, substantially as and for the purpose specified. 4th. In a weighing machine, the combination, with an index shaft, of two ratchet wheels mounted on said shaft, the teeth upon one wheel being inclined in a reverse direction to those upon the other, pawls for engaging the teeth on said wheels but normally out of engagement therewith, a third ratchet wheel also mounted on said shaft, a pawl for engaging the teeth on the last named ratchet wheel, the latter operated upon the insertion of a coin to release said last named ratchet wheel and pawl, and a retarding device acting upon all said pawls to prevent a too sudden engagement of the pawls with their respective ratchet wheels, substantially as specified. 5th. In a weighing machine, the combination, with a vertically movable frame provided with a rack, an index shaft, a pinion loosely mounted on said index shaft, two ratchet wheels mounted on said shaft, the teeth upon one of said wheels extending in reverse direction to those upon the other, pawls for engaging said ratchet teeth but normally out of engagement therewith, a ratchet wheel on said shaft, a pawl for engaging said ratchet wheel operated upon the insertion of a coin in the machine to release said ratchet wheel and to permit the rotation of the index shaft, a pin or projection on one of said ratchet wheels and another pin or projection on said loose pinion, whereby, when said frame is moved downwardly, the pin upon the loose pinion will operate to cause the rotation of the said ratchet wheels and index shaft, but when said frame is moved upwardly the loose pinion will rotate freely, substantially as specified. 6th. In a weighing machine, the combination, with an index shaft, of ratchet wheels on said shaft, the teeth upon one of said ratchet wheels being inclined in a reverse direction to those upon the other, pawls for engaging said ratchet teeth but normally out of engagement therewith, and a retarding device comprising an escapement for preventing the too sudden engagement of said pawl with the ratchet wheels, substantially as specified. 7th. In a weighing machine, the combination, with an index shaft, of a ratchet wheel on said shaft, a pawl for engaging said ratchet wheel, and normally in engagement therewith, a trip operated by a coin to disengage said pawl from the ratchet wheel, and a retarding device for preventing a too sudden return of the pawl to engagement with the ratchet wheel, substantially as specified.

No. 39,805. Apparatus for Intermittent Motion.

(Appareil pour mouvement intermittent.)

The Korting Gas Engine Company, New York, State of New York, U.S.A., assignee of Arnold Willmer, Hanover, Prussia, German Empire, 12th August, 1892; 6 years.

Claim.—1st. In an apparatus for producing intermittent motion, the eccentric rod made in two parts, so that one part slides upon the other in the direction of the length of the rod, a revolving piece which is mounted on the main part of the eccentric rod and which has alternate recesses and projections which may be introduced into the path of the sliding part of the eccentric rod, together with a spring catch which engages with the revolving piece during a certain portion of the stroke of the eccentric rod, and thereby causes said revolving piece to make a fraction of a revolution for every stroke of the eccentric rod, all in combination, substantially as described. 2nd. In an apparatus for producing intermittent motion, the eccentric rod made in two parts, so that one part slides upon the other in the direction of the length of the rod, a revolving piece which is mounted on the main part of the eccentric rod, a sprocket wheel mounted upon the axis of the revolving piece and rigidly connected thereto, and a spring pressed lever which vibrates in the direction of the stroke of the eccentric, and which has a projecting pin which engages with the sprocket wheel during a certain portion of the stroke of the eccentric rod, all in combination, substantially as described. 3rd. In an apparatus for producing intermittent motion, the following parts in combination, a standard, an eccentric mounted on a shaft supported by said standard, an eccentric rod made in two parts, so that one part slides on the main part in the direction of the length of the rod, a driven piece connected to the sliding part of the eccentric rod, and spring pressed against a suitable stop on the standard, a revolving piece which is mounted on the main part of the eccentric rod, and has radial recesses into which the sliding part of the eccentric rod may enter, together with a spring catch which is mounted on the standard and engages with the revolving piece during a portion of the stroke of the eccentric rod, whereby the said revolving piece is given a part of a revolution at each stroke of the eccentric rod, and the sliding part of the eccentric rod alternately abuts against the revolving piece or enters the recesses therein, so as to move the driven piece during certain revolutions of the eccentric, and leave it at rest during others, substantially as described.

No. 39,806. Governor for Power Engines.

(Gouverneur pour machines.)

The Korting Gas Engine Company, New York, assignee of Arnold Willmer, Hanover, Prussia, 12th August, 1892; 6 years.

Claim.—1st. In an automatic governor for power engines, the combination of the connecting rod made in two parts, so that one part may slide over the other, the spring pressed valves operating lever connected to the sliding portion of the connecting rod, the spring supported weight sliding on the main part of the connecting rod, the catch which may retain the valve operating lever but which is normally disengaged therefrom, and the finger for forcing the catch into engagement with the valve operating lever which finger is mounted on the main part of the connecting rod, and controlled by the spring supported therein, substantially as described. 2nd. In an automatic governor for power engines, the combination of the connecting rod made in two parts, so that one part may slide over the other, the spring pressed lever connected to the sliding portion of the connecting rod, the catch which may retain the said lever in opposition to the action of the spring, but which is normally disengaged therefrom, and the finger for forcing the catch into engagement with the lever, together with a centrifugal governor for operating the finger, substantially as described. 3rd. In an automatic governor for power engines, the combination of the connecting rod, the weight sliding on the connecting rod, the spring, and the finger which is pivoted on the connecting rod, and moved by the weight, substantially as described.

No. 39,807. Method of Producing Ignition in Gas Engines. (Méthode de production d'ignition dans les machines à gaz.)

The Korting Gas Engine Company, New York, U.S.A., assignee of Ernest Korting, Hanover, Prussia, German Empire, 12th August, 1892; 6 years.

Claim.—1st. The method of automatically igniting the combustible charge in the cylinder of a gas engine, which consists in first forcing a small stream of the gases composing the charge from the cylinder into an incandescent chamber at a speed greater than that at which combustion is propagated through said gases, second, in automatically checking the period by the back pressure of the discharged gases which are allowed to accumulate in a second chamber of adjustable capacity and which has an adjustable outlet valve, substantially as described. 2nd. In a gas or vapour engine, the combination, of the main valve casing, which has one orifice for the admission of combustible gas or fluid and another for the admission of air, a valve for closing the gas or fluid inlet, and a valve for closing the air inlet, both mounted upon a common valve stem together with a piston also mounted on said valve stem, and operated by the varying pressures on its opposite sides, substantially as described. 3rd. In a gas or vapour engine, the combination, of the main valve casing, which has one orifice for the admission of combustible gas and another for the admission of air, a valve for closing the air inlet, and another for closing the gas or fluid inlet, both mounted on a common valve stem, together with a piston which operates said valve stem through the varying pressures of the gases within the valve casing, and the spring which acts on the stem, substantially as described. 4th. In a gas or vapour engine, the combination, of the induction passage for combustible gas or fluid, terminating in an annular chamber and a narrow circular slit, together with an air induction passage concentric with the circular slit and opposite thereto, substantially as described. 5th. In a gas or vapour engine, the combination, of a cap which is formed of refractory material and which has its interior communicating with the engine cylinder, together with a small tube which extends nearly the entire length of the interior of the cap, and which furnishes an outlet from the interior of the cap to the outer air, and means for heating said cap, substantially as described. 6th. In a gas or vapour engine, the combination, of a cap which is formed of refractory material and which has its interior communicating with the engine cylinder, the small tube which extends nearly the entire length of the interior of the cap and which furnishes an outlet from the interior of the cap to the outer air, together with a valve for controlling said outlet, and means for heating the cap, substantially as described. 7th. In a gas or vapour engine, the combination, of a cap which is formed of refractory material, and which has its interior communicating with the engine cylinder, the tube which extends nearly the entire length of the interior of the cap, and which furnishes an outlet from the interior of the cap to the outer air, and the intermediate chamber through which said outlet is obtained, together with the means for heating the cap, substantially as described. 8th. In a gas or vapour engine, the combination, of a cap which is formed of refractory metal, and which has its interior communicating with the engine cylinder, the tube which furnishes an outlet from the interior of the cap to the outer air, and the intermediate chamber of adjustable capacity through which said outlet is obtained together with means for heating the cap, substantially as described. 9th. In a gas or vapour engine, the combination, of a cap which is formed of refractory material, and which has its interior communicating with the engine cylinder, the tube which furnishes an outlet from the interior of the cap to the outer air, and the intermediate chamber of adjustable capacity through which said outlet is obtained, together with a valve for controlling said outlet, and means for heating the cap,

substantially as described. 10th. In a gas or vapour engine, the cap formed of refractory material, a small tube which furnishes an outlet from the interior of the cap, and a collar which surrounds the said tube and fills the space between it and the sides of the cap, together with the small perforation through said collar which furnishes an inlet to the interior of the cap, substantially as described.

No. 39,808. Railway. (Chemin de fer.)

The Judson Pneumatic Street Railway Company, assignee of Whitcomb L. Judson, all of Minneapolis, Minnesota, U.S.A., 12th August, 1892; 6 years.

Claim.—1st. The combination, with a movable car and a driving drum extending along the line of travel, of a two part or divided friction wheel truck pivotally connected together, and having a common connection with the car and friction wheels on said truck engageable with the drum at an angle to its axis. 2nd. The combination, with a movable car and a driving drum, of a two part friction wheel truck pivotally connected together and having a common connection with the car and friction wheels on said truck, angularly adjustable with reference to said drum and engageable therewith. 3rd. The combination, with a movable car and a driving drum, of a pivotally connected two part truck, having a common connection with the car and friction wheels mounted on said truck in couples, one couple on each part of the truck, engageable with the opposite sides of said drum. 4th. The combination, with a movable car and a driving drum, of a two part truck pivotally connected together and having a common connection with the car and sets of angularly adjustable friction wheels mounted in couples on said truck, one couple on each part thereof, engageable with the opposite sides of said drum. 5th. The combination, with a movable car and a driving drum, of a two part truck, a pivot bolt or shaft pivotally connecting the two parts of the truck and pivotally connected to the car, and friction wheels mounted on said truck engageable with said drum, substantially as described. 6. The combination, with the movable car and the driving drum, of the two part truck provided with the hinge jaws, the T-shaped king bolt or pivot shaft uniting said jaws and having its angular extension journalled on the car, and the sets of angularly adjustable friction wheels mounted in couples on said truck, one couple on each part of the truck, and engageable with the opposite sides of said drum, substantially as described. 7th. The combination, with a movable car and driving drum, of friction wheel trucks connected to the car, angularly adjustable friction wheels mounted in couples on said truck engageable with opposite sides of the drum, pairs of oppositely movable draw-bars on the car body and connections from the draw bars to the wheels, all the wheels on the side of the drum being connected to the draw bar on that side, substantially as described. 8th. The combination, with a movable car and a driving drum, of friction wheel trucks connected with the car, angularly adjustable friction wheels mounted on said truck in couples engageable with opposite sides of said drum, pairs of draw bars on the car provided at the same ends, with racks on their interior opposing faces, a shaft on the car provided with a pinion engaging both of the said racks and connections from said draw bars to said wheels substantially as described. 9th. The combination, with a movable car and a driving drum, of friction wheel trucks connected to the car, angularly adjustable friction wheels on said trucks engageable with the drum and adjusting rods from the wheels to the car connected to one or both by universal joints. 10th. The combination, with a movable car and a driving drum, of friction wheel trucks connected to the car, angularly adjustable friction wheels mounted on the said trucks in couples engageable with opposite sides of said drum, a pair of oppositely movable draw bars on the car and reach rods from the respective draw bars to the wheels on the same side, connected to the same by ball and socket joints, substantially as described. 11th. The combination, with the car and the drum, of the friction wheel truck connected to the car, the angularly adjustable friction wheels in couples on the truck, the oppositely movable draw bars on the car provided, at the same ends, with opposing racks, the shaft on the car provided with a pinion engaging said racks, and the reach rods from the draw bars to the wheels on same sides connected to both by ball and socket joints, substantially as described. 12th. The combination, with the car and the drum, of the pivotally connected two part truck having a common connection with the car, the adjustable friction wheels in couples, one couple on each part of said truck, the oppositely movable draw bars on the car, and the reach rods from the bars to the wheels connected to the same by universal joints, substantially as described. 13th. The combination with the car and the drum, of the two part truck, the pivot bolt connecting the parts of the truck and pivotally connected to the car, the adjustable friction wheels in couples, one each, on each part of the truck, the oppositely movable draw bars on the cars and the reach rods from the respective bars to the friction wheels on the same side connected to the same by universal joints, substantially as described. 14th. The combination, with a car track and a driving drum, of car trucks movable on said track, a car body on said trucks adjustable at right angles thereto and friction wheel trucks secured to said car body, provided with friction wheels engageable with the said drum at an angle to its axis, substantially as described. 15th. The combination, with a car track and a driving drum, of car trucks movable on said track, a car body

on said truck adjustable at right angles thereto, friction wheel trucks secured to said car body having friction wheels engageable with said drum at an angle to its axis, and a system of levers on the car having its base of resistance on said trucks for adjusting said car body to vary the traction of the friction wheels, substantially as described. 16th. The combination with the car track, the driving drum and the car trucks of the car body having hangers provided with adjustable axle boxes in which the car truck axles are journalled, eccentrics on the car body having their base of resistance on said axles for adjusting the car body, friction wheel trucks secured to the car body and with said drum, substantially as described. 17th. The combination with the track, the drum and the car trucks of the car body provided with hangers having car axle boxes adjustably mounted therein, the sliding blocks spring seated on said boxes, the eccentric shafts on the car provided with eccentrics bearing against said blocks, the common lever with connections to said shafts for operating the same, the friction wheel trucks secured to the car and the friction wheels on said friction trucks engageable with the drum, substantially as described. 18th. The combination with a movable car of a driving drum extending along the line of travel, a friction wheel truck having a pivotal connection with the car permitting a swinging movement lengthwise of the drums, and friction wheels mounted on said truck engageable with said drum.

No. 39,809. Knitting Machine. (Machine à tricoter.)

Lewis Jones, assignee of Hiram Peabody Fallon, both of Bristol, Pennsylvania, U.S.A., 12th August, 1892; 6 years.

Claim.—1st. The combination of the cam ring having the operating cams mounted in removable segments, with the intermediate segments at the level of the needle heels, and the guard pieces mounted above said intermediate segments, substantially as described. 2nd. The combination of the belt shifter having a spring which normally tends to throw it towards the loose pulley, the pivoted link and the detent devices for holding the belt shifter upon the driving pulleys, the drop stem mounted above said pivoted link, and the pivoted lever engaging said drop stem to retain it in its upper position, maintained in close proximity to the travel of the loops upon the needles, whereby any abnormal prominence of the loop will actuate said lever to release the drop stem and thereby disengage the pivoted link and permit the shifting of the belt, substantially as set forth. 3rd. The combination of the belt shifter normally held toward the loose pulley by its spring, a pivoted link and the detent devices, by which said link is adapted to hold the belt shifter upon the driving pulleys, and the handle of said belt shifter provided with an endwise movable rod for disengaging the link and permitting the belt to be shifted, substantially as set forth. 4th. The combination, with the tension rollers I, I^1 , geared together at one end and having a pawl and ratchet device at the other end, said pawl being provided with an actuating device, substantially as set forth, of the pair of supports t, t^1 , the frames H, H^1 , having slots in which said supports are mounted, and the compensating springs m, m^1 , and O, O^1 , attached to said supports. 5th. The combination, with the tension rollers I, I^1 , mounted in vertically movable supports t, t^1 , and having a pawl and ratchet, of an actuating lever for said pawl, a cam adapted to operate said lever, and a pivoted link arranged above one of said supports and connected with the pawl actuating lever, whereby the rise of the support beyond a definite point will lift the lever clear of the cam, substantially as set forth. 6th. The combination, with the tension rollers, the actuating lever therefor, and the fabric roller having a pawl and ratchet device for actuating it, of an intermediate link connecting said first mentioned lever with the pawl of the fabric roller, whereby said fabric roller is revolved in conformity with the movements of the tension rolls, substantially as set forth.

No. 39,810. Valve for Train Pipes.

(*Soupape pour tuyaux de trains de chemin de fer.*)

The Consolidated Car Heating Company, Wheeling, West Virginia, assignee of James Finney McElroy, Albany, New York, both in the U.S.A., 12th August, 1892; 6 years.

Claim. 1st. In a valve for train pipes, the combination, with the hollow disc, apertured to connect with the train pipe on one side, of the drip valve N normally closed, but adapted to be opened when the disc is lowered, substantially as described. 2nd. In a valve for train pipes, the combination with the hollow disc, having imperforate wall J , and aperture i , of the valve N , having disc d , stem c , and spring f , normally closed but adapted to be opened when the disc J^1 is lowered, substantially as described. 3rd. In a valve for train pipes, the combination of the casing apertured below the disc to receive the nipple b , of the auxiliary valve N , the hollow disc, having cross bar M , and aperture i , the valve stem c , projecting into the path of the bar M , the disc d , and spring f , substantially as described. 4th. In a valve for train pipes, the combination of the casing apertured below the disc to receive the nipple b , of the auxiliary valve N , the hollow disc, having cross bar M , and aperture i , the casing formed of the parts a, b , adjustably secured together, the spring f , stem c , disc d , and cross bar g , substantially as described.

No. 38,811. Car Heating Apparatus.*(Appareil de chauffage des chars.)*

The Consolidated Car Heating Company, Albany, New York, U.S.A., assignee of James Finney McElroy, of the same place, 12th August, 1892; 6 years.

Claim.—1st. A train pipe arranged diagonally the cars and connected between the cars by a transverse metallic pipe connection or cross over, provided with pipe couplers and connected to the fixed positions of the train pipe by suitable flexible joints, substantially as described. 2nd. The combination, with the train pipe, of a swivelled end section, and a transverse metallic pipe connection or cross over carrying the coupler swivelled thereto, substantially as described. 3rd. The combination, with the train pipe, of a swivelled end section, a horizontal support for said end section, and a transverse metallic pipe connection or cross over carrying the coupler and swivelled thereto, substantially as described. 4th. The combination, with a train pipe, of a swivelled end section, a horizontal support for said section, a vertical swivel joint at the outer end of said section, and a transverse metallic pipe connection or cross over carrying the coupler engaging with said swivel joint, substantially as described.

No. 39,812. Artificial Fuel. (Combustible artificiel.)

Max Nirdlinger, Milwaukee, Wisconsin, U.S.A., 12th August, 1892; 6 years.

Claim.—The herein described fuel, composed of the following ingredients combined in relative proportions and in the manner substantially as set forth, to wit, one thousand (1,000) pounds of desiccated peat, and six hundred and fifty (650) pounds of saw dust, or equivalents, as a body or base material, and a binding material containing one hundred and fifty (150) pounds of resin, one hundred (100) pounds of pitch, and seventy-five (75) pounds of petroleum residuum heated to 150° Fahrenheit, and thoroughly commingled with the aforesaid body or base material, substantially as described.

No. 39,813. Linotype Machine. (Machine linotype.)

Philip Tell Dodge, Washington, District of Columbia, U.S.A., 12th August, 1892; 6 years.

Claim.—1st. In a type casting mechanism, a mold, a melting pot and a pump mechanism for delivering the molten metal from the pot to the mold, in combination with automatic mechanism for introducing solid metal to the pot to replace the molten metal delivered therefrom. 2nd. In a type casting mechanism, a mold, a melting pot and a pump mechanism for delivering molten metal from the pot to the mold, in combination with a magazine or holder for metal bars or linotypes, and an automatic feed mechanism, substantially as described, to deliver said bars successively to the pot as the molten metal is delivered therefrom. 3rd. In a type casting mechanism, a mold, a reciprocating melting pot arranged to deliver to the mold and provided with a top opening e^1 , and rib e^2 , in combination with a stationary magazine E thereover, whereby the movement of the pot is caused to feed the metal bars or linotypes from the magazine into the pot. 4th. In a type casting mechanism, the combination of a melting pot, a pump for forcing the molten metal thence to the mold, and a feed mechanism constructed and arranged to deliver a metal bar into the mold each time that the pump is operated to deliver molten metal therefrom.

No. 39,814. Incandescent Electric Lamp.*(Lampe électrique incandescente.)*

Elihu Thomson, Swampscott, Massachusetts, U.S.A., 12th August, 1892; 6 years.

Claim.—1st. An incandescent electric lamp having an exhausted chamber formed with external screw threads for entering a socket, substantially as described, the lamp being provided with contacts on its base, adapted to connect with corresponding contacts in the sockets and be insulated by the material of the lamp from the enclosing shell of the socket. 2nd. An incandescent lamp having its exhausted chamber provided with external screw threads adapted to enter the lamp socket, and a shade or shade holder having a threaded opening adapted to engage with external screw threads on the lamp socket. 3rd. An adapter for incandescent lamps, consisting of a screw threaded shell adapted to receive and hold the neck of the lamp, and provided with contacts adapted to complete the circuit between corresponding contacts on the lamp and in the socket. 4th. The method of making an incandescent lamp, which consists in sealing within the neck of the bulb a tube closed at its inner end, placing the neck in a screw threaded mold and blowing the glass into the neck of the mold, whereby screw threads are formed upon the exterior of the neck portion of the bulb.

No. 39,815. Lightning Arrester. (Paratonnerre.)

Elihu Thomson, Swampscott, Massachusetts, U.S.A., 12th August, 1892; 6 years.

Claim.—1st. The combination, with an electric line circuit including an apparatus to be protected, of a lightning discharge path from the line circuit, shunting such apparatus and electro responsive means respectively in such line circuit and shunt and arranged in inductive relation to one another, so that the passage of the discharge

through the shunt means generates a counter electro motive force in the line circuit means, opposing the passage of the discharge through the aforesaid apparatus to be protected. 2nd. The combination, with an electric line circuit including an apparatus to be protected, of a lightning discharge path from the line circuit, shunting such apparatus and inductive devices respectively in such line circuit and shunt and arranged in inductive relation to one another, so that the passage of the discharge through the shunt device generates a counter electro motive force in the line circuit device, opposing the passage of the discharge through the aforesaid apparatus to be protected. 3rd. The combination, with the line circuit, of two conducting paths therefrom to ground, one shunting and the other including a dynamo electric generator, motor, or other apparatus to be protected and arranged in inductive relation to one another, so that the passage of the discharge through the path leading directly to ground generates a counter electro motive force in the path through the dynamo, opposing the passage of the discharge in said second path. 4th. The combination, with a dynamo electric generator or other apparatus included in an electric circuit, of a lightning discharge path from the line circuit to ground, shunting said generator and coils respectively in such line circuit and the shunt to ground and arranged in inductive relation to one another, so that the passage of the discharge through the ground shunt coils generates a counter electro motive force in the line circuit coils, opposing the passage of the discharge through the generator or other apparatus to be protected. 5th. The combination, with a dynamo electric generator or other apparatus to be protected and a lightning discharge path shunting the same, of the coils respectively in the circuit of the dynamo and the discharge path and arranged in inductive relation to one another, so that on the passage of a discharge through the discharge path coil a counter electro motive force is generated in the other coil, opposing the passage of the discharge through the apparatus to be protected, and a second lightning discharge path forming a shunt for the coil, in which the opposing counter electro motive force is generated. 6th. The combination, with a dynamo electric generator or other apparatus included in an electric circuit, of a lightning discharge path from the line circuit to ground shunting said generator and electro magnetic devices respectively in such line circuit and the shunt to ground and arranged in inductive relation to one another, so that the passage of the discharge through the ground shunt device generates a counter electro motive force in the line circuit device, opposing the passage of the discharge through the generator or other apparatus to be protected. 7th. In a lightning arrester, the combination of a line circuit and a generator of electro motive force in or capable of being thrown into said line, with a discharge path from the line shunting the apparatus which it is desired to protect, containing electro responsive means corresponding to the passage of a discharge over the shunt and thereupon introducing an electro motive force in the line, opposing the passage of the discharge through the apparatus to be protected.

No. 39,816. Door Hinge and Door Closer.*(Penture et fermeture de portes.)*

Hans Berthold, Nuruberg, Bavaria, German Empire, 12th August, 1892; 6 years.

Claim.—A door hinge characterized by the arrangements of a band B , of which the running surfaces c , b , in encircling the bolt A , form a special line for the purpose of allowing the automatic closing of the door.

No. 39,817. Exhibiting Apparatus.*(Appareil d'exposition.)*

Charles S. Jenkins, Lansdale, Pennsylvania, U.S.A., 12th August, 1892; 6 years.

Claim.—1st. In exhibiting apparatus, the combination of a rotary shaft, a drum fast to said shaft, a series of sheets carried by the drum and adapted to be rolled upon the drum and enrolled therefrom when the shaft is rotated, a pawl and ratchet device having one member thereof carried by the drum and positively moved therewith and the other member loosely journaled upon the shaft, a compensatory spring and a flexible connection between the compensatory spring and the member of the pawl and ratchet device which is loosely carried by the rotary shaft, whereby when the shaft and its drum are positively rotated to unroll the sheets the last member of the pawl and ratchet device is also rotated with the drum and shaft, and the flexible connection is wound up thereon to increase the tension upon the compensatory spring and thus compensate for the weight of the sheets that have been unrolled. 2nd. In exhibiting apparatus, the combination of a rotary drum having a series of sheets attached thereto so that their ends overlap when the sheets are wound up, a lamp and a movable separating rod movable to and from the rotary drum to hold back all of the sheets but one away from the rays of the light from the lamp. 3rd. In exhibiting apparatus, the combination of a rotatable drum having a series of longitudinal grooves, of a series of detachable clamping pieces, each made in two parts to clamp a sheet between the parts and adapted to be received in the grooves of the drum. 4th. In an exhibiting apparatus, the combination of a rotary drum having its periphery provided with a series of longitudinal grooves having an enlarged internal diameter with a contracted opening, a series of sheets, and a series of clamping pieces adapted to be received in the enlarged

portions of said grooves to hold the sheets therein. 5th. In an exhibiting apparatus, the combination of a rotary drum, a series of sheets attached thereto so that the ends overlap when the sheets are wound up, a dial connected with said drum so as to rotate therewith provided with a series of openings or apertures corresponding to the number of the sheets, a pin adapted to be inserted in said holes, and a stop in the path of said pin. 6th. In an exhibiting apparatus, the combination of a rotary drum, having a series of sheets attached thereto so that the ends overlap when the sheets are wound up, a rotary dial connected with said drum so as to rotate therewith, a pin carried by said dial, and a stop in the path of the pin to arrest the rotation of the dial and drum at any desired position. 7th. In exhibiting apparatus, the combination of a rotary drum a series of sheets carried thereby so that the ends overlap when the sheets are wound up, a dial Q carried by said drum, a fixed stop Q' adjacent to the dial and a movable pin carried by the dial and adapted to be moved so as to strike the stop when the dial is rotated, to arrest the drum in a desired position. 8th. In an exhibiting apparatus, the combination of a rotary drum, having a series of sheets attached thereto so that their ends overlap when the sheets are wound up, a lamp, a movable separating rod, and mechanism to move said rod to and from the drum to hold back all the sheets but one away from the rays of light from the lamp. 9th. In an exhibiting apparatus, the combination of a rotary drum, having a series of sheets attached thereto so that their ends overlap when the sheets are wound up, a lamp, a separating rod S, a lever to raise said rod to and from the drum, the dial Q, pin *g*, and stops *t*¹, *t*². 10th. In an exhibiting apparatus, the combination of a closed case having a slight opening, a lamp within said case, a rotary drum, a series of sheets attached to said drum so that their ends overlap when the sheets are wound up, a separating rod S, a lever T, connections between said lever and rod S where by the latter may be moved to and from the drum, a rotary dial connected with said drum so as to rotate therewith, a pin *g* carried by the dial, and stops *t*¹, *t*², carried by the lever T and adapted to be moved successively in the path of the pin *g*.

No. 39,818. Machine for Making Harness Saddletrees. (*Machine pour faire les bois de selles de harnais.*)

William H. Bustin, Boston, Massachusetts, U.S.A., 13th August, 1892; 6 years.

Claim.—A die having its sides inclined in opposite directions, a projection arranged centrally in the said sides and extending to or beyond the middle, lengthwise thereof, a depression of the same width as the projection extending from the end of the latter to the end of the said sides, and a plain longitudinal margin of the same angular inclination, in combination with a die having a conformable engaging face, substantially as specified.

No. 39,819. Starter for Cars.

(*Appareil de mise en mouvement des chars.*)

Elias Vernon and Benjamin Temple, both of Hamilton, Ontario, Canada, 13th August, 1892; 6 years.

Claim.—1st. In a car or vehicle starter, consisting of an air pump secured to a car, an eccentric attached to the axle of a car and connected with the piston of the pump, a clutch device on the axle to throw the eccentric in and out of gear, connections to the end of a car constructed to be controlled by the driver's foot when the car is in motion, to pump air into an air receiver as a motive power to be used in combination with devices attached to the car and axle, to rotate the axle and wheels to start a car, substantially as specified. 2nd. In a car or vehicle starter, the combination, with a car, of an air pump C provided with valve, pump rod and air pipe *f*, eccentric G on the axle *a*, and its connecting rod H, clutch device *b* on the axle, bell crank *c*, connecting rods *d*, *d*, and double bell cranks *e*, *e*, all constructed and arranged for pumping air into an air receiver A, for accumulating a motive power to rotate, directly or indirectly, a car axle to start a car, operated substantially as described. 3rd. In a car or vehicle starter, the combination, with a car, of an air pump C, having valve, pump rod and outlet air pipe *f*, eccentric G on the axle *a*, its connecting rod H, clutch device *b* on the same axle, bell crank *c*, connecting rods *d*, *d*, double bell cranks *e*, *e*, air receiver A, with valve M, air cylinder B, with air pipes *o* and *o*¹ connecting the air receiver A with the air cylinder B, and formed with valves I, I¹, all constructed and arranged for pumping air into an air receiver, and means to admit of its escape when necessary to operate a piston, to which devices are attached to directly or indirectly rotate a car axle by the pressure of a driver's foot on a bell crank projecting upwards through the floor of a car, substantially as and for the purpose described. 4th. In a car or vehicle starter, the combination, with a car, of the lever D attached loose on the axle *a*¹, and fastened by links L, L, to the piston rod *u*, ratchet wheels F, F¹, on the shaft *a*¹, on each side of the lever D, dogs E, E¹, to engage with said ratchet wheels, hook springs R, R¹, spiral hooked springs *g* and *g*¹, in combination with an air cylinder and an air receiver, having connecting valved pipes, and means to operate the said mechanism from each end of a car by the driver's foot, substantially as and for the purpose specified. 5th. In a car or vehicle starter, the combination, with the air receiver A, air cylinder B and their valved connections, the valve operating levers Q, Q, connecting rods N, N, springs K, K, single

bell cranks J, J¹, operated by the driver's foot at either end of a car to pull the lever D and rotate the axle to start a car, substantially as described. 6th. In a car or vehicle starter, the combination, with a car and air receiver, of the bell cranks J, J¹, spiral springs K, K, connecting rods N, N, levers Q, Q, pipes *o*, *o*¹, valves I, I¹, air cylinder B, piston *u*, lever D, ratchet wheels F, F¹, dogs E, E¹, shaft *a*¹, spiral springs *g*, *g*¹, hook springs R, R¹, all arranged and constructed to start a car by air pressure from the air receiver, substantially as described.

No. 39,820. Folding Chair. (*Chaise pliante.*)

Allen London, Park Hill, Ontario, Canada, 13th August, 1892, 6 years.

Claim.—As a new article of manufacture a folding stool comprising the pivoted pieces *r* and *s* joined by rungs *t* and *u*, and provided with caps *k* and *n* and wire hinges *l* and *m* attached to cap *k* and a seat A comprising a series of slats *a*, fitted to rungs or cross bars *c*, and *f*. The rung or cross bar *r* having two small holes *g* and *h*, to receive wire hinges *l*, and *m*. The whole combined as described for the purpose set forth.

No. 39,821. Tongs for Moving Ice, Timber and Rock.

(*Pinces pour la glace, le bois et les roches.*)

John E. Goodman, Negannee, Michigan, U.S.A., 13th August, 1892; 6 years.

Claim.—1st. The cross heads C and D connected with arms E-E and F-F by loose joints and C sliding on shaft B. 2nd. The combination by cross heads, C and D, with the arms E-E and F-F by means of which both arms E-E and F-F are acted upon simultaneously, and equal pressure secured upon both sides of the object sought to be lifted.

No. 39,822. Game Counter. (*Compteur pour jeu.*)

Albion Smith, Richmond, Indiana, U.S.A., 13th August, 1892; 6 years.

Claim.—1st. A game counter consisting of a receptacle having grooves or guide ways and sets of movable bodies placed in the guide ways, one set bearing numbers corresponding to the lowest number of points made in the game, and the other bearing numbers of larger denominations, such as five and multiples thereof, substantially as described. 2. A game counter consisting of a frame having guide ways or grooves therein and receiving sets of movable blocks or other bodies, each set consisting of two series of blocks, one series bearing numbers corresponding to the lowest number of points possible to be made and the other bearing numbers of a larger denomination, such as five and multiples thereof, each set being indicated by a different colour, substantially as described.

No. 39,823. Moth Proof Bag. (*Sac à l'épreuve des vers.*)

Frederick Osgoode Paige, Detroit, Michigan, U.S.A., 13th August, 1892; 6 years.

Claim.—1st. The combination, with a bag, of a filler over which the edges of the bag mouth are folded and a longitudinally slotted tube, adapted to receive within it the filler and the portion of the bag around the filler, and to hold the parts securely in position, substantially as and for the purpose described. 2nd. The combination of a bag, a filler rod interlaced through the bag near the mouth thereof, a slotted tube adapted to retain the mouth portion of the bag, in a folded position over the filler rod, substantially as described. 3rd. The combination of a bag, a filler rod, suspension devices carried by the filler rod, a slotted tube within which the filler rod and the bag folded thereon can be inserted and there held in position, substantially as and for the purpose described. 4th. The combination of a bag, a filler rod, interlaced through one side of the bag near its mouth, flexible straps carried by the filler rod, provided with suspension devices and a slotted tube adapted to slide over the filler rod and the bag mouth folded thereon, substantially as and for the purpose described.

No. 39,824. Breast Drill and Brace. (*Vilbrequin.*)

Arthur Albert Tattersall, 31 Dixon Avenue, Crosshill, Glasgow, Scotland, 13th August, 1892; 6 years.

Claim.—A breast drill or brace, having a point or centre in or on or projecting through the breast piece, substantially as and for the purpose set forth.

No. 39,825. Ceiling Block. (*Doubleau.*)

Axel Ekstrom, Lynn, Massachusetts, U. S. A., 13th August, 1892; 6 years.

Claim.—1st. A ceiling or connection block, having a central body with a surrounding undulating flange, and having clamping jaws for the main and lamp wires on opposite sides of said flange, and in the hollows thereof. 2nd. A ceiling or connection block, having a base with a central hole, and a surrounding flange or wall with fuses and connections in the space between the hole and wall, and a cap covering said space and provided with a handle, and with a fastening pin entering said central hole and consisting of a thin plate of refractory transparent insulating material, such as mica.

No. 39,826. Fence. (*Clôture.*)

Albert L. Bonnaffon, Philadelphia, Pennsylvania, U. S. A., 13th August, 1892; 6 years.

Claim.—1st. In a fence, the combination, with the post, and the bars having slotted ends, of the loop device adapted to lock the ends of the bars together and to the post, substantially as described. 2nd. In a fence, the combination of the post, the bars having oppositely disposed slots in the overlapping ends thereof, and the loop device adapted to lock said ends together and to the post, substantially as described. 3rd. In a fence, the combination of the post, the bars having oppositely inclined slots in the overlapping ends thereof, and the loop device adapted to lock said ends together and to the post, substantially as described. 4th. In a fence, the combination of the post, the bars having oppositely inclined and offset slots in the overlapping ends thereof, and the loop device adapted to lock said ends together and to the post, substantially as described.

No. 39,827. Electrical Event Reporter.

(*Indicateur électrique de jeu.*)

William Blake Luce, Boston, Massachusetts, U.S.A., 13th August, 1892; 6 years.

Claim.—1st. An event reporting or indicating apparatus comprising a board or indicator having openings to represent different steps, stages, or points of a game of base ball or other event, a series of movable annunciators arranged to co-operate as described with said openings, electrically controlled devices to operate said annunciators, a series of branch circuit wires connected with said operating devices and terminating in a series of contact points or terminals, a movable contact arm adapted to make contact successively with said terminals, an electrically controlled motor whereby said contact arm may be brought into contact with any terminal of the series, and two independent line circuits extending to the transmitting station, one controlling said motor, and the other permanently connected with the contact arm, whereby both the contact arm and any annunciator connected therewith may be operated by an operator at the transmitting or central station, as set forth. 2nd. An event reporting or indicating apparatus comprising a board or indicator having openings to represent different points in a game or event, a series of movable annunciators arranged to co-operate with said openings, electro-magnets arranged to actuate said annunciators, a series of branch circuit wires extending from said electro-magnets to a corresponding series of contact points or terminals circularly arranged, a revolvable contact arm arranged to make contact with said terminals successively, a main line circuit permanently connected with said contact arm and extending to a transmitting or central station, and means for moving or adjusting said contact arm, as set forth. 3rd. An event reporting or indicating apparatus comprising a board or indicator having openings to represent different points in a game or event, a series of movable electrically controlled annunciators arranged to co-operate with said openings, a series of branch circuit wires including said annunciators and terminating in a series of independent contact points or terminals, a contact arm included in a main, annunciator operating circuit extending to the transmitting station, an electrically controlled motor for said contact arm, a line circuit including said motor and extending to the central station, and an indicator at the central station comprising a movable arm and a motor therefor controlled by the last mentioned circuit, whereby the said arm may be moved synchronously with the contact arm, as set forth. 4th. The improved game or event reporting system comprising a central or transmitting station, a series of boards or indicators each having a series of annunciators, a series of contact points or terminals connected by branch wires with said annunciators, a movable contact arm common to all the terminals, and an electrically controlled motor for said arm, and independent line wires extending from the central station to the boards or indicators, and connected respectively with the contact arm and with its motor, whereby the operator at the central station may adjust the contact arms at all the indicators, and then operate the annunciators connected with the circuit by the adjustment of the contact arms, as set forth.

No. 39,828. Storage Battery. (*Accumulateur électrique.*)

Charles Sorley, New York, State of New York, U.S.A., 13th August, 1892; 6 years.

Claim.—1st. In a galvanic cell, a containing vessel, a bridge piece upon the bottom of said vessel, and an electrode in plate form having its lower edge resting longitudinally upon the upper surface of said bridge piece, substantially as described. 2nd. In a galvanic cell, a containing vessel, a loose bridge piece upon the bottom of said vessel, and having a transverse opening, and an electrode in plate form having its lower edge resting longitudinally upon the surface of said bridge piece, substantially as described. 3rd. In a storage cell, an electrode containing active material in openings in said electrode, two or more separate supporting bars of non-conducting material applied against a face of said electrode, and bolts of non-conducting material extending through said electrode and said bars, and securing said electrode and bars together, substantially as described. 4th. In a storage cell, an electrode containing active material in openings in said electrode, two or more separate supporting bars of non-conducting material applied against opposite faces of said electrode, and bolts of non-conducting material, extending

through said electrode and each pair of bars, disposed relatively opposite each other and on opposite sides, and securing said bars to said electrode, substantially as described. 5th. In a storage cell, an electrode, a loose supporting bridge piece of non-conducting material applied against one edge of said electrode, bars of non-conducting material applied to opposite sides of said electrode, and said bridge piece, and a means of clamping said bars against said electrode and said bridge piece, substantially as described. 6th. Preparing active material for use in a secondary battery electrode by subjecting an active material to the action of a fluid capable of expanding said material and then drying said material, substantially as described. 7th. Preparing active material for use in a secondary battery electrode by subjecting an active material to the action of a fluid capable of expanding said material, then drying and then communicating said material, substantially as described. 8th. Preparing lead oxide for use in a secondary battery electrode by treating the same with sulphuric acid to produce expansion, and then driving off the contained moisture by heat, before applying said oxide to said electrode, substantially as described.

No. 39,829. Cash Register. (*Régistre à monnaie.*)

Joseph Augustus Treat, Stuart, Iowa, U.S.A., 13th August, 1892; 6 years.

Claim.—1st. In a cash register and indicator, the combination, with a series of keys, and a series of groups of tablet rods, of tablet actuating mechanism connecting with a single group of tablet rods, substantially as described. 2nd. In a cash register and indicator, the combination, with a series of keys, and a series of tablet rods, of a movable extensible connection between said keys and tablet rods, substantially as described. 3rd. In a cash register and indicator, the combination, with a series of keys, and a series of groups of tablet rods, of a movable extensible connection between said keys and rods, substantially as described. 4th. In a cash register and indicator, the combination, with a series of keys and a series of groups of tablet rods, each group representing an increasing monetary denomination, of a movable connection between said keys and rods, and mechanism for moving said connection forward to a higher denomination at each successive operation, substantially as described. 5th. In a cash register and indicator, the combination, with a series of keys and a series of tablet rods, adapted to be operated thereby, of an extensible tablet operating arm, and mechanism for extending said arm proportionate to the value of the operated keys, and operating a tablet rod of corresponding value, substantially as described. 6th. In a cash register and indicator, the combination, with a series of keys, and a series of groups of tablet rods, of a movable and extensible tablet operating arm forming a connection between said keys and rods, mechanism for extending said arm proportionate to the value of the operated key, and mechanism for moving said connection forward to a higher denomination at each successive operation, substantially as described. 7th. In a cash register and indicator, the combination with a series keys, and a series of tablet rods adapted to be operated thereby, of an extensible connection between said keys and rods, of a cam secured to a rock shaft above said keys, a spring actuated hanger connected to said extensible connection and bearing against said cam, and a tablet operating lever, for vertically reciprocating said connection, substantially as described. 8th. In a cash register and indicator, the combination with the keys and the tablet rods, of the pivotal arm 20, carrying the tablet operating arm *c*, the rock shaft 26, the cam 25, hangers, 23, roller 57, and tablet actuating lever 13, substantially as described. 9th. In a cash register and indicator, the combination with a series of keys, and a series of tablet rods, of the sliding extensible arm 20, consisting of the sleeve 18, the frame *a*, shaft *b*, hollow tube *c*, the plate *d*, the guide bearing *g*, and lifting arm *e*, substantially as described. 10th. In a cash register and indicator, the combination with a series of keys, and a series of groups of tablets, of a movable connection between said keys and tablets, mechanism for moving said connection formed to a higher denomination at each successive operation, consisting of a horizontally reciprocating bar below the keys, inclines on said bar, one for each key, a ratchet bar on said reciprocating bar, a stationary ratchet bar, and pawls on said movable connection, connecting with both of said ratchet bars, substantially as described. 11th. In a cash register and indicator, the combination with a series of keys, and a series of groups of tablets, of a movable connection between the keys and tablets, mechanism for moving said connection forward to a higher denomination at each successive operation, consisting of a horizontally reciprocating bar below the keys, inclines on said bar, one for each key, a rock bar on said reciprocating bar, a stationary ratchet bar, pawls on said movable connection connecting with both of said ratchet bars, a tripping bar for said pawls, and a spring to return said movable connection to its initial position, substantially as described. 12th. In a cash register and indicator, the combination of a single series of keys consisting of a bank of ten, comprising nine digits and a cypher key, and a series of tablet rods correspondingly numbered adapted to be operated thereby, substantially as described. 13th. In a cash register and indicator, the combination of a single series of keys, consisting of a bank of ten, comprising nine digits and a cypher key, and a series of groups of tablet rods, each group containing a series of tablet rods correspondingly numbered adapted to be operated by said keys, substantially as described. 14th. In a cash register and indicator, the combination of a single

series of keys consisting of a bank of ten, comprising nine digits and a cipher key, of a tablet rod correspondingly numbered and of an extensible connection between said keys and rods, adapted upon the operation of a key to operate the tablet rod of corresponding value, substantially as described. 15th. In a cash register and indicator, the combination of a single series of keys consisting of a bank of ten comprising nine digits and a cipher key, of a series of groups of tablet rods, each group correspondingly numbered and representing successively higher denominations, of a sliding extensible connection between said keys and a rod adapted upon the operation of a key to operate the tablet rod of corresponding value, and adapted by each successive operation to operate a tablet rod of corresponding higher denomination, substantially as described. 16th. In a cash register and indicator, the combination of a series of groups of tablet rods, each group representing an increasing denomination, of a series of operating keys, a connection between said tablet rods and keys, latch mechanism for holding up the operated tablet rod of each group independently of the other groups, and of mechanism for releasing the latch mechanism of all the groups, substantially as described. 17th. In a cash register and indicator, the combination of a bank of keys, consisting of digits, and a cipher key, of a connection between said digit keys and the registering and indicating mechanism, and of a connection between the indicating mechanism and the cipher key, substantially as described. 18th. In a cash register and indicator, the combination of a bank of keys, consisting of digits, and a cipher key, a connection between said digits and the registering and indicating actuating mechanism, a connection between said cipher key and a tablet operating mechanism, and a connection between said cipher key and a tablet operating mechanism, and a connection between the keys and the sliding bar 126, substantially as described. 19th. In a cash register, the combination, with the keys, of the sliding bar 8, the arm 9, having the inclined portion 10, and vertical portion 11, the connecting bar 12, opposite the vertical portion, and the tablet actuating lever 13, substantially as described. 20th. In a cash register, the combination, with the keys, a flexibly supported ward thereon, a series of tumblers with which said wards engage, and locking mechanism connected with said tumblers for locking the tablet operating mechanism upon the operation of more than one key, substantially as described. 21st. In a cash register and indicator, the combination, with the keys and tablet rods, a series of wards upon said keys, a series of tumblers with which said wards engage, a double crank lever actuated by the terminal tumbler, a sliding locking bar having slots for the reception of the tablet operating lever, all so arranged that upon the operation of more than one key, said levers are stopped from entering said slots, substantially as described. 22nd. In a cash register and indicator, alarm mechanism consisting of bells or tones of different pitch for each denomination, substantially as described. 23rd. In a cash register and indicator, the combination, with a series of keys, and a series of groups of tablet rods, each group representing a different monetary denomination, of an alarm mechanism of different pitch for each group, substantially as described. 24th. In a cash register and indicator, the combination, with a series of keys, and a series of groups of tablet rods, of a movable arm connecting said keys successively with said groups, and of an alarm bell or tone of different pitch for each group adapted to be sounded upon the operation of each key, substantially as described. 25th. In a cash register, the combination with a series of keys, and a series of groups of tablet rods, of the movable connection 20, the times 119 of different pitch, and the spring latch 120, substantially as described. 26th. In a cash register, the combination, with a series of register wheels marked with a series of numerals of successively higher denominations, such as units, tens, etc., and arranged so that upon the complete rotation of one wheel the wheel of the next higher denomination is turned one fractional part or notch, of a connection engaging with one of said wheels, and mechanism for moving said connection to any of said wheels, substantially as described. 27th. In a register, the combination, with a series of co-acting registering wheels, marked with a series of numerals of successively higher denominations, of a movable connection engaging with one of said wheels, and mechanism of moving said connection to engage with any of said wheels, substantially as described. 28th. In a cash register, the combination with a series of keys, and a series of co-acting register wheels, marked with a series of numerals of successively higher denominations of a movable connection with the said wheels operated by said keys, and of register actuating mechanism, all so arranged that each successive operation of a key moves the connection to a wheel of higher denomination, substantially as described. 29th. In a cash register, the combination with a series of keys and a series of co-acting register wheels marked with a series of numerals of successively higher denominations, of a movable connection with said wheels operated by said keys, whereby each successive operation of a key moves the connection to a wheel of higher denomination, and a latch upon said movable connection to hold said connection in its adjusted position, substantially as described. 30th. In a cash register and indicator, the combination with a single series of keys, of a series of co-acting registering wheels marked with numerals of successively higher denominations, of registering actuating mechanism, of a movable connection between the registering wheels and the keys, whereby upon the successive operation of the keys, connection is made with a register wheel of higher denomination, substantially as described. 31st. In a cash register and indicator, the combination of a series of

keys, of a series of registering, totalizing wheels, marked with a series of numerals of successively higher denomination, and a movable connection between the various registering wheels whereby upon the successive operation of a key or keys, the connection is made with a register wheel of higher denomination, substantially as described. 32nd. In a cash register, the combination with a series of registering, totalizing register wheels, of internal, grooves or apertures such as *m*, corresponding in number to the numerals upon the wheel, and of a movable connection between the actuating shaft 35, such as the sliding shaft 126, having the stud 129, substantially as described. 33rd. In a cash register the combination of the following elements: A key, the rock shaft 26, having rock arms arranged at varying distances from the keys, the segmental gear 31, gear wheel 33, pawl 130, ratchet wheel 131, fixed upon the shaft 35, the register wheels sleeved upon said shaft, the travelling connection 129, and the mechanism for successively connecting said part with a register wheel of higher denomination, substantially as described. 34rd. In a cash register, the combination of the keys and registering actuating mechanism, of the shaft 35, the register wheels 34, having pins *b*, spring latches *o*, and the arms *s* beside said wheels, substantially as described. 35th. In a cash register the combination of the keys and registering actuating mechanism, of the shaft 35, registering wheels 34 sleeved upon the shaft, having pins 1, spring latches *o*, teeth 1, and pawls 134, substantially as described. 36th. In a cash register, the combination with the keys and register actuating mechanism, of the shaft 35, wheels 34, sleeve 88, rod 126, having lug 129, the movable ratchet 115, a stationary ratchet and pawls on said sleeve engaging said ratchets, the spring 124, and mechanism for moving said sleeve upon the operation of a key, substantially as described. 37th. In a cash register, the combination with the keys and registering wheels, of a movable connection therewith, of actuating mechanism for said connection consisting of the sleeve 88, stationary and movable ratchets, pawls on said sleeve engaging said ratchets, the lever 138, bar 8, and mechanism with the ker for reciprocating said bar, and lifting bar 123, and setting bar 44, substantially as described. 38th. In a cash register and indicator, the combination with the tablets and tablets and tablet acting mechanism, of a hood or slide, adapted to be moved upon the operation of the key to hide the operated tablets from the purchaser, substantially as described. 39th. In a cash register and indicator, the combination with the tablets and tablet acting mechanism, of a hood or slide adapted to be moved upon the operation of a key, to hide the operated tablets from the purchaser, and of a setting rod adapted to lift said hood upon the completion of the indication, substantially as described. 40th. In a cash register and indicator, the combination with a series of groups of tablets and tablet actuating mechanism, of a hood or slide adapted to be moved upon the operation of a key, to hide the operated tablets, and of mechanism preventing indication of an amount of lesser denomination than that previously operated, until the hood has been lifted to expose the tablets, substantially as described. 41st. In a cash register and indicator, a recording mechanism, comprising a segmental rotary number plate, marked with digits and a cipher, movable paper and ribbon strips, and a hammer, substantially as described. 42nd. In a cash register and indicator, a recording mechanism comprising a segmental number plate, marked with a cipher and digits, actuated proportionately with the registering mechanism, movable paper and ribbon strips, and a hammer actuated upon the operation of a key, substantially as described. 43rd. In a cash register and indicator, a recording mechanism comprising a horizontally sliding segmental rotary number plate marked with digits and a cipher, movable paper and ribbon strips and a hammer, substantially as described. 44th. In a cash register and indicator, a recording mechanism, a horizontally moving segmental rotary number plate, marked with digits and a cipher, movable paper and ribbon strips, a hammer, guides for said strips, and an aperture in said guides in the path of the hammer, substantially as described. 45th. In a cash register and indicator, a recording mechanism, comprising a horizontally moving segmental rotary number plate marked with digits and a cipher, movable paper and ribbon strips, a hammer, and a connection with the keys whereby upon the operation of any key said hammer is operated, substantially as described. 46th. In a cash register and indicator, the combination, with a single bank of keys comprising a cipher and nine digit keys, a recording mechanism, comprising a rock shaft rotated proportionately to the value of the operated key, a figure plate on said shaft, correspondingly rotated, and printing mechanism actuated by the operation of a key, substantially as described. 47th. In a cash register, indicator and recorder, the combination, with the keys of a recording figure plate, having a segmental face bearing figures of corresponding value with the keys, and adapted to be rotated proportionately to the value of the digit to be recorded, and mechanism for moving said plate laterally at each successive operation of a key, substantially as described. 48th. In a cash register, indicator and recorder, the combination, with the keys, of a recording mechanism, comprising a segmental figure plate, bearing figures of corresponding value with the keys, of a cipher upon said plate normally in the path of the printing hammer, and a cipher key adapted to operate said hammer, substantially as described. 49th. In a cash register, indicator and recorder, the combination, of the following elements, a series of keys, a shaft rotated upon the operation of a key proportionately to the value of the key, a figure plate upon said shaft, a hammer, paper and ribbon strips, reels upon which said strips are wound, the bar 123, setting bar 44,

and pawl and ratchet connection between the bar 123 and said reels, substantially as described. 50th. In a cash register, indicator and recorder, the combination, of the following elements, a single series of keys, a series of registering totalizing wheels, a series of groups of tablet rods, and a recording mechanism, all combined and operating in the manner and for the purpose, substantially as described. 51st. In a cash register and indicator, the combination, with a series of keys, a series of tablet rods and registering mechanism, said key having a bearing connection with the registering mechanism during the first part of its movement, a locking bearing for locking the registering mechanism during the interval when said key is operating the tablet mechanism, substantially as described. 52nd. The combination, with the tablet rods provided with a detent or shoulder, the spring pawl adapted to engage therewith and hold them in their elevated position, and the latch 61, substantially as described. 53rd. In a cash register, the combination, with the registering wheels provided with peripheral teeth having inclined sides, of a spring pawl having a roller-engaging therewith, substantially as and for the purpose described. 54th. In a cash register and indicator, the combination, with the keys of a register actuating rock shaft operated by said keys, each key adapted to rotate said shaft through the arc of a circle proportionate to its value, substantially as described.

No. 39,830. Gum Moistener.

(Appareil à mouiller la gomme.)

Jeremiah Vreeland, assignee of Alfred Gartner, both of Newark, New Jersey, U.S.A., 13th August, 1892; 6 years.

Claim.—1st. A gum moistener adapted to be adjustably secured to a finger and removable therefrom, for the purposes set forth. 2nd. As a new article of manufacture, a gum moistener adapted for use on a finger, consisting of a holder, with spring finger clasps, a moistener or sponge, and means for securing said moistener to said holder, substantially as described and set forth. 3rd. As a new article of manufacture, a gum moistener adapted for use on a finger, consisting of a holder with spring finger clasps, a moistener or sponge, means for securing said moistener to said holder, and a liquid chamber or receptacle secured or held to said holder by said finger clasps, substantially as described and set forth. 4th. In a gum moistener, the combination, with a moistener or sponge, of a rest for said moistener, clamps securing said moistener to said rest and clasp springs adapted to hold all said parts on a finger, said rests, clamps and clasp springs being formed of one piece of metal, substantially as described and for the purposes set forth. 5th. In a gum moistener, the combination, with a moistener or sponge of an elastic perforated liquid receptacle, a perforated rest for said moistener, clamps securing said moistener to said rest and clasp springs adapted to hold all said parts on a finger, said rest clamps and clasp springs being formed of one piece of metal, substantially as described and for the purposes set forth.

No. 39,831. Pole. (Timon.)

The Sectional Standards (Limited) London, assignee of William Pitt, Spitalfields, England, 13th August, 1892; 6 years.

Claim.—1st. In poles, the combination of a number of uprights, connections at the top and bottom provided with recesses to receive the ends of the uprights, intermediate connections provided with rings through which the uprights pass and a tube or rod securing the upper and lower connections together, substantially as described. 2nd. In poles, the combination of a number of uprights each consisting of a length of angle iron, castings at the top and bottom provided with recesses to receive the ends of the uprights, intermediate castings provided with rectangular rings through which the uprights pass, keys to secure the uprights to the intermediate castings and a tube or rod securing the upper and lower castings together, substantially as described. 3rd. In poles, the combination of a number of uprights, connections at the top and bottom provided with recesses to receive the ends of the uprights, the upper connection having also a socket to receive the upper section of the pole, intermediate connections provided with rings through which the uprights pass, and a tube or rod securing the upper and lower connections together, substantially as described. 4th. In poles, the combination of a number of uprights each consisting of a length of angle iron, castings at the top and bottom provided with recesses to receive the ends of the uprights, the upper casting also having a central hole through it, an upper section of the pole passing through the hole and secured in it, intermediate castings provided with rectangular rings through which the angle iron uprights pass, keys to secure the uprights to the intermediate castings and a tube or rod forming a continuation of the upper section of the pole and serving to secure the upper and lower castings together, substantially as described.

No. 39,832. Nut Lock. (Arrêt-écrou.)

Charlie Henry Miles, Edwin Farr and Levi Farr, all of Canastota, New York, U. S. A., 13th August, 1892; 6 years.

Claim. The combination, in a nut lock, of the threaded bolt having a transversely slotted extremity, a screw nut mounted on the bolt, and a pliable locking pin seated at an end in the body of the nut, and its projecting free portion disposed parallel to the bolt, all operating substantially as described and shown, and for the purposes set forth.

No. 39,833. Water Regulator for Boilers.

(Régulateur de l'eau pour chaudières.)

William Manly Copeland and Rufus I. Copeland, Stewarts Run, Pennsylvania, U.S.A., 13th August, 1892; 6 years.

Claim. In a feed water regulator and low water alarm for boilers, a water and steam chamber B, having upper and lower pipes C, D, adapted to be connected to the boiler above and below the water level, said steam chamber containing a casing having pipes which leads from the inner casing to the feed pump and a pipe leading to a steam actuated alarm, and a valve in said casing operated by a float in the water chamber B, substantially as set forth.

No. 39,834. Pattern Board. (Planche de patron.)

James Willard Wright, assignee of John Wright, both of Cleveland, Ohio, U. S. A., 13th August, 1892; 6 years.

Claim.—1st. A pattern or match board, provided with a series of two or more face plates and patterns in pairs, substantially as herein described, in combination with horn gates radiating from a central gate and communicating with a central sprue, substantially in the manner and for the purposes described. 2nd. In combination, a pattern board provided with face plates and patterns, a series of horn gates gating to and with a central connecting gate, an anchor plate, and a locking sprue, the parts being constructed, arranged and operating, substantially in the manner and for the purpose described.

No. 39,835. Car Heating Apparatus.

(Appareil de chauffage des chars.)

The Consolidated Car Heating Company, assignees of James Finney McElroy, all of Albany, New York, U. S. A., 13th August, 1892; 6 years.

Claim. The combination of the train pipe, the valves D, and a relief port for the coupler section, normally closed and adapted to be opened when said valves are closed, substantially as described.

No. 39,836. Velocipede. (Vélocipède.)

James C. Belyea and the firm of Irvin and Kepner, all of Sabetha, Kansas, U.S.A., 13th August, 1892; 6 years.

Claim.—1st. In a velocipede, the main axle and wheels, in combination with a pair of sliding reciprocating pedals connected with the axle to rotate the same forwardly, and a pair of handle bars, each connected and moving with a pedal, as and for the purpose set forth. 2nd. In a velocipede, the combination, with the main axle, of the sliding and reciprocating pedal, and the handle bars reciprocating and moving therewith, the pedals being forced forward and connected with the axle to rotate the same forwardly, and the handle bars drawing the pedals back and continuing to rotate the axle, substantially as described. 3rd. The combination, with two sliding reciprocating pedals, of the main driving axle and its wheels, a pair of driving ratchet mechanisms on said axle for each pedal, the mechanisms of each pair rotating in opposite directions, and connections from each pedal to its respective pair of ratchet mechanisms, so that when the pedal is reciprocating one mechanism or the other will be always rotating the axle, as set forth. 4th. The main axle and its wheels, in combination with the supporting frame, the reciprocating slide rods connected with said axle to rotate the same, and carrying the pedals, and the handle bars pivoted to and moving with the slide bars, as set forth. 5th. The main axle and its wheels, the seat mounted on said axle, and the two pair of opposite ratchet mechanism in combination with the supporting frame, the sliding reciprocating pedals, connecting rods loosely connecting each pedal with a pair of said opposite mechanisms, and the handle bars connected to and moving with the pedals, substantially as described. 6th. The combination, with the main axle and its wheels, and the two pair of opposite driving ratchet mechanisms on said axle, of the two sliding reciprocating pedals, and the two pair of loose rods connecting the pedals and ratchet mechanisms, one connecting rod of each pair being secured to its ratchet mechanism below the axle, and the other rod to its mechanism above the axle, as set forth. 7th. The main and front axles, and wheels, and the frame extending between said axles, and to which the front axle is pivoted to swing laterally, in combination with the slide rods reciprocating longitudinally in the frame and carrying pedals and connected with the axle to continuously rotate the same, and the vertically and laterally swinging handle bars carried by and moving with said bars, substantially as described. 8th. In a velocipede, the combination with the main axle and its wheels, the front guiding wheels, the supporting frame, the laterally movable pivoted handle bars, the laterally movable guiding yoke swung by the lateral swing of said handle bars, and connected to turn the guiding wheel or wheels in the same direction as the handle bars are swung. 9th. In a velocipede, the combination with the main axle and wheels, and the front guiding axle and wheels of the frame and driving mechanism, the vertically swinging U-shaped steering yoke having eyes in its upper end, the loose arm and lever connecting said yoke and the front axle, so that when the yoke is swung laterally the front wheels will be turned in the same direction, and the laterally movable handle bars extending up

through said eyes, substantially as described. 10th. The combination of the main wheel centrally divided, the block in which the sections of the main wheel are journaled, and by which they are united, the two main wheels, and separate driving mechanism connected with each section of the main axle, substantially as described.

No. 39,837. Door Mat. (Paillason.)

George E. Eggert, Argo, North Carolina, U.S.A., 13th August, 1892; 6 years.

Claim.—1st. In a door mat, a rectangular frame containing a horizontal mat and carrying a rotary brush located above the horizontal mat and provided with spur wheels and an adjustable friction appliance, substantially as herein set forth. 2nd. In combination, with a door mat frame, a rotary brush located above the mat, and journaled in suitable bearings, one of which F, has a hinged jaw f, whereby the brush may be easily removed or replaced, and the cap G, and hood H, to secure the brush in place and protect it from dust. 3rd. In combination, with a door mat, a rotary brush journaled above it and having on one end of its axle the friction blocks L and M, and on the other the coiled springs and a sleeve and nut, whereby the proper friction is maintained so that the brush may not revolve too freely.

No. 39,838. Receptacle for Feeding Grain to Live Stock. (Réceptacle à grain pour nourrir les animaux.)

Charles Addison Smith and George Worts, both of Toledo, Ohio, U.S.A., 13th August, 1892; 6 years.

Claim.—1st. In a feed receptacle, a bottom formed with projections having an incline towards the bottom, whereby there are plane communicating surfaces formed upon the bottom. 2nd. As an article of manufacture, a receptacle for feed formed with enclosing sides and a bottom part having hemispherical projections, whereby there are plane communicating surfaces formed upon the same.

No. 39,839. Cartridge Case. (Etui de cartouche.)

John Cope Butterfield and Telford Clarence Batchelor, both of London, England, 13th August, 1892; 6 years.

Claim.—1st. A metallic cartridge case of two approximately equal shells or cases such as A, joined at about the centre of the complete case, substantially as described and illustrated in the accompanying drawings. 2nd. A metallic cartridge case formed of two approximately equal tapered shells such as A, joined at their larger ends and forming a case with a central bulge or swell, substantially as described and illustrated in the accompanying drawings. 3rd. A metallic cartridge case having the junction approximately in the centre of its length, substantially as described.

No. 39,840. Cartridge Case. (Etui de cartouche.)

John Cope Butterfield and Telford Clarence Batchelor, both of London, England, 13th August, 1892; 6 years.

Claim.—1st. In a cartridge case, the combination, with a tube or shell of a dished end and turned over edge of shell, substantially as described and illustrated in the accompanying drawings. 2nd. In a cartridge case, the combination, with a tube or shell of two dished ends secured in the ends of the shell by turned over edges, one at least being provided with a projection, substantially as described and illustrated in the accompanying drawings. 3rd. A cartridge case, formed of metallic foil folded at one or both ends and sealed hermetically by having the meeting edges of the joints or folds sealed by soldering or melting them together, substantially as described and illustrated in the accompanying drawings.

No. 39,841. Disk Harrow (Herse à disque.)

Albert James Glass, Batavia, New York, U.S.A., 13th August, 1892; 6 years.

Claim.—1st. The combination, with the draft frame and the disk gangs, of connecting rods having their front ends connected with the draft frame by longitudinal pivots, and their rear ends to the disk gangs by vertical pivots, of braces provided at their front ends with eyes through which said longitudinal pivots pass, and their rear ends with vertical fastening bolts arranged in line with said vertical pivots, substantially as set forth. 2nd. The combination, with the draft frame and the disk gangs, of bent or cranked connecting rods provided at their front ends with longitudinal pivots journaled on the draft frame and having their rear ends connected with the gangs, whereby the gangs are enabled to move laterally in adjusting their position, substantially as set forth. 3rd. The combination with the draft frame and the disk gangs, of a connecting device, whereby the inner ends of the gangs are attached to each other and connecting rods provided at their front ends with longitudinal pivots journaled on the draft frame, and having at their rear ends a connection with the gangs which is capable of moving laterally as the position of the gangs is adjusted, substantially as set forth. 4th. The combination, with the draft frame and the disk gangs, of a connecting device, whereby the inner ends of the gangs are attached to each other, and bent or cranked connecting rods provided at their front ends with longitudinal pivots journaled on the draft frame and connected at their rear ends with the gangs, substantially as set forth. 5th. The combination, with the draft frame and the disk gangs

pivoted thereto, of a free knuckle bar disconnected from the draft frame and provided at its ends with spherical knuckles which are seated in sockets in the disk gangs, said sockets embracing the outer and inner sides of each knuckle, whereby the knuckles are retained in the sockets and enables to hold the gangs both against inward and outward thrusts, substantially as set forth. 6th. The combination, with the disk gangs provided in their inner ends with sockets, of a connecting knuckle bar composed of a shank provided with a knuckle, a sleeve also provided with a knuckle and receiving said shank, and a fastening whereby the shank and sleeve are detachably secured together, substantially as set forth. 7th. The combination, with the draft frame provided with a guide secured rigidly thereto, and disk gangs pivoted to the draft frame and capable of angular adjustment, of draft rods attached to the disk gangs and capable of longitudinal movement on said guide, an adjusting lever mounted on the draft frame and a stop secured to the draft rods and adapted to come in contact with said adjusting lever, substantially as set forth. 8th. The combination with the draft frame provided with a guide secured rigidly thereto, and disk gangs pivoted to the draft frame and capable of angular adjustment, of draft rods attached to the disk gangs and capable of longitudinal movement on said guide, a stop secured to the draft rods in rear of said guide whereby the forward movement of the draft rods is limited, an adjusting lever mounted on the draft frame in front of said guide, and a stop secured to the draft rod in front of the adjusting lever whereby the rearward movement of the draft rod is limited, substantially as set forth.

No. 39,842. Clothes Pin. (Épingle à linge.)

Edmund H. Turner, Fergus Falls, Minnesota, U.S.A., 13th August, 1892; 6 years.

Claim.—1st. A wire clothes pin consisting, essentially, of a single piece having the ends of the wire provided with interlocking eyes or rings, the formed clothes-pin having curved ends adapted to slide upon the clothes-line, and downwardly and inwardly curved sides adapted to clasp the clothes-line and hold a garment in position thereon, substantially as described.

No. 39,843. Valve. (Soupape)

Tronson Draper, Petrolia, Ontario, Canada, 13th August, 1892; 6 years.

Claim. A valve having a projection formed on its bottom to loosely fit the orifice around which its valve seat is formed, substantially as and for the purpose specified.

No. 39,844. Washing Machine.

(Machine à blanchir.)

George Washington Smith, Hartford, Indiana, U.S.A., 13th August, 1892; 6 years.

Claim.—1st. The combination, in a washing machine constructed substantially as shown, of a bail G, pivoted to eyes g, and provided between said eyes with an outwardly bent portion, said bail having inwardly bent ends to which rock bars and an operating lever are pivoted, screw eyes k, adapted to engage with the inwardly bent ends of the bails for holding the lever and rock bars in an operative position, and a presser L pivotally secured to one end of the rock bars and a clothes turner M to the opposite end, substantially as shown and for the purpose set forth.

No. 39,845. Cover for Desks.

(Couverture de pupitre.)

Frank Joseph and John Hein, both of Jasper, Indiana, U.S.A., 13th August, 1892; 6 years.

Claim.—1st. A roll top desk cover comprising a flexible base, lateral thick stiffening strips upon the lower face thereof, the sides of said strips being beveled from their upper to their lower edges, for the purpose set forth, and strips of veneer upon the upper face thereof registering with said stiffening strips and being so thin that practically no crack is formed between them when the top is bent, the adjacent edges of said veneer strips, abutting closely in the normal position of the top, substantially as described. 3rd. A roll-top desk cover comprising a flexible base, lateral thick stiffening strips upon the lower faces thereof, the sides of said strips being beveled from their upper to their lower edges, for the purpose set forth, and strips of veneer upon the upper face thereof registering with said stiffening strips and being so thin that practically no crack is formed between them when the top is bent, the adjacent edges of said veneer strips being at right angles to their faces and abutting closely in the normal position of the top, substantially as described.

No. 39,846. Disk Harrow. (Herse à disque.)

Sheldon Jacob Glass, Chicago, Illinois, U.S.A., 13th August, 1892; 6 years.

Claim.—1st. The combination, with the draft frame and the disk gangs, of sleeves arranged at the inner ends of the gangs and provided with spherical sockets in their inwardly opening cavities, a connecting bar having knuckles at the ends which are seated in said sockets, and a draft bar provided with an eye which embraces the shank of the connecting bar and in which the latter turns, substantially as set forth. 2nd. The combination, with the draft frame and

the disk gangs, of sleeves arranged at the inner ends of the gangs and provided with spherical sockets in their inwardly opening cavities, a connecting bar having knuckles at its ends which are seated in said sockets, collars arranged in the cavities of the sleeves, whereby the knuckles are retained therein, and a draft rod provided with an eye which embraces the shank of the connecting bar in which the latter turns, substantially as set forth. 3rd. The combination with the draft frame and the disk gangs, of sleeves arranged at the inner ends of the gangs and provided with inwardly opening spherical sockets, a connecting bar, provided at its ends with spherical knuckles which enter said sockets with their outer portions and receive the inward thrust of the gangs, and collars arranged in said sleeves whereby the knuckles are retained in the sockets, substantially as set forth. 4th. The combination with the draft frame and the disk gangs, of sleeves arranged at the inner ends of the gangs and provided with sockets in their inwardly opening cavities, a connecting bar provided at its ends with knuckles which are seated in said sockets, collars arranged in said cavities whereby the knuckles are retained in the sockets, and disks which are secured to the inner ends of said sleeves and which overlap said collars whereby the latter are secured in the cavities of the sleeves, substantially as set forth.

No. 39,847. Drying Apparatus. (*Machine à sécher.*)

Charles Herschel Koyl, Easton, Pennsylvania, U.S.A., 13th August, 1892; 6 years.

Claim.—1st. The combination, with the drying chamber and endless power driven drying aprons therein, of ducts or inlets opening immediately beneath each apron, and means for supplying the same with hot dry air or gas, whereby dry hot fresh air or gas is admitted immediately beneath each apron, substantially as and for the purposes hereinbefore set forth. 2nd. The combination, with the drying chamber, of a drying apparatus, and the endless power driven aprons therein, of a series of inlets at different heights in said chamber, and means for supplying dry hot air or gases to the same, the supply of air to each inlet being independent of the others, as and for the purposes hereinbefore set forth. 3rd. The combination, with the drying chamber, of a drying apparatus, and the endless power driven aprons therein, of air inlets opening into the chamber at points between the upper and lower webs of the several aprons, so that the air or gas shall be discharged immediately below and in contact with the wet material on the upper web, and means for supplying dry air to said inlets, substantially as and for the purposes hereinbefore set forth. 4th. The combination, with the drying chamber, of a drying apparatus, and the endless power driven aprons therein, of air inlets opening into one side of said chamber at various heights, and beneath the carrying surface of the several aprons therein, means for supplying dry air to said inlets, outlets or exit openings on the other side of the chamber for the escape of the air thus supplied to the chamber, and a flue for leading off the air thus discharged, substantially as and for the purposes hereinbefore set forth. 5th. The combination, with the drying chamber, of a drying apparatus, and the endless power driven aprons therein, of inlets on one side opening into the spaces between the upper and lower webs of the several aprons, means for supplying dry air to the chamber through said inlets, similarly located outlets or exit openings in the opposite side of the chamber, and a flue for conducting off the air discharged through said exit openings, substantially as and for the purposes hereinbefore set forth.

No. 39,848. Wrench. (*Clé à écrou.*)

Albert Kingman Lovell, Jackson, Michigan, U.S.A., 13th August, 1892; 6 years.

Claim.—1st. In a wrench, the combination of a fixed jaw, a movable jaw, a spirally grooved shaft engaged with and adapted to be rotated by said movable jaw, and means for locking said shaft whereby the movable jaw is held in any desired position, substantially as and for the purpose described. 2nd. In a wrench, a fixed jaw, a revoluble spirally grooved shaft, traversing a movable jaw, a frame work holding the shaft and the fixed jaw, and adapted to guide the movable jaw, the grooving on said shaft having a long pitch, substantially as and for the purpose described. 3rd. In a wrench, the combination of a fixed jaw, a frame work, a movable jaw, a spirally grooved shaft engaged with and adapted to be rotated by said movable jaw, a ratchet wheel fixed to the said shaft, and a pawl adapted to engage therewith, substantially as and for the purpose described. 4th. In a wrench, the combination, of a frame consisting of a fixed jaw, a handle and two side bars, a movable jaw, movable along the side bars, a shaft journaled in the fixed jaw and the handle, and provided with spiral grooves of long pitch, and traversing the movable jaw and adapted to be rotated thereby, substantially as and for the purpose described.

No. 39,849. Bending Machinery. (*Machine à cintrer.*)

Everett L. Booker, Tippecanoe, City Ohio, U.S.A., 16th August, 1892; 6 years.

Claim.—1st. In a shaft or pole bending machine, the combination with a main frame having a vertically reciprocating form, a table with horizontally operating forms, and a pivoted clamping device normally held in an upright position between said frame and table by a yielding connection, substantially as specified. 2nd. The com-

bination, with a main frame having a vertically operating form, and a hinged table supporting horizontally moving forms, a clamping device between the said frame and table, and means, substantially as described, for producing an opposite movement of the respective horizontal forms simultaneously with a vertical movement of said table and one of the vertical forms, substantially as specified. 3rd. In a shaft bending machine, the combination with the vertically arranged forms and the oppositely moving horizontal forms, of a catch mechanism adapted to automatically lock said horizontal forms to one of the said vertical forms by the movement of said horizontal forms produced in bending the shafts, substantially as specified. 4th. The combination, with a vertically arranged movable form having a T-shaped projection, oppositely moving horizontal forms having perforated projections adapted to be threaded onto said T-shaped projection by the movement of said horizontal forms, and a latch adapted to automatically lock said horizontal forms to said T-shaped projection at the limit of their movement, substantially as specified. 5th. The combination, with the removable form E, and the reciprocating form E1, the vise D, and table C, and the oppositely moving heel forms on said table, substantially as specified. 6th. The combination, with a shaft bending machine, of a reciprocating table having curved slotted guides and the removable forms having flexible pieces, as described, engaging rollers adapted to be operated in said curved slotted guides to engage said forms, and means for operating said rollers, substantially as specified. 7th. The combination, with a vertical reciprocating form and an oppositely arranged removable form, of a spring strip secured at one end of said removable form, a hook-shaped projection on said strip and a catch projection on said form, said catch projection being adapted to be engaged by said hook-shaped projection by the movement of said reciprocating form, substantially as specified. 8th. The combination in a bending machine with a set of vertically arranged forms, of a horizontal pivoted table having a set of horizontally moving forms, and means for changing the angle of said table synchronously with the movement of the vertical forms, substantially as specified. 9th. The combination, with the removable form E, and the reciprocating form E1, movable catches h', pivoted to the form E1, a reciprocating bar c', supported at each end upon suitable bell-crank levers at the side of said frame so as to engage said catches, and means for producing a vertical movement of said bar, substantially as specified. 10th. In a heel form for a shaft bending machine the combination of a supporting piece b', having a slotted opening b'', a form piece b'', and bolts connecting said form piece to the supporting piece through the slotted opening, substantially as specified. 11th. In a shaft bending machine the combination with the vertical forms and the horizontal forms operating at right angles to each other, as described, of a hinged table supporting said horizontal forms, stop projections supporting said table in a normally horizontal position, and means, substantially as described, for raising said table as the forms are moved, substantially as specified. 12th. In a bending machine, the combination with the heel forms and the horizontal forms, a hinged supporting table for said horizontal forms having stop projections to hold it in a normally horizontal position, of a pitman connection pivoted to said table and operating mechanism for moving said pitman to elevate said table, as described, and a slotted connection in said pitman to permit its operating mechanism to move independent thereof, when the table has reached its normal position, substantially as specified. 13th. The combination, with the main frame supporting a vertically moving form, a set of horizontal moving forms supported on a hinged table, as described, of a pivoted vise arranged between said forms and normally held in an upright position by a yielding connection, substantially as specified. 14th. The combination with the vertical and horizontal forms, of a table supporting said horizontal forms, a sliding bar adapted to engage said horizontal forms, and a rack and pinion for operating said bar, a rope with a stirrup connected to said pinion and adapted to revolve said pinion, and a weight for returning the rack and pinion to their normal position, substantially as specified.

No. 39,850. Sheet Metal Can. (*Boîte de métal en feuille.*)

Frank H. Palmer, Brooklyn, New York, U.S.A., 16th August, 1892; 6 years.

Claim.—1st. A sheet metal can comprising a body made of a single piece of sheet metal and having a doubled-up frusto-conical end, a packing disk adapted to be placed across the doubled-up frusto-conical end of the said body, and a cover formed with an annular cylindrical flange adapted to engage with its lower end the outside of the said frusto-conical end, the under side of the cover resting on the top of the said packing disk, substantially as shown and described. 2nd. A sheet metal can provided with a body made of a single piece of sheet metal and having a doubled-up frusto-conical end and a doubled-up annular projection arranged on the lower edge of the outer part of the said doubled-up end, substantially as shown and described. 3rd. In a sheet metal can, the combination, with a body having a frusto-conical end, the upper edge of which is rounded and an annular projection formed on the outside of the can body, the latter, as well as the frusto-conical end and the projection, being made of a single piece of sheet metal, bent in the manner described, of a packing disk adapted to be placed across the frusto-conical end of the said can body, a cover engaging the said packing disk and formed with a downwardly extending annular flange engaging the said frusto-conical end, and a bail held on the said cover and having

inwardly projecting lugs at its ends, adapted to engage the annular projection on the can body, substantially as shown and described. 4th. In a sheet-metal can, the combination, with a body having a frusto-conical end, the upper edge of which is rounded, and an annular projection formed on the outside of the can body, the latter, as well as the frusto-conical end and the projection, being made of a single piece of sheet metal bent in the manner described, of a packing disk adapted to be placed across the frusto-conical end of the said can body, a cover engaging the said packing disk and formed with a downwardly extending annular flange engaging the said frusto-conical end, a bail held on the said cover and having inwardly projecting lugs at its ends adapted to engage the annular projection on the can body, and an eye or clip secured in the middle of the said cover and carrying the said bail, substantially as shown and described.

No. 39,851. Machine for Weaving Wire and Slat Fabric. (*Machine pour tisser la toile métallique.*)

Marvin Stuart Cadwell, Lansing, Michigan, U.S.A., 16th August, 1892; 6 years.

Claim.—1st. In a slat and wire fabric weaving machine, the combination of the frame, the bearings thereon, and the twisted wheels journaled in said bearings, such wheels being composed of the outer tubes D, collars E at one end of the tubes sprocket wheels G at the opposite ends of the tubes and twister heads I secured in the forward ends of the tubes, substantially as described. 2nd. In a slat and wire fabric weaving machine, the combination of the frame, the bearings thereon, the twister wheels journaled therein and comprising the sleeves D, the collars E at the forward end, the sprocket wheels G at the rear end of the bearings, the twister heads I detachably secured at the forward end, the frames M secured to the rear end having the off-set portions P and the wire spools N journaled in said off-sets, substantially as described. 3rd. In a slat and wire fabric weaving machine, the combination with the twister heads and frame, of the spring arm V arranged in front of the twister head to press the wire to the head, substantially as and for the purpose described.

No. 39,852. Stove Pipe Draft Regulator.

(*Régulateur pour le tirage des tuyaux de poêle.*)

Edward Gerred, Toronto, Ontario, Canada, 16th August, 1892; 6 years.

Claim.—The combination of the air box or valve B, having a flexible and expandible diaphragm B¹ a bracket D, supporting a lever E, pivoted thereto, the lever E, having a gravitating weight E, secured to the free end, the coupling H, secured to the opposite end of the lever and having a spiral groove or other means for rotating the arm I, engaging therewith, and the regulating screw K, passing through the lever and the point in proximity to the diaphragm, for operating a damper G, as set forth.

No. 39,853. Process for Making Sugar from Molasses, &c. (*Procédé de fabrication du sucre de la mélasse, etc.*)

Carl Steffen, Vienna, Austria-Hungary, 16th August, 1892; 18 years.

Claim.—1st. The process for precipitating or separating out the sugar from aqueous sucrate of lime solutions of molasses, syrup or juices of plants saturated with lime consisting therein that these solutions are cooled to temperatures below 35° centigrade and treated with more than 30 and less than 100 parts by weight of oxide of calcium (quick lime or hydrate of lime) to 100 parts by weight of sugar without the use of alcohol or artificial heat, substantially as and for the purpose described. 2nd. The winning of the sugar remaining in the waste fluids at temperatures under 35° centigrade by feeding fresh quantities of lime into the same in the proportions as hereinbefore described, substantially as and for the purpose described. 3rd. The conversion of a soluble sucrate of lime compound into sucrate of lime slightly soluble or insoluble at ordinary temperature by feeding lime at temperatures under 35° C into the aqueous solutions of sucrate of lime saturated with lime at low temperatures, substantially as and for the purpose described. 4th. The production of the aqueous sucrate of lime solution for obtaining the insoluble sucrate of lime by saturating the aqueous solution of sugar with a sucrate of lime the contents of lime in which are higher than correspond with the one-basic proportions, substantially as and for the purpose described. 5th. The separating out of the sucrate of lime from the sucrate of lime solution produced as hereinbefore described by feeding in sucrate of lime containing lime in excess of the one basic proportions at temperatures below 35° centigrade, substantially as and for the purpose described. 6th. In precipitating or separating out sucrate of lime from sugar solutions by introducing lime at temperatures under 35° centigrade using such low commencing temperatures or so diluted solutions of sugar that the reaction warmth produced by the lime

introduced will not be raised 35° centigrade, substantially as and for the purpose described. 7th. The elutriation of the slightly soluble or insoluble sucrate of lime by means of lime water for the purpose of precipitating the dissolved sucrate of lime in the form of a slightly soluble sucrate of lime before separating the fluid from the undissolved sucrate of lime, substantially as and for the purpose described.

No. 39,854. Grain Scales.

(*Bascule de pesage pour le grain.*)

John H. Forsyth, Fargo, Dakota, U.S.A., 16th August, 1892; 6 years.

Claim.—1st. In an automatic grain scale, an oscillating weighing box pivotally supported between hanger arms suspended from the arm of a scale beam and provided with oppositely arranged compartments intended to alternately receive and discharge the grain, and also provided with a wheel K, pivoted thereto, in combination, with two separate wheels S, S, on the frame, adapted to alternately engage the wheel K, and a block or projection M, located between the wheels S, S, to prevent the wheel E, from being accidentally caught between them, substantially as herein described. 2nd. In an automatic grain scale, the double compartment box A, pivotally supported between hanger arms suspended from a scale beam and provided with an automatic detent, in combination, with discharge port covers having their outer edges hinged or pivotally connected with the lower ends of the hanger arms or the rods connecting the same, and their inner edges supported by links pivoted to the oscillating box in such a manner that said covers will swing and operate concurrently with the oscillation of the box, substantially as herein described. 3rd. In an automatic grain scale, the oscillating box A, pivoted in hanger arms B, B, suspended from a scale beam and provided with a detent, in combination, with swinging port covers pivotally connected with the hanger arms and supported by links *d, d*, suspending from the box, said links being so adjusted that the covers will swing simultaneously with the oscillating of the box substantially as herein described. 4th. In an automatic grain scale, a double compartment oscillating box pivotally suspended between hanger arms connected at their upper ends with a scale beam, in combination, with discharge port covers connected at their outer edges directly or indirectly with the hanger arms and having the inner edges suspended and supported by links pivotally connected with the weighing box, substantially as herein described. 5th. In an automatic grain scale, a double compartment oscillating weighing box suspended between hanger arms connected at their upper ends to a scale beam fulcrumed on the head of an elevator, in combination, with guide bars H, H, pivotally connecting the elevator with the hanger arms below the scale beam, and the guard rollers *t, t*, pivoted to brackets extending from the elevator, said guard rollers being so adjusted that the tendency of their motion will coincide with the oscillating and vertical motion of the box, substantially as herein described. 6th. In an automatic grain scale, the combination, of an oscillating double compartment box A, pivoted in hanger arms B, B, suspended from a scale beam, discharge port covers pivotally connected at their outer edges with the hanger arms, and suspended at their inner edges by links pivoted to the box, the guide bars H, H, and guide rollers *t, t*, substantially as herein described.

No. 39,855. Machine for Making Horseshoe Nails.

(*Machine pour faire les fers à cheval.*)

Per Adolf Nilsson, Gothenburg, Sweden, 16th August, 1892; 6 years.

Claim.—1st. In a machine, for the manufacture of horseshoe and other nails, the combination of the revolving ring *a*, the cheeks *d, d¹, d²*, the jaws *f* for seizing and lifting the nail blank between said cheeks, and the die *g* for jumping the head on the nail, substantially as hereinbefore described. 2nd. In a machine, for the manufacture of horseshoe and other nails, the combination of the ring *a*, having notches *a²*, and revolving upon a stationary plate or frame *a¹*, with the cheeks *d, d¹, d², d³*, the jaws *f* for lifting the nail blank between said cheeks, the stamping die *g*, the cheek *h*, the rod *k*, carrying roller *h¹, h²*, and the incline *l*, substantially as and for the purpose hereinbefore described. 3rd. In a machine, for the manufacture of horseshoe and other nails, the combination of the revolving ring *a* with the cheeks *d, d¹, d², d³*, the jaws *f* for lifting the nail blank between said cheeks, the stamping die *g*, the cheek *h*, the rod *k*, carrying rollers *h¹, h²*, the incline *l*, and the carriage *m*, carrying a die *n*, and cutters *o, p*, substantially as and for the purpose described.

No. 39,856. Method of Making Axles or Shafts.

(*Méthode de faire les essieux et timonnières.*)

Charles Lock, London, England, 16th August, 1892; 6 years.

Claim.—1st. An axle or shaft, comprising a central core, a plate of relatively thin metal coiled around the said core, and an outer casing inclosing the said coiled plate, substantially as described. 2nd. The combination, with a shaft of the kind hereinbefore described, of a crank constructed, substantially in the manner described and shown.

No. 39,857. Strap and Hoop for Box and Package.*(Courroie et cercle pour boîtes et paquets.)*

Spencer Cone Cary, Baldwin, New York, U. S. A., 16th August, 1892; 6 years.

Claim.—1st. A box strap, composed of a metal band, and a strip of yielding material, arranged flatwise on said band, with the side edges of said band turned around and over the side edges of the strip, and down upon the outward face thereof, substantially as described. 2nd. A box strap, composed of a metal band, having a series of successive corrugations at each side edge and extending longitudinally thereof, substantially as and for the purpose specified. 3rd. A box strap composed of a metal band, having corrugations of uniform shape and size, and equidistant from each other, in series along the side edges of the band, each individual corrugation in the series at one edge being respectively opposite to an individual corrugation in the series at the opposite edge, substantially as specified. 4th. A box strap of indefinite length, composed of metal bands, having similar corrugations at their edges, with their ends overlapped flatwise with said similar corrugations fitted to each other in the respective bands, and having an eyelet or rivet passed through said lapped ends, substantially as specified. 5th. A box strap of indefinite length, composed of metal bands having at their ends an oblong corrugation or corrugations extending laterally of the bands, said bands being lapped upon each other at their ends, with said corrugations fitted in to each other and an eyelet or rivet passed through said lapped ends, substantially as specified. 6th. A metal box strap, having a roughened surface extending longitudinally of the face thereof, substantially as specified. 7th. A reel for metal box straps, consisting of a spool on which the strap may be coiled, a shaft or sleeve on which said spool is free to revolve, arms in which said shaft is mounted, adapted in length to extend beyond the rim of the coil of strap and united at their outer ends, and these having in them the corresponding openings described, substantially as specified. 8th. A metal strap for tapered round boxes and vessels, composed of a metal band having therein a series of laterally extending corrugations which are wider or deeper at one edge of the band than the other, substantially as specified. 9th. A metal strap for tapered round boxes and vessels, composed of a metal band having therein a series of laterally extending corrugations, each consisting in a hemispherical corrugation at one edge of the band, and a hemiconical corrugation tapering therefrom towards the other edge of the band, substantially as specified.

No. 39,858. Churn. (Baratte.)

Matthew L. Hoyt, Charlton, New York, U. S. A., 16th August, 1892; 6 years.

Claim.—1st. The combination, in a churn vessel having a rhomboidal or diamond shaped body of an imperforate removable partition dividing the interior into two equilateral triangular chambers, whereby the body of milk or cream in one chamber will accurately balance that in the other at all points in its revolution, substantially as specified.

No. 39,859. Lasting Machine. (Machine à enfumer.)

William Brewer Dean, assignee of John Thomas Avery, both of St. Louis, Missouri, U. S. A., 16th August, 1892; 6 years.

Claim.—1st. In a lasting machine, the combination, with an independent laterally movable head stock carrying the gripping jaws, of a guide rest for the last rigidly secured to the head stock, and means, substantially as described, for moving said head stock laterally. 2nd. In a lasting machine, the combination, with the frame, of guide ways thereon, a head stock slidingly mounted on said ways, means for actuating said head stock, a guide rest for the last secured to said head stock and moving therewith, and lasting mechanism, substantially as and for the purpose described. 3rd. In a lasting machine, the combination, with the frame, of guide ways thereon, a head stock slidingly mounted thereon and arranged to move laterally, a cam, suitable intermediate connections between said cam and head stock for moving said head stock laterally, and lasting mechanism, substantially as and for the purposes described. 4th. In a lasting machine, the combination, with a cam, of a rock arm engaging therewith, a horizontal shaft on which said rock arm is mounted, a slotted arm on the opposite end of the horizontal shaft, a pivoted bar provided with a slot in its lower member, a link on its upper member, a laterally movable head piece to which said link is attached, a movable pivoted pin passing through the slots in the lower member of the pivoted bar and rock arm, and lasting mechanism, substantially as and for the purposes described. 5th. In a lasting machine, the combination, with a laterally movable head stock, link and pivoted bar provided with a slot in its lower member, of a horizontally journaled rock shaft, rock arms on said shaft, which are provided with a slot and roller, respectively, a cam with which the roller on one of the rock arms engages, a pivot pin passing through the slots of the rock arm and pivoted arm, means for adjusting said pivot pin, and lasting mechanism, substantially as and for the purposes specified. 6th. In a lasting machine, the combination, with the frame, of guide ways thereon, a head stock slidingly mounted on said guide ways, means for reciprocating the head stock

laterally, suitable connections for adjustably limiting the throw of said head stock, and lasting mechanism, substantially as and for the purposes specified. 7th. In a lasting machine, the combination, with a frame, of guide ways thereon, a laterally movable head stock slidingly arranged on said ways, an independently movable gripper carrier mounted on the head stock, and lasting mechanism, substantially as and for the purposes specified. 8th. In a lasting machine, the combination, with the frame, of guide ways thereon, a laterally movable head stock mounted on the ways, an independent movable gripper carrier mounted on the head stock, and vertically reciprocating gripper jaws mounted in the gripper carrier, substantially as and for the purposes described. 9th. In a lasting machine, the combination, with the frame, of guide ways thereon, a laterally movable head stock mounted on said ways, a gripper carrier mounted on the head stock, vertically reciprocating gripper jaws mounted in the gripper carrier, and means for actuating the said parts independently of each other, substantially as and for the purposes described. 10th. In a lasting machine, the combination, with a frame, of guide ways thereon, a laterally movable head stock mounted on said ways, means for limiting the throw of said head stock, a gripper carrier pivotally mounted on the head stock, and arranged to move backward and forward, a rotatable and vertically reciprocating gripper shaft mounted in the carrier, and suitable means for actuating the said parts, substantially as and for the purposes described. 11th. In a lasting machine, the combination, with the frame, of guide ways thereon, a laterally movable head stock on said ways, a guide rest for the last secured to said head stock, a gripper carrier and a gripping jaws pivotally secured to said head stock, a retaining finger fixedly mounted on the frame, and means for actuating said parts independently, substantially as and for the purposes described. 12th. In a lasting machine, the combination of a gripper carrier, a shaft provided with gripping jaws mounted therein, a collar on said shaft, said sleeve loosely mounted on said shaft, said sleeve being provided with a collar, pivoted levers engaging the collars and adapted to raise and lower the shaft and sleeve, a toggle joint connection between said levers adapted to separate the same, and means for raising the levers simultaneously, substantially as and for the purposes specified. 13th. In a lasting machine, the combination, with the gripper carrier and its gripper shaft, if a sleeve on said shaft, revoluble collars on said shaft and sleeve, pivoted levers engaging said revoluble collars, a toggle joint connection between said levers, a second lever provided with a downward extension pivoted on one of the aforesaid levers, a block mounted in the downward extension, a rod secured to the toggle and passing through said block, a stirrup pivotally mounted in the gripper carrier and slidingly secured on said rod, a spring interposed between the base of the stirrup and toggle, and means for actuating said secondary lever, whereby the gripper shaft and sleeve are raised simultaneously and with different speed, substantially as and for the purposes specified. 14th. In a lasting machine, the combination, with the gripper carrier and its gripper shaft, of a sleeve loosely mounted on said shaft, levers engaging said shaft and sleeve, a toggle joint connection between said levers, a pivoted stirrup, a spring interposed between said stirrup and toggle joint, and means on one of the levers for controlling the movement of the toggle through the medium of the spring, substantially as and for the purposes specified. 15th. In a lasting machine, the combination, with the laterally movable head stock, of a gripper carrier mounted thereon, a rotatable vertically reciprocating gripper shaft mounted in said carrier, jaws on the lower end of said shaft, a sleeve surrounding the upper portion of the jaws and loosely mounted on the shaft, and a toggle joint connection between said shaft and sleeve, substantially as and for the purposes described. 16th. In a lasting machine, the combination, with the frame, of guide ways thereon, a laterally movable head stock on said ways, a gripper carrier pivotally mounted on said head stock, a gripper shaft mounted in said carrier a sleeve on said shaft adapted to encircle the gripping jaws, a toggle joint connection between said shaft and sleeve, and means for rotating the shaft and sleeve, substantially as and for the purposes described. 17th. In a lasting machine, the combination with the guide ways and laterally movable head stock thereon, of a gripper carrier on the head stock, gripper jaws secured to a shaft mounted in the gripper carrier, a retaining finger, and a folding arm adapted to lay the fold for the reception of a tack, substantially as and for the purposes described. 18th. In a lasting machine, the combination, with the guide ways and laterally movable head stock, of a gripper carrier, a gripper shaft mounted therein, means for actuating said parts, a folder arm adapted to lay the fold, said arm being provided with prongs, and spring lips to retain the fold in its position, a track delivering bar arranged to be projected above the folder arm, means for automatically feeding the tacks to said bar, and a plunger for driving the tacks home, substantially as and for the purposes described. 19th. In a lasting machine, the combination, with the guide ways and laterally movable head stock secured thereon, of a gripper carrier, on said head stock, jaws mounted in said gripper carrier, a folder arm consisting of two spring prongs provided with lips arranged to receive the leather and lay the fold, a divided tack delivering bar composed of spring members, tack feeding mechanism, a plunger, a tack pit provided with brushes arranged to brush the tacks into the race way, and suitable mechanism for actuating said parts correlatively, substantially as and for the purposes specified.

No. 39,860. Arc Lamp. (*Lampe à arc.*)

The Atwood Electric Company, Assignees of La Motte, Cyrus Atwood, all of St. Louis, Missouri, U. S. A., 16th August, 1892; 6 years.

Claim.—1st. In an electric light, the combination of an electric motor provided with a brake mechanism, carbons, screws supporting the carbons, shunt coil and wire, armature operated by the shunt coil, and connection consisting of bars and levers between the armature and the brake of the motor, substantially as and for the purpose set forth. 2nd. In an electric light, the combination of the carbons, upper and lower screws carrying the carbons, a motor for turning the screws, and a connection between the screws, consisting of a neck on one of the the screws entering a hole in the other, and a key uniting the parts, substantially as and for the purpose set forth. 3rd. In an electric light, the combination of the carbons, upper and lower screws carrying the carbons, connection between the screws, consisting of a neck on one of the parts entering a hole in the other, a key passing through the parts, one of the parts being slotted to allow the upper screw to be lifted independently of the lower screw, and mechanism for lifting the upper screw, substantially as and for the purpose set forth. 4th. In an electric light, the combination of the carbons, adjusting screws, connection between the carbons and screws, consisting of arms having conical tubes receiving conical heads on the carbons, pins bearing on the ends of the carbons, and levers holding the pins on the carbons, substantially as and for the purpose set forth. 5th. In an electric light, the combination of the carbons, adjusting screws, arms connecting the carbons to the screws, connection between the arms and the carbons, consisting of conical tubes, pins having heads fitting on the ends of the carbons, pivoted levers, catches under which the free ends of the levers engage, and springs between the levers and heads on the pins, substantially as and for the purpose set forth. 6th. In an electric light, the combination of the carbons, guides consisting of rollers, arms on which the rollers are secured, journals on which the arms are secured, projections secured to the journals, springs bearing against the projections, adjusting screws for regulating the tension of the springs, and heads through which the screws pass, substantially as and for the purpose set forth. 7th. In an electric light, the combination of the carbons, adjusting screws carrying the carbons, motor for turning the screws, and a brake mechanism consisting of straps 76 and 81, levers 71 and 74, connecting bars 70, armature 63, shunt coil 61, spring 66, and connection between the spring and the armature, substantially as and for the purpose set forth. 8th. In an electric light, the combination of the carbons, arms 22 and 43, screws 21 and 44, motor having a wheel or drum connected to the screw 44 by worm and wheel, main wire 16, shunt wire 60, shunt coil 61, armature 63, and connection between the armature and the said brake wheel or drum, substantially as and for the purpose set forth. 9th. In an electric light the combination of the carbons, screws supporting the carbons, motor for turning the screws, brake for controlling the motor, and connection between the brake and the brush of the motor, substantially as and for the purpose set forth.

No. 39,861. Arc Lamp. (*Lampe à arc.*)

The Atwood Electric Company, assignees of La Motte, Cyrus Atwood, all of St. Louis, Missouri, U. S. A., 16th August, 1892; 6 years.

Claim.—1st. In an electric arc lamp, the combination of the feed screws, arms connected to the screws and provided with clamps to hold the carbons, a stem on the clamp of the upper carbon passing through a perforation in the upper arm, a pivoted lever connected to the stem, an armature secured to the lever, and a magnet supported by the upper arm, substantially as and for the purpose set forth. 2nd. In an electric arc lamp, the combination of the base, a vertical frame, cross heads movably secured to the frame, and upper and lower arms formed upon the cross heads and provided with clamps for holding the carbons, a stem on the clamp of the upper carbon passing through a perforation in the upper arm, a lever having slot and pin connection with the stem, an armature on the lever, a magnet carried by the upper arm, substantially as and for the purpose set forth. 3rd. In an electric arc lamp, the combination of the carbon screws, a motor for automatically feeding the carbons, a magnet, an armature secured over the magnet by means of a pivoted lever, a connection between the lever and a brake of the motor, and plates operated by said armature, and wires adapted to automatically place the motor into and out of operation, substantially as and for the purpose set forth. 4th. In an electric arc lamp, the combination, with the carbons, of magnets 26 and 39, armatures 34 and 41, and contact plates operated by said armature, and wires, all arranged and operating to automatically regulate the distance between said carbons, substantially as and for the purpose set forth. 5th. In an electric arc lamp, the combination of the carbon feed screws, a motor provided with a brake wheel, a strap passing around the wheel and connected by one end to a bell crank lever, a magnet, a pivoted lever having an armature located over the magnet, and a connection between the said levers, substantially as and for the purpose set forth. 6th. In an electric arc lamp, the combination of the screws for automatically feeding the carbons, a motor, a worm on the shaft of the motor, a wheel on one of the screws and engaging the worm, links secured to the screw, and pins on the links fitting in holes in the wheel, substantially as and for the purpose set forth. 7th. In an electric arc lamp, the combination of the screws, for

feeding the carbon, a motor, a worm on the shaft of a motor, a wheel 56 secured to the lower screw, and engaging the worm, arms 60 secured to the screw, links 59 secured to the arms, and pins 58 on the links, and fitting in holes 57 made in the wheel, said wheel having a groove 61, substantially as and for the purpose set forth.

No. 39,862. Apparatus for Dyeing or Scouring.

(*Machine à dégraisser ou teindre.*)

Joseph Parks Delahunty, Pittston, Pennsylvania, U. S. A., 16th August, 1892; 6 years.

Claim.—1st. In a dyeing or scouring machine, the combination of a dye or liquor tank or vat, with a rotating cylinder partly submerged in the liquid in said tank or vat, and having its internal periphery provided with curved inwardly projecting fingers. 2nd. In a dyeing or scouring machine, the combination of a dye or liquor tank or vat, with a rotating cylinder partly submerged in the liquid in said tank or vat, having its internal periphery provided with curved inwardly projecting fingers arranged in rows transversely across the cylinder, and in which some of the curved fingers are longer than others. 3rd. In a dyeing or scouring machine, the combination of a dye or liquor tank or vat, with a rotating cylinder having a circumference of open work and partly submerged in the liquid in said tank or vat, and having its internal periphery provided with curved inwardly projecting fingers arranged in rows transversely across the cylinder. 4th. In a dyeing or scouring machine, the combination of a dye or liquor tank or vat, with a rotating cylinder partly submerged in the liquid in said tank or vat, and having its internal periphery provided with curved inwardly projecting fingers, and further provided with a large central drum. 5th. In a dyeing or scouring machine, the combination of a dye or liquor tank or vat, with a rotating cylinder partly submerged in the liquid in said tank or vat, and having its internal periphery provided with curved fingers pointing in opposite directions and extending inward. 6th. In a dyeing or scouring machine, the combination of a dye or liquor tank or vat, with a rotating cylinder partly submerged in the liquid in said tank or vat, and having its internal periphery provided with a series of rows of curved fingers projecting inward, and in which a portion of the fingers of each row point in one direction and the remainder in the opposite direction. 7th. In a dyeing or scouring machine, the combination of a dye or liquor tank or vat, with a rotating cylinder partly submerged in the liquid in said tank or vat and having its internal periphery provided with a series of rows of curved fingers projecting inward, and in which a portion of the fingers of each row point in one direction, and the remainder in the opposite direction, and power mechanism for rotating said cylinder alternately in opposite directions. 8th. In a dyeing or scouring machine, the combination of a dye or liquor tank or vat, with a rotating cylinder partly submerged in the liquid in said tank or vat, and having a large central drum, and its internal periphery provided with curved fingers pointing in opposite directions and extending inwardly, and power mechanism for rotating said cylinder alternately in opposite directions. 9th. A dye vat, in combination, with a rotating cylinder having its periphery formed of open work and having inwardly extending projections, and power mechanism for automatically rotating said cylinder alternately in opposite directions. 10th. In a dyeing machine the vat or tank, in combination, with a cylinder formed of two solid sides with heavy cross bars D, upon the inner faces whereof is a covering of perforated sheet metal *d*, the said cylinder having inwardly projecting fingers, and a central supporting shaft F. 11th. In a dyeing machine, the vat or tank, in combination, with a cylinder formed of two solid sides with heavy cross bars D, upon the inner faces whereof is a covering of perforated sheet metal *d*, the said cylinder having inwardly projecting fingers, a central supporting shaft F, and a large inclosing central drum G. 12th. In a dyeing or scouring machine, the combination of a tank or vat to hold the dye or other liquor, a rotating cage or cylinder of large diameter partly submerged in the liquor in the vat and having its surface furnished with open work to permit of the passage of the liquor and air, and also having at its internal circumferential surface fingers or projections pointing internally in opposite directions.

No. 39,863. Polishing Wheel. (*Roue à polir.*)

Alvin Colburn and the Firm of Yates Bros., Shattuck & Co., all of Lynn, Massachusetts, U. S. A., 16th August, 1892; 6 years.

Claim.—In a polishing wheel, composed of two circular pieces with bevelled edges clamped together and a rim comprising a metallic ring covered with fibrous pieces coated with an abrasive substance and mounted upon and clamped between the bevelled edges of the circular pieces, substantially as described, the fibrous piece I, formed with an angular V-shaped edge 12, and having holes K, and slits L cut therein to receive the metallic ring, said slits being cut at right angles to the polishing face of the rim and radial to the wheel, so that when clamped between the bevelled edges B and B', the slits will be kept closed thereby, substantially as specified.

No. 39,864. Receiver for Exhaust Steam.

(*Récepteur d'évacuation de vapeur.*)

Thomas Foulds and William Graeber, both of Treverton, Pennsylvania, U. S. A., 16th August, 1892; 6 years.

Claim.—The combination, with the steam cylinder and steam chest, of the steam pipe to the steam chest, the exhaust pipe F there-

from, the receiver G, receiving the exhaust steam from the pipe F, the pipe K from the receiver opposite to and in the same line with, but on a higher level than the pipe F, the cocks L and M in said pipe, the coupling H on the end of the pipe K, and having nozzle within the same, and the pipes I and J, connected to said coupling upon opposite sides of the nozzle, substantially as specified.

No. 39,865. Dress Shield. (Renfort de vêtement.)

Ella N. Gaillard, New York, State of New York, and William X. Stevens, Washington, District of Columbia, both in U. S. A., 16th August, 1892; 6 years.

Claim.—1st. In a dress shield, a supporter and gold beater's skin attached thereto with the resisting side outward, substantially as described. 2nd. In a dress shield, a cushion of absorbent material, and gold beater's skin attached thereto with the resisting side next to the cushion, substantially as described.

No. 39,866. Telephone and other Electrical Exchange. (Téléphone et autre échange électrique.)

The Strowger Automatic Telephone Exchange, Assignees of Almon B. Strowger, all of Chicago, Illinois, U.S.A., 16th August, 1892; 6 years.

Claim.—1st. In an automatic electrical exchange, the combination, with wires, of a switch adapted to be placed into electrical communication with any one of said wires, the contact point of which switch occupies a different plane when moving, from what it does when at rest, as substantially set forth. 2nd. In an automatic electrical exchange, the combination, with wires, the ends of which are arranged in curved rows, of a switch pivotally secured at the axis of said rows, and adapted to be placed in the electrical connection with any one of said wires, the contact point of which occupies a different plane when moving from what it does when at rest, as substantially set forth. 3rd. In an automatic electrical exchange, the combination, with wires, the ends of which are arranged in the same plane, of a switch adapted to be placed in electrical connection with any one of said wires, the contact point of which switch occupies a different plane when moving from what it does when at rest, as substantially set forth. 4th. In an automatic electrical exchange, the combination, with wires, the ends of which are arranged in a horizontal plane, of a switch adapted to be placed in electrical connection with any one of said wires, the contact point of which is capable of contacting the ends of the wires when at rest, substantially as set forth. 5th. In an automatic electrical exchange, the combination, with wires, the ends of which are arranged in concentric rows in a horizontal plane, of a switch movably secured at the axis of said rows, the contact point of which switch is movable radially and concentrically relatively to the axis of the rows of wires, and occupies a plane above the ends of the wires when moving, and also occupies the same plane of the wires when at rest, as substantially set forth. 6th. In an automatic electrical exchange, the combination, with a series of wires, of a switch adapted to be placed in electrical connection with any of the wires aforesaid, and an adjustable stop for limiting the return movement of said switch after said connection has been made and broken, as substantially set forth. 7th. In an automatic electrical exchange, the combination, with a series of wires, the ends of which are arranged in concentric rows or circles, of a shaft journaled at the axis of the rows of wires, a switch secured thereto, the contact point of which is movable radially and concentrically to the axis of the said shaft, a rod movable longitudinally to the axis of the said shaft connected with the contact point of the said switch, and an adjustable stop at the end of the rod for limiting the return movement of the contact point substantially as set forth. 8th. In an automatic electrical exchange, the combination, with a series of wires, of a switch adapted to be placed in electrical connection with any one of said wires, the contact point of which switch occupies a different plane when moving from what it does when at rest, a series of magnets, one of which operates the mechanism for moving the contact point from one plane to the other and the remaining magnets operate mechanism for moving the point in the different planes. All of said magnets have a common ground wire, whereby the contact point is always moved from one plane to the other whenever the switch is operated, substantially as set forth. 9th. In an automatic electrical exchange, the combination, with a series of wires, the ends of which are arranged in concentric rows or circles, of a switch movably secured at the centre of said rows, the contact point of which is movable radially and concentrically relatively to the axis of said rows, ratchet-wheels for placing said switch in contact with any one of the ends of said wires, an electrically operated lever for each wheel, one end of which lever is provided with a pawl and means for positively disconnecting said pawl from its ratchet-wheel when at rest, substantially as set forth. 10th. In an automatic electrical exchange, the combination, with a series of wires, the ends of which are arranged in concentric rows or circles, if a switch movably secured at the centre of said rows, the contact point of which is movable radially and concentrically relatively to the axis of said rows, ratchet wheel for placing said switch in contact with any one of the ends of said wires, an electrically operated lever for each wheel, one of which levers is provided with a pawl and adjustable mechanism for disconnecting said pawl from its ratchet wheel when at rest substantially as set forth. 11th. In an automatic electrical exchange, the combination, with a series of wires, the ends of which are arranged

in concentric rows or circles, of a switch movably secured at the centre of said rows, the contact point of which switch is movable radially and concentrically relatively to the axis of said rows, ratchet wheels for placing said switch in contact with any one of the said wires, an electrically operated lever for each wheel, one end of which lever is provided with a pawl, and means for limiting the forward movement of said pawl and for forcing it toward the ratchet wheel, whereby it acts as a stop for the ratchet wheel at the end of the thrust or forward movement of the pawl, substantially as set forth. 12th. In an automatic electrical exchange, the combination, with wires the ends of which are arranged in concentric rows or circles, of a switch movably secured at the centre of said rows, the contact point of which is movable radially and concentrically relatively to the axis of said rows, ratchet wheels for placing said switch in contact with any one of the ends of said wires, an electrically operated lever for each wheel, one end of which lever is provided with a pawl and adjustable mechanism for limiting the forward movement of said pawl, substantially as set forth. 13th. In an automatic electrical exchange, the combination, with an insulated table having a series of wires secured thereto, of a zero plate insulatingly secured to said table, and a switch the contact point of which rests upon and is movable toward and from said plate, substantially as set forth. 14th. In an automatic electrical exchange, the combination, with an insulated table having a series of wires secured thereto, of a switch the contact point of which is adapted to be placed in electrical connection with any one of said wires, said table being concentrically adjustable relatively to the switch, substantially as set forth. 15th. In an automatic electrical exchange, the combination, with a series of wires, the ends of which are arranged in concentric rows or circles, a shaft journaled at the centre of said rows, a switch secured to said shaft, means electrically actuated for rotating the shaft in one direction, a fusee on the said shaft for rotating the shaft in the opposite direction, and a spring actuated chain secured to and adapted to run on and off said fusee, substantially in a line with angle of the pitch of the spire of the said fusee, substantially as set forth. 16th. In an automatic electrical exchange, the combination, with a series of wires, the ends of which are arranged in concentric rows or circles, of a shaft journaled at the axis of the rows, a switch secured to said shaft, the contact point of which is adapted to be placed in electrical connection with any one of said wires, means for rotating said shaft in one direction, and an adjustable stop for limiting the movement of the shaft in the opposite direction, substantially as set forth. 17th. In an automatic electrical exchange, the combination of a base, a switch table secured thereto, a series of wires insulatingly secured to the table, an arm movable over the table, a contact head in said arm the point of which is adapted to be placed in connection with any one of the wires, and means for the arm and the head, and establishing electrical communication with said wires, substantially as set forth. 18th. In an automatic electrical exchange, the combination of a base, a switch table secured thereto, a series of wires insulatingly secured to the table in concentric circles, an arm pivotally secured to the centre of said rows, a contact head on the arm, the point of which is adapted to be placed in electrical communication with any one of said wires, a lever for moving the head upon the arm, and means for swinging the arm upon its pivot and for operating the lever, substantially as set forth. 19th. In an automatic electrical exchange, the combination with a base, of an annular table secured thereto, a series of wires secured to the table in concentric circles, a longitudinally movable shaft journaled at the centre of the said rows, an arm secured to said shaft, a contact head movably mounted on the arm, and means for rotating the shaft on its axis, and for moving it longitudinally, and for moving the head upon the arm, substantially as set forth. 20th. In an automatic electrical exchange the combination with the base of an annular table secured thereto, a series of wires secured to the table in concentric rows, a longitudinally movable shaft journaled at the centre of said rows, the lower part of which is hollow, an arm secured to the shaft, a contact head movably mounted on the arm, a rod within the lower end of the shaft, and means for connecting the head and the rod, and for rotating the shaft and moving it longitudinally, as substantially set forth. 21st. In an automatic electrical exchange, the combination, with a base of an annular table secured thereto, a series of wires secured to the table in concentric rows, a longitudinally movable shaft journaled at the centre of the said rows, the lower end of which is hollow, and the upper end is perforated, two arms secured to said shaft, a contact head movably mounted on one arm, a spring through the perforation of the shaft, one end of which is secured to the head upon the one arm, and the other end is secured to the other arm, and mechanism for rotating the shaft and for moving the shaft and the rod longitudinally, substantially as set forth. 22nd. In an automatic electrical exchange, the combination, with a base of an annular table secured thereto, a series of wires secured to the table in concentric rows, a longitudinally movable shaft journaled at the centre of said rows, the lower end of which is hollow, the upper end is perforated, and the intermediate portion is provided with a laterally projecting lug, two arms secured to the shaft, a contact head on one of the arms, a spring through the perforation of the shaft, one end of which is connected with the head and the other one with the other arm, a longitudinally movable rod within the lower end of the shaft, an elbow lever on the lug, one arm of which is connected with the head, and the other arm with the rod, and means for rotating the shaft and for moving it and the rod longitudinally, substantially as set forth. 23rd. In an automatic electrical exchange, the

combination, with a base of a table secured thereto, a series of wires secured to the table in concentric rows, a shaft journaled at the centre of the row, the upper end of which is provided with a switch, a ratchet wheel secured to the lower portion of the shaft provided with a stop, a plate adjustably secured to the base and provided with a stop arm, an actuating pawl for rotating the shaft in one direction, and means for rotating it in the other direction and for operating the switch, substantially as set forth. 24th. In an automatic electrical exchange, the combination, with a base of a table secured thereto, a series of wires secured to the table in concentric rows, a shaft journaled at the centre of the rows, the upper end of which is provided with a switch, a ratchet wheel at the lower portion, a stop on the wheel, a slotted plate adjustably secured to the base provided with a stop arm, an electrically operated pawl for engaging with the ratchet wheel, and means for rotating the shaft and operating the switch, substantially as set forth. 25th. In an automatic electrical exchange, the combination, with the base of a table secured thereto, a series of wires in the table in concentric rows, a shaft journaled at the centre of the rows, the upper end of which is provided with a switch, a bracket secured to the base, a lever pivotally secured to the bracket, one end of which supports the lever end of the shaft, and other end is provided with an armature and magnet for operating said lever, and means for rotating the shaft and the switch, substantially as set forth. 26th. In an automatic electrical exchange, the combination with a base of a table secured thereto, a series of wires in the table in concentric rows, a shaft journaled at the centre of said rows, the upper end of which is provided with a switch and the lower end is hollow, a rod in the hollow of the shaft, the upper end of which is connected with the switch and the lower end is provided with a rack, mechanism for engaging with the rack and for rotating the shaft, substantially as set forth. 27th. In an automatic electrical exchange, the combination with a base of a table secured thereto, a series of wires in the table in concentric rows, a shaft journaled at the centre of the rows, the upper end of which is provided with a switch, and the lower end is hollow, a rod in the hollow of the shaft, the upper end of which is connected with the switch and the lower end is provided with a rack, a pin adjacent thereto, a ratchet wheel on the pin, a pinion secured to the wheel and engaging with the rack, an operating pawl for engaging with the ratchet-wheel, and means for operating the shaft and switch as substantially as described. 28th. In an automatic electrical exchange, the combination with a base of a table secured thereto, a series of wires secured to the table in concentric rows, a shaft journaled at the centre of the rows, the upper end of which is provided with a switch, and the lower portion is provided with a large and small ratchet wheel and a spiral pulley, one tooth of the small wheel being equal to ten of the large wheels, operating pawls for engaging with the ratchet wheels, and a spiral spring attached to the spiral pulley for returning the shaft to its original position, substantially as set forth and described.

No. 39,867. Methods of Manufacturing Steel and Iron. (*Méthode de fabrication de l'acier et du fer.*)

James Harding, Lancaster, New York, and Michael Robert Conley, Brooklyn, both of New York State, U.S.A., 17th August 1892: 6 years.

Claim.—1st. A retort furnace for deoxidizing ore provided with an auxiliary chamber at its rear, having inlet and outlet openings substantially as described and shown, and for the purpose set forth. 2nd. In a retort furnace for deoxidizing ore, provided with an auxiliary chamber as described, the retorts T, provided with the filling chute a^2 , with cover, the outlet pipe C, from inlet M, and a rear opening, substantially as and for the purpose set forth. 3rd. In a retort furnace for deoxidizing ore, constructed in connection with an auxiliary chamber as described, and rearwardly open retorts T, the gates or sliding plates T², substantially as and for the purpose set forth and described. 4th. In a retort furnace for deoxidizing ore constructed with an auxiliary chamber, as described, and provided with the rearwardly open retorts T, the treating by heat of the said ore, within the said retorts by charging it with hydro carbon gas, and stirring it by manual labour, substantially in the manner described and for the purpose set forth. 5th. In a retort furnace for deoxidizing ore constructed with an auxiliary chamber, as described, and provided with retorts open at the rear, the flues A², leading from the combustion chamber a^2 , under and around the auxiliary chamber, substantially as and for the purpose set forth. 6th. In a retort furnace for deoxidizing ore, with auxiliary chamber and retorts as described, transferring the deoxidized ore from the retorts into an auxiliary chamber, substantially in the manner described and for the purpose set forth. 7th. In a retort furnace for deoxidizing ore, with an auxiliary chamber and retorts as described, storing the deoxidized ore in the auxiliary chamber and afterwards conveying it to the melting furnace by means of the conveying vessel D, substantially as shown and for the purpose set forth. 8th. In a retort furnace for deoxidizing ore, with an auxiliary chamber and retorts as described, storing the deoxidized ore in the auxiliary chamber and afterwards conveying it to the melting furnace by means of the recessed tongs or grappling shovel, substantially as and in the manner described and as shown and for the purpose set forth. 9th. The process of treating granular iron or

other ore to relieve it of impurities consisting in subjecting it to a heat in retorts as described, and when sufficiently heated subjecting it to agitation and passing through it hydrogen or other suitable gas for the purpose of dephosphorizing, deoxidizing and desulphurizing the ore substantially as specified. 10th. In a new article of manufacture, constructing retorts of an apparatus for deoxidizing iron ore entirely of fire-clay or fire-bricks, substantially as and for the purpose set forth and described. 11th. In a retort furnace for deoxidizing ore, the method or system of treating the same within a retort containing revolving stirrers alternately operated by suitable clutch mechanism; said retort is charged with hydrocarbon gas and heated by means of coal, wood or gas, substantially as set forth. 12th. In a retort furnace for deoxidizing ore, the method or system of treating the same within a retort with revolving stirrers; said retort being charged with hydrocarbon gas and the gaseous product therefrom utilized for heating the same, substantially as set forth. 13th. In a retort furnace for deoxidizing ore, the method or system of treating the same within a retort heated to about fifteen hundred degrees Fahrenheit; said retort being charged with hydrocarbon gas and agitated by suitable revolving stirrers placed within the same, substantially as described and for the purpose set forth. 14th. In a retort furnace for deoxidizing ore, the method or system of treating the same within heated retorts charged with hydrocarbon gas, stirred mechanically or by manual labour, and conveying the purified ore to a molten furnace without submitting it to atmospheric action, substantially as described and for the purpose set forth. 15th. In a retort furnace for deoxidizing ore, the method or system of treating the same within a retort charged with hydrocarbon gas stirred by manual labour and heated by coal, wood, gas or the gaseous products from the said retort, substantially as and for the purpose set forth. 16th. The improvement in deoxidizing ore, consisting in heating the same in a retort closed to the atmosphere, and circulating through it a hydrocarbon gas, substantially as described and for the purpose set forth. 17th. The improvement in deoxidizing ore, consisting in heating and agitating the same within a closed vessel or retort, and circulating through it a hydrocarbon gas, substantially as described and for the purpose set forth. 18th. The improvement in deoxidizing ore, consisting in heating the same, and circulating through it a hydrocarbon gas, and carrying off the gas resulting from the treatment of the ore to a furnace, whereby the ore is heated, substantially as described and for the purpose set forth. 19th. The combination of a retort for deoxidizing ore, a stirrer arranged within the retort and a gas pipe leading thereto, substantially as described and for the purpose set forth. 20th. The combination of a retort for deoxidizing ore, a stirrer arranged within the retort, a gas pipe leading thereto at one point, and a gas pipe leading therefrom at another point, substantially as described and for the purpose set forth. 21st. The process of manufacturing iron, consisting in deoxidizing iron ore, in storing the ore after deoxidization in a closed receiving vessel to protect it against oxidation from the air, and in conveying the deoxidized ore from the said receiving vessel or chamber to and into the smelting furnace, by means of the vessel D, substantially as described and for the purpose set forth. 22nd. The combination of the retorts, the chamber through which they extend, having portions of the side walls downwardly inclined and converging, two furnaces below the chamber and an intermediate bridge wall, substantially as described and for the purpose set forth. 23rd. The combination of a retort, a stirrer arranged within the same, a worm wheel upon the shaft of the stirrer, a driving shaft, a worm on the driving shaft, a clutch for engaging the worm with and disengaging it from the driving shaft, and a lever for operating the clutch, substantially as specified and for the purposes described.

No. 39,868. Knitting Machine. (*Machine à tricoter.*)

Arthur Wrightson, Philadelphia, Pennsylvania, and Benjamin Holt, Camden, New Jersey, both of U. S. A., 17th August, 1892; 6 years.

Claim.—1st. The combination in a knitting machine, of the needle carrier and its needles, a cam box having lifting and drawing down cams for said needles, levers for actuating said lifting cams, slides provided with cams for operating said levers, and means for moving said slides towards and from each other, so as to cause the lifting cams to be rendered operative and inoperative at different points in the traverse of the cam box, substantially as specified. 2nd. The combination of the needle carrier and its needles, the cam box having lifting and drawing down cams, levers for actuating both the lifting and drawing down cams, slides having cams for acting upon said levers to move them into one or other of their extreme positions, and means for moving said slides towards and from each other so as to effect the movement of the lifting and drawing down cams to operative and inoperative positions at different points in the traverse of the cam box, substantially as specified. 3rd. The combination of the cam slides of the machine, a rack wheel, and gearing connecting said rack wheel to said cam slides, with operating devices for the rack wheel, comprising a carrier having a duplex pawl, means for vibrating said carrier, a tripper block for acting on the pawl, and bars actuated by the cam slides to shift the pawl at the ends of the movement of said cam slides, substantially as specified. 4th. The combination of the cylinder and cam box of the machine, each having a spur wheel or rack, the driving shaft having two sleeves, a clutch whereby either sleeve may be connected to the shaft or released therefrom, gearing whereby the movement of one

sleeve is transmitted to the needle cylinder, and gear wheel, a crank pin, connecting rod and vibrating toothed wheel whereby the movement of the other sleeve is transmitted to the cam box, substantially as specified. 5th. The combination of the needle cylinder and its needles, cam box and its cams, the cam operating levers, and cams for operating the latter, said lever operating cams occupying such relation to the needles of the carrier, that the end needle of the acting set will be lifted to the tuck point before being dropped out of action and on coming into action, substantially as specified.

No. 39,869. Band Saw Mill.

(*Sciérie à lame sans fin.*)

Albert Cunningham, Milwaukee, Wisconsin, U.S.A., 17th August, 1892; 6 years.

Claim.—1st. In a band saw mill, the combination, with the upper band wheel and its shaft, of bearings for said shaft, pivotally connected at one side thereof with a suitable support or supports, so as to permit of a sensitive yielding movement of said shaft and to avoid the friction of sliding bearings, whereby the proper tension of the saw is maintained, substantially as and for the purposes set forth. 2nd. In a band saw mill, the combination, with the upper band wheel and its shaft, of a yoke provided with bearings for said band wheel, pivoted horizontally at one side of said shaft to a suitable support or supports, and having a yielding connection with said support or supports, whereby the upper wheel is allowed a limited vertical movement and the proper tension of the saw is maintained, substantially as and for the purposes set forth. 3rd. In a band saw mill, the combination, with the upper band wheel and its shaft, of a vertically movable slide or slides and a yoke provided with bearings for said shaft, and pivoted horizontally to one side thereof to said slide or slides, and having a yielding connection therewith, whereby the upper band wheel is allowed a limited vertical movement and the proper tension of the saw is maintained, substantially as and for the purposes set forth. 4th. In a band saw mill, the combination, with the upper band wheel and its shaft, of a vertically movable slide or slides, bearings for said shaft, pivotally connected horizontally to one side thereof to said slide or slides, so as to permit of a limited vertical movement of said shaft independently of the movement of said slide or slides, and a yielding connection between said bearings and said slide or slides, whereby the proper tension of the saw is maintained, substantially as and for the purposes set forth. 5th. In a band saw mill, the combination, with the upper band wheel and its shaft, of a yoke provided with bearings for said shaft and pivoted horizontally at one side thereof to a suitable support or supports, and having a yielding connection with said support or supports, whereby the upper band wheel is allowed a limited vertical movement and the proper tension of the saw is maintained, and means of adjusting said shaft, substantially as and for the purposes set forth. 6th. In a band saw mill, the combination, with the upper band wheel and its shaft, of a yoke pivoted horizontally at one side to a suitable support and provided with bearings for said shaft, one of which has a universal joint connection with said yoke and the other being capable of vertical and horizontal adjustment with reference to said yoke, and a yielding connection between said yoke and said support, substantially as and for the purposes set forth. 7th. In a band saw mill, the combination, with the upper band wheel and its shaft, of a yoke provided with suitable bearings for said shaft and with laterally projecting arms, which are pivoted horizontally to one side of said shaft to a suitable support, and a yielding connection between said yoke and said support, whereby a limited vertical movement is allowed to said band-wheel, and the proper tension of the saw is maintained, substantially as and for the purposes set forth. 8th. In a band-saw mill, the combination, with the upper band-wheel and its shaft, of two supporting standards, one in front and the other behind said band-wheel, a U-shaped yoke provided at its upper ends with suitable bearings for said shaft and with laterally projecting arms, which are pivotally connected with said standards, and a yielding connection between said yoke and a suitable support, substantially as and for the purposes set forth. 9th. In a band-saw mill, the combination, with the upper band-wheel and its shaft, of two supporting standards, one in front and the other behind said band-wheel, and each provided with a vertically movable slide, means for raising and lowering said slides, a yoke provided with suitable bearings for said shaft and with laterally projecting arms, which are pivoted to said slides horizontally to one side of said shaft, and a yielding connection between said yoke and said slides, whereby the proper tension of the saw is maintained, substantially as and for the purposes set forth. 10th. In a band-saw mill, the combination, with the upper band-wheel and its shaft, of two supporting standards, each provided with a vertically movable slide, one in front of and the other behind said band-wheel, a U-shaped yoke provided at its upper ends with suitable bearings for said shaft, and with lateral projections, which are pivoted to said slides horizontally to one side of said shaft, a horizontal rock-shaft journaled in said slides and provided with a weighted lever, and a crank arm which is connected with said yoke, substantially as and for the purposes set forth. 11th. In a bandsaw mill, the combination, with the upper band-wheel and its shaft, of two supporting standards, one located in front of and the other behind said band-wheels and each provided with a vertically movable slide, a U-shaped yoke provided at its upper ends with suitable bearings for said shaft and with lateral projections,

which are pivoted to said slides horizontally to one side of said shaft, a yielding connection between said yoke and slides, whereby a limited vertical movement is allowed to said band-wheel and the proper tension of the saw is maintained, and means for adjusting one end of said shaft vertically and horizontally, substantially as and for the purposes set forth. 12. In a band-saw mill, the combination, with the band-wheels and saw, of a supporting frame consisting of a base plate, a pedestal mounted thereon to one side of the band-wheel shafts, supporting standards mounted upon said pedestal, one in front of and the other behind the upper band-wheel, and suitable bearings for the upper band-wheel shaft, pivotally connected horizontally to one side thereof with said standards, substantially as and for the purposes set forth. 13th. In a band-saw mill, a supporting frame consisting of the base or bed plate, a pedestal mounted thereon, two supporting standards mounted on said pedestal, and bearings for the upper band wheel shaft, connected with and projecting horizontally over said standards, whereby a clear space between the working side of the saw and upper band wheel supports is obtained substantially as and for the purposes set forth. 14th. In a band saw mill, a supporting frame consisting of a base or bed plate, a pedestal mounted thereon, two supporting standards for carrying the upper band wheel mounted upon said pedestal, and depending brackets provided with bearings for the lower band wheel shaft, one attached to the said pedestal and the other to the said base plate, and bearings for the upper band wheel shaft, connected with said standards horizontally to one side of said upper band wheel shaft, substantially as and for the purpose set forth. 15th. In a band saw mill, a supporting frame consisting of a base plate, a pedestal mounted thereon, two standards carrying the upper band wheel mounted upon said pedestal, bearings for the upper band wheel shaft, connected horizontally to one side thereof with said standards, and two depending brackets provided with bearings for the lower band wheel shaft, one attached to said base plate and the other to said pedestal, the several parts of said supporting frame being reversible, whereby they are adapted either to a right or a left hand mill, substantially as and for the purpose set forth. 16th. In a band saw mill, the combination, with the upper guide, of an overhanging bracket located behind the upper band wheel and provided at its overhanging end with a vertical way, a slide movable thereon, and a short depending arm adjustably attached to said slide and carrying guide at its lower end, substantially as and for the purposes set forth. 17th. In a band saw mill, the combination with the band wheels and upper guide, of a supporting frame consisting of a pedestal located on the opposite side of the centre of the mill from the working side of the saw, two standards carrying the bearings for the upper band wheel mounted upon said pedestal, one in front of and the other behind said band wheel, and an overhanging bracket mounted upon said pedestal behind the upper band wheel and provided at its overhanging end with a vertically movable slide, to which said guide is attached, substantially as and for the purposes set forth. 18th. In a band saw mill, the combination, with the upper guide, of a supporting pedestal set to one side of the centre of the mill, an overhanging bracket mounted upon said pedestal and provided at its overhanging end with a vertically movable slide, and a short depending arm attached to said slide and, carrying at its outer end said upper guide, substantially as and for the purposes set forth. 19th. In a band saw mill, the combination, with a vertically movable yoke or support carrying the upper band wheel, of a lever connected therewith and provided with a weight and a spring connection between said weight and lever, whereby the inertia of said weight is gradually overcome when the upper band wheel is suddenly depressed, substantially as and for the purposes set forth. 20th. In a band saw mill, the combination, with the upper band wheel and its shaft, of a pedestal set to one side of the centre of the mill, two standards mounted thereon, one in front of and the other behind said band wheel, and each provided with a vertically movable slide, vertical screws having fixed bearings at their lower ends and working with nuts in said slides, a horizontal shaft geared with said screws and means for turning the same, a yoke provided with suitable bearings for said band wheel shaft, and with lateral projections, which are pivoted horizontally to one side of said band wheel shaft to said slides, substantially as and for the purposes set forth. 21st. In a band saw mill, the combination, with the upper band wheel and its shaft, of a support provided with a bearing for said shaft and pivoted horizontally to one side thereof to the frame of the machine, so as to allow a limited vertical movement of said bearing and a yielding connection between said support and frame, whereby the proper tension of the saw is maintained, substantially as and for the purposes set forth. 22nd. In a band saw mill, the combination, with the upper band wheel and its shaft, of a suitable supporting frame, a yoke provided with bearings of said shaft, and laterally projecting arms, with inverted cup shaped recesses set over upturned projections on said frame, to which said arms are pivoted, and a yielding connection between said yoke and frame, substantially as and for the purposes set forth. 23rd. In a band saw mill, the combination, with the upper band wheel and its shaft, of bearings for said shaft, pivotally connected with a suitable support or supports, so as to permit of a sensitive yielding movement of said shaft, whereby the proper tension of the saw is maintained, and a connection by which said bearings are compelled to move together, and the proper alignment of said shaft is maintained, substantially as and for the purposes set forth.

No. 39,870. Milling Machine. (Machine à condaonner.)

Charles Henry Trask, Lynn, Massachusetts, U.S.A., 17th August, 1892; 6 years.

Claim.—1st. The combination, in a milling machine, of one or more gangs of milling tools, one or more rotating arbors supporting a gang of tool blanks and presenting them to the milling tool, support for the arbor or arbors, and a cam for providing the arbors with vertical movements in relation to the milling tools or cutters, substantially as described. 2nd. The combination, in a milling machine, of one or more gangs of milling tools, one or more rotating arbors supporting a gang of tool blanks and presenting them to the milling tool, support for the arbor or arbors, a cam for providing the arbors with vertical movements in relation to the milling tools or cutters, and an adjusting screw or device for moving the arbor support horizontally in relation to the milling tools or cutters, substantially as described. 3rd. The combination, in a milling machine, of one or more gangs of milling tools, one or more rotating arbors supporting a gang of tool blanks and presenting them to the milling tool, support for the arbor or arbors, a cam for providing the arbors with vertical movements in relation to the milling tools or cutters, and vertically adjustable arms interposed between the clamp and the arbor support whereby the time of the action of the cam is varied, substantially as described. 4th. The combination, in a milling machine of one or more gangs of milling tools, one or more rotating arbors supporting a gang of tool blanks and presenting them to the milling tool, support for the arbor or arbors, a cam for providing the arbors with vertical movements in relation to the milling tools or cutters, and adjusting wedges or devices interposed between the arms or connections bearing immediately upon the cam, and an arbor support whereby the support is made vertically adjustable without moving the supports or arms which bear on the cam, substantially as described. 5th. The combination, of one or more gangs of milling tools with the oil receptacle B, having the holes c^1 , substantially as described. 6th. The combination, of one or more gangs of milling tools or cutters, one or more rotary arbors for supporting a gang of tool blanks and presenting them to the milling tools or cutters, the arbor support B, having a horizontal movement and also a vertical movement in relation to the milling tools, substantially as described. 7th. The combination, in a milling machine of one or more gangs of milling tools or cutters, one or more rotary arbors for presenting one or more gangs or groups of tool blanks to the milling tools, the arbor support, cams with tapering or cone surfaces for providing it with a vertical movement through interposed supporting mechanism, and said mechanism comprising a vertically movable table having horizontally movable arms having ends of the same inclination as the cams, a bed carried by the table and movable vertically in relation thereto by adjusting wedges, and the arbor support mounted upon the bed and horizontally movable thereon by means of an adjusting screw, substantially as described. 8th. The combination, in a milling machine, of the milling tool or tools, the arbor support having vertical movements, one or more arbors carried thereby, each of which has at one end a worm wheel, a worm to engage said worm wheel or wheels, a gear b^{14} , mounted upon the cam shaft, and a positively actuated gear b^{15} , to engage the gear b^{14} , substantially as and for the purposes specified. 9th. The combination, of the pinion a^8 , upon the shaft b^{16} , the gear a^9 , the gears a^{10} , a^{11} , the shafts a^1 , a^2 , a^3 , carrying gangs of milling tools, the cams C, C^1 , shaped as specified and mounted upon the shaft b^{16} , the worm wheel b^{17} , upon said shaft engaged by a worm on the shaft b^{19} , the arbors mounted upon the arbor support B, their worm wheels, the worm shaft b^{12} , the worm of which engages said worm wheels, the gear b^{14} , on the worm shaft, and the gear b^{15} , on the cam shaft b^{16} , substantially as described.

No. 39,871. Process of and Apparatus for Making Solid Link Chains. (Procédé et appareil pour la fabrication des anneaux de chaînes solides.)

Julius Kinder, Brooklyn, New York, U. S. A., 17th August, 1892; 6 years.

Claim.—1st. The process of making a solid link chain, consisting in taking a rod of metal and first indenting it on opposite sides and also in directions at right angles to each other, to form portions on the bar of the approximate shape of chain links, afterwards opening out, by pressing aside, the metal between the ends of said link shaped portions and at the sides of said ends and further shaping said link shaped portion into the form of links and ultimately severing said link shaped portions from each other, substantially as specified. 2nd. The process of making a solid link chain, consisting in taking a rod of metal and first indenting it upon opposite sides, and also in directions at right angles to each other to form portions on the bar of the approximate shape of chain links, afterwards forming openings in the metal between the ends of said link shaped portions and at the sides of said ends and further shaping said link shaped portions into the form of links, and next severing said link shaped portions from each other, by forming incisions in the metal between said link shaped portions and forcing said link shaped portions apart, substantially as specified. 3rd. The process of making a solid link chain, consisting in taking a rod of metal and first indenting it upon opposite sides, and also in directions at right angles to each other to form portions on the bar of the approximate shape of chain

links, afterwards forming openings in the metal between the ends of said link shaped portions, and at the sides of said ends and further shaping said link shaped portions into the form of links, next severing said link shaped portions from each other, the links being ultimately forced apart between their adjacent ends after they have been pressed toward each other during the operation of severing, substantially as specified. 4th. The process of forming a solid link chain, consisting in taking a rod of metal and first indenting it on opposite sides and also in directions at right angles to each other to form portions on the bar of the approximate shape of chain links, afterwards opening out, by pressing aside, the metal between the ends of said link shaped portions and at the sides of said ends, and further shaping said link shaped portions into the form of links, next severing said link shaped portions from each other upon the inner sides of said ends, the links being ultimately forced apart between their adjacent ends, after they have been pressed toward each other during the operation of severing, all substantially as described, whereby the several operations are performed without waste of material. 5th. The process of forming a solid link chain, consisting in taking a bar of metal, and during the operation of forming it periodically subjecting it to the process of annealing, substantially as specified. 6th. The process of forming a solid link chain, consisting in taking a bar of metal and alternately operating upon it to form it, and subjecting it to the process of annealing, substantially as specified. 7th. The process of forming a solid link chain, consisting in taking a bar of metal and during the operation of forming it reciprocating it to and fro, substantially as specified. 8th. The process of forming a solid link chain, consisting in taking a bar of metal and during the operation of forming it both reciprocating it and progressing it, substantially as specified. 9th. The combination, with intermittently operating apparatus for moving a rod of metal longitudinally, of a series of intermittently operating dies, openers, cutters and separators adapted to indent, open and cut, and separate the cut portions of said metal from each other, substantially as specified, whereby the said rod is converted into a solid link chain without waste of material. 10th. The combination, with intermittently operating apparatus for moving a rod of metal along, of a series of intermittently operating dies for forming indentations in the rod opposite each other and also in directions at right angles to each other to form portions on the bar in the approximate shape of chain links, intermittently operating openers acting on the metal between the ends of said link shaped portions and at the sides of said ends to press said metal aside, and cutters for severing the links from each other, substantially as specified. 11th. The combination, with intermittently operating apparatus for moving a rod of metal along, of a series of intermittently operating dies for forming indentations in the rod opposite each other, and also in directions at right angles to each other to form portions on the bar in the approximate shape of chain links, intermittently operating openers acting on the metal between the ends of said link shaped portions, and at the sides of said ends, and cutters operating to form incisions between the links, and force said links apart to sever them from each other, substantially as specified. 12th. The combination, with intermittently operating apparatus for moving a rod of metal along, of a series of intermittently operating dies for forming indentations in the rod opposite each other, and also in directions at right angles to each other to form portions on the bar in the approximate form of chain links, intermittently operating openers acting on the metal between the ends of said link shaped portions, and at the sides of said ends intermittently operating cutters operating to sever said links from each other, and separators acting between the ends of said links to force them apart and into their proper relative positions, substantially as specified. 13th. The combination, with intermittently operating apparatus for moving a rod of metal longitudinally, of a series of intermittently operating dies, openers, cutters and separators, adapted to indent, open and cut, and separate the cut portions of said metal rod from each other and an annealing furnace through which said rod passes intermediate of said moving apparatus and said dies, openers cutters and separators, substantially as specified. 14th. The combination, with intermittently operating apparatus by which a rod of metal is reciprocated and moved along, of an annealing furnace through which said rod is reciprocated, and a number of dies, openers, cutters and separators acting intermittently to form said rod into chain, substantially as specified. 15th. The combination, with intermittently operating apparatus for moving a rod of metal longitudinally, comprising jaws for gripping said rod, of independently operating jaws for gripping and feeding said rod, and intermittently operating dies, openers, cutters and separators acting on said rod to form it into a chain, substantially as specified. 16th. The combination, with intermittently operating apparatus for moving a rod of metal longitudinally, comprising jaws for gripping said rod, of independently operating jaws for gripping and feeding said rod, and an adjusting device for varying the degree of feed of said rod imparted by said feeding jaws, substantially as specified. 17th. The combination, with intermittently operating apparatus for moving a rod of metal longitudinally, of a series of intermittently operating dies and openers for forming said rod into the shape of links, and a series of sets of cutters acting subsequently on said links to sever them from each other, said sets of cutters operating in succession, substantially as specified. 18th. The combination, with intermittently operating apparatus for moving a rod of metal longitudinally, of a series of intermittently operating dies and openers for forming said rod into the shape of links, a series of sets of cutters acting sub-

sequently on said links to sever them from each other, and separators acting on the severed links to force them into their proper relative position to each other, substantially as specified. 19th. The combination, with intermittently operating apparatus for moving a rod of metal longitudinally, of a series of intermittently operating dies and openers for forming said rod into the shape of links, a series of cutters acting subsequently on said links to sever them from each other, and separators acting on the severed links to separate them from each other, all said dies, openers, cutters and separators being withdrawn from contact with the metal substantially in unison, substantially as specified. 20th. The combination, with intermittently operating apparatus for gripping a rod of metal and moving it longitudinally, of a series of dies, openers and cutters operating on said rod to form it into a chain, and other grippers for gripping the chain, said last named grippers co-operating with the grippers first named, and moving in unison with the same, substantially as specified. 21st. The combination, with intermittently operating apparatus for gripping a rod of metal and moving it longitudinally, of independent feeding grippers for said rod for feeding it forward, a series of dies, openers and cutters operating on said rod to form it into a chain, other grippers for gripping the chain co-operating with the grippers first named, and moving in unison therewith, and other feeding grippers for the chain operating with the feeding grippers first named, and moving in unison therewith, substantially as specified. 22nd. The combination, with a series of dies, openers, cutters and separators, of cams operating to force the same inwardly, levers and a number of other cams acting on said levers to move said dies, openers, cutters and separators outwardly, substantially as specified.

No. 39,872. Saw Filing Machine.

(*Machine à liner les scies.*)

Isaac Milton House, Gravenhurst, Ontario, Canada, 17th August, 1892; 6 years.

Claim.—1st. In an automatic saw filer, the combination, with an emery wheel supported in bearings on the outer end of the swinging frame, and driven as specified, and the roller journaled in a bracket beneath the outer end of the swinging frame, of the vertical swinging frame adjustably pivoted on the frame of the machine and carrying at its upper end an inclined way upon which the roller journaled beneath the horizontal swinging frame carrying the emery wheel is designed to move by the oscillation of the vertically swinging frame, which is driven as specified. 2nd. The combination, with the horizontal swinging frame carrying the emery wheel and having the roller *l* journaled in the bracket *l'* beneath the swinging frame, of the vertically swinging frame carrying at its upper end an inclined way *L*, upon which the roller *l* is designed to roll, the vertical swinging frame *J*, being connected by the rod *m* to the lever *N*, which is driven by the pitman *o* from the crank wheel *O*, on the shaft *P*, driven from the main shaft by the bevel gear wheel *Q*, and level gear pinion *R*, as and for the purpose specified. 3rd. In combination with the lever *N*, connected by the pitman *o*, to the crank wheel *O*, which is driven from the main driving shaft of the machine as specified, of the swinging dog *U*, pivoted on the upper end of the lever *V*, which is connected by the adjustable connecting rod *W*, to the lever *N*, and has a pin shaped engaging end *u*, designed to come in contact with the base of the tooth, as and for the purpose specified. 4th. The combination, with the horizontal swinging frame carrying the emery wheel and having the roller *l*, journaled in the bracket *l'*, beneath the swinging frame, of the vertically swinging frame carrying at its upper end, an inclined way *L*, upon which the roller *l*, is designed to roll, the vertically swinging frame *J*, being connected by the rod *m*, to the lever *N*, which is driven by the pitman *o*, from the crank wheel *O*, and the lever *V*, having pivoted at its upper end the swinging dog *U*, and being connected at its lower end to the lever *N*, by the adjustable rod *W*, as and for the purpose specified. 5th. The vertical swinging frame *J*, driven as specified and carrying at its upper end the inclined way *L*, which is pivoted at *k*, and the inclined portion of which way is tilted on its pivot *k*, and held at any desired height by the adjusting screw *k*, extending through the top of the swinging frame *J*, as and for the purpose specified. 6th. The combination, with the emery wheel adjusted and driven as specified, of the clamp lever *S*, provided at one end with a set screw *f*, which is held pressed outwardly by the pivoted circularly adjustable cam *T*, with an inclined face as shown and for the purpose specified. 7th. In an automatic saw-filing machine, the centering spindle *x*, extending from the saucer shaped upper end of the sliding block *X*, supported on the guide way *Y*, *Y*¹, the rod *g*, journaled in suitable bearings on the guide way *Y*, *Y*¹, and having a worm *g*², situated within the mortise *g*³, of the sliding block *X*, and designed to engage with the threaded way *g*⁴, as and for the purpose specified. 8th. In an automatic saw-filing machine, the guide way *Y*, *Y*¹, supported at each end on the gear pinions *2*, which are secured to spindles *3*, having bearings in the ends of the guide way, the rod *5*, having the worms *7*, adapted to engage with the worm wheels *4*, so that by the turning of the rod *5*, the guide way *Y*, *Y*¹, may be raised or lowered upon the vertical racks *Z*, *Z*¹, as and for the purpose specified. 9th. The combination of the centering spindle *x*, supported on the sliding block *X*, and adjustable laterally on the guide way *Y*, *Y*¹, by the worm *g*, which is caused to mesh with the threaded way *g*, by the turning of the rod, and the gear pinions *2*, secured on the spindle *3*, in the ends of the guide way *Y*, *Y*¹, engaging with the vertical toothed racks *Z*, *Z*¹,

and rotated by the worm wheels *4*, which are rotated from the worms *7*, on the rod *5*, so that by the turning of the said rod the guide way *Y*, *Y*¹, may be adjusted vertically to any desired position as and for the purpose specified. 10th. The combination, with an emery wheel supported on the frame *C*, and designed to be adjusted automatically, of the handle *8*, secured on the outer end of the frame *C*, and the rod *9*, lever *10*, and weight *11*, arranged to counterbalance the weight of the frame *C*, as and for the purpose specified.

No. 39,873. Combined Band and Circular Saw Mill.

(*Sciérie à ruban et circulaire combinées.*)

Hans Jacob Anderson, St. Cloud, Minnesota, U.S.A., 17th August, 1892; 6 years.

Claim.—1st. In a saw mill having a band saw and a circular saw, the combination of a stationary frame having boxes or bearings in which the circular saw arbor is susceptible of sliding lengthwise in a plane at right angles to the plane in which the band saw travels, with a rock shaft extending at right angles to the axis of the circular saw arbor, a shifting lever for the rock shaft, and loose connections between the circular saw arbor and the rock shaft for sliding the saw arbor lengthwise, substantially as described. 2nd. In a saw mill, the combination, with a band and a circular saw, of a stationary frame having boxes or bearings in which the circular saw arbor is journaled to move lengthwise in a plane at right angles to the plane in which the band saw travels, a rock shaft extending at right angles to the axis of the saw arbor and provided with rocker arms or levers, a shifting lever for the rock shaft, and a loose connection between the rocker arms or levers and the circular saw arbor for sliding the latter lengthwise when the rock shaft is turned, substantially as described. 3rd. In a saw mill having a band saw and a circular saw, the combination, with a stationary frame having boxes or bearings in which the circular saw arbor is journaled to move lengthwise in a plane at right angles to the plane in which the band saw travels, a pair of set collars mounted on the rear end portion of the saw arbor, a non-rotating sleeve or collar arranged between the set collars, a rock shaft having rocker arms or levers secured to the non-rotating sleeve or collar, and a shifting lever for turning the rock shaft to move the circular saw arbor lengthwise in its boxes or bearings on the stationary frame, substantially as described. 4th. In a saw mill, the combination, with a stationary frame and a circular saw arbor adapted to move lengthwise in boxes or bearings thereupon, of a dovetailed guide on the frame, a base plate engaging the guide, a superimposed top plate carrying a circular saw guide, a rock shaft having rocker arms loosely connected with the circular saw arbor and with the said base plate, and a shifting lever for turning the rock shaft to simultaneously shift the circular saw arbor and the circular saw guide, substantially as described. 5th. In a saw mill, the combination, with a frame having boxes or bearings, of a circular saw arbor movable lengthwise in the boxes or bearings, a rock shaft loosely connected with the circular saw arbor and having its tail end provided with a rocker arm or lever, a shifting lever having a clamping connection with the rocker arm or lever and provided with a tail piece, and upper and lower set screws or bolts acting against the opposite edges of the tail piece of the shifting lever, substantially as described. 6th. In a saw mill, the combination, with a frame having boxes or bearings, of a circular saw arbor movable lengthwise in the boxes or bearings, a rock shaft loosely connected with the circular saw arbor for moving the latter lengthwise, a rocker arm or lever mounted on the tail end of the rock shaft and provided with projecting arms, each having a set screw or bolt, and a shifting lever clamped to the said rocker arm or lever and provided with a tail piece extending between the inner extremities of the set screws or bolts, substantially as described.

No. 39,874. Stocking. (*Bas.*)

Leonidas M. Preston, Bonham, Texas, U.S.A., 17th August, 1892; 6 years.

Claim.—1st. A knitted stocking composed of attachable and detachable leg and foot sections each formed at the joining edge with loops which normally protrude lengthwise therefrom and have their necks tied and securely fastened by a thread which in no way interferes with the requisite elasticity of the stocking when the sections are united, substantially as described. 2nd. A knitted stocking composed of leg and foot sections, each having one edge formed with loops which normally protrude therefrom and have their necks locked by a thread which is tied round each loop transverse to the length thereof in juxtaposition to the knitted body of the section, substantially as described.

No. 39,875. Secondary Battery. (*Pile secondaire.*)

Nathan Huntley Edgerton, Philadelphia, Pennsylvania, U.S.A., 17th August, 1892; 6 years.

Claim.—1st. In a secondary or storage battery, a series of metal plates provided with active material and a moistening agent, intermediate the active material of adjacent plates, the respective end plates in the series of different polarity and each intermediate plate being of different polarity as to its respective sides or surfaces in successive order throughout the series, as described and for the purposes set forth. 2nd. In an electric accumulator, in combination with the active material and a moistening agent therefor, of a series of metal plates, the respective end plates in said series

being of different polarity, and each intermediate plate being of different polarity as to its respective sides or surfaces and electrical connections with said end plates for centrally charging and discharging the same as and for the purposes set forth. 3rd. A secondary or storage battery consisting of a series of frames, each containing a metal plate, the respective plates in the end frames of the battery provided on one side with a layer of active material, and the respective intermediate plates provided as to both sides with a layer of active material, a moistening medium intermediate adjacent layers of active material of neighbouring frames, and electrical connections with the free side of the respective end plates, as described and for the purposes set forth. 4th. A secondary or storage battery consisting of a series of frames, each frame provided with a metal plate, the respective plates in the end frames of the battery, provided on one side with a layer of active material, and the respective intermediate plates provided as to both sides with a layer of active material, a moistening medium intermediate adjacent layers of active material of neighbouring frames, the metal plates in the respective end frames being of different polarity, and each intermediate metal plate being of different polarity as to its respective sides or surfaces in successive order throughout the series to preserve polarity and electrical connections with the free side of the respective end plates, as described and for the purpose set forth. 5th. A secondary or storage battery consisting of a series of frames each containing a metal plate, the respective plates in the end frames of the battery provided on one side with a layer of active material, and the respective intermediate plates provided as to both sides with a layer of active material, a moistening medium intermediate adjacent layers of active material of neighbouring frames, electrical connections with the free side of the respective end plates and means for compactly holding said series of frames, as described and for the purposes set forth. 6th. A secondary or storage battery consisting of a series of metal plates the respective end plates of the series provided on one side with a layer of active material, and the respective intermediate plates provided as to both sides with a layer of active material, a moistening medium intermediate adjacent layers of active material of neighbouring plates, the end metal plates in the series being of different polarity, and each intermediate metal plate being of different polarity as to its respective sides or surfaces in successive order throughout the series, as and for the purposes set forth. 7th. In an electric accumulator a series of metal plates, each provided on one side with a layer of red lead or its equivalent active material, and on its other side with a layer of litharge or its equivalent active material in combination with a moistening medium intermediate adjacent layers of active material of neighboring plates, the respective end plates in the series being of different polarity and each intermediate plate being of different polarity as to its respective sides or surfaces in successive order throughout the series and electrical connections with with respective end plates, as described and for the purposes set forth.

No. 39,876. Art of Producing Ground Wood Pulp.

(*Art de production de la pâte de bois.*)

Edward Ferris Millard, Jackson, Michigan, U.S.A., 17th August, 1892; 6 years.

Claim.—The process of producing ground wood pulp, which consists in subjecting sticks of suitable wood under light pressure to the disintegrating action of a sharp stone, substantially as set forth.

No. 39,877. Traction Engine for Making Ice Roads.

(*Machin de traction pour construire des chemins en glace.*)

George T. Glover, Chicago, Illinois, U.S.A., 17th August, 1892; 6 years.

Claim.—1st. In a tractor for making ice-roads, the combination, with a suitable source of steam supply of a traction wheel adapted and arranged for running upon an ice road and provided with a steam chamber, which is closed with the exception of an inlet which is connected with the source of steam supply, and an outlet for the escape of water of condensation of waste steam, said steam chamber being adapted to contain the steam, so as to cause the heating of the wheel to an extent to melt down the snow, and thereby permit the formation of an ice-bed for the wheel to run upon, substantially as set forth. 2nd. In a machine for making ice roads, a traction wheel provided with a steam chamber having an inlet and an outlet in combination with a suitable source of supplying steam and a chamber in which the traction wheel is arranged, the steam outlet of the chamber in the wheel being arranged to discharge into the chamber in which the wheel is located, substantially as set forth. 3rd. The combination, with the chain wheel on the traction wheel axle of the traction wheel having a chamber connected with a source for supplying steam thereto, and an outlet pipe leading from the chamber in the traction wheel and arranged to discharge against the said chain wheel, substantially as described. 4th. The combination in a machine for making ice-roads, of a traction wheel D with plates *d*, supported independently of the wheel and closing the same to provide a steam chamber, substantially as described.

No. 39,878. Removable Spring Covers for Cups, Jugs and other vessels. (*Covert mobile à ressort pour tasses, jarres, etc.*)

Frederick James Mockler, Wotton-under-Edge, Gloucestershire, England, 18th August, 1892; 6 years.

Claim.—1st. A cover for vessels of various descriptions having connected to its base section a metallic spring of the requisite curve and rigidity, whereby said cover is adapted to be attached to and removed from the vessel, substantially as set forth. 2nd. A cover for vessels of various descriptions provided with a loop or bracket depending from its stationary part, in combination with a spring of suitable contour attached to said bracket or loop, substantially as set forth. 3rd. The combination, with a cover and its stationary section 3, of the loop A and removable spring B passing through said loop, specially as set forth.

No. 39,879. Power Transmitter.

(*Transmetteur de la force.*)

Wesley E. Laird, Montpelier, Vermont, U.S.A., 18th August, 1892; 6 years.

Claim.—1st. The combination, of a belt encircling a carrying pulley and a driven pulley, capable of being brought in forcible contact with or released from a driving pulley by adjustment of the driven pulley. 2nd. The combination, of a belt supported by two pulleys near a driving pulley, and a frame carrying one of said pulleys, capable of adjustment in such a manner that the belt may be brought in contact with or released from the driver by moving the driven pulley. 3rd. The combination, of a belt supported by two pulleys near a driving pulley, and a belt guide capable of guiding the slack side of the belt upon the driven. 4th. The combination, of two pulleys supporting a belt near a driving pulley and two boxes upon an inclined plane supporting the shaft of the carrying pulley in such a manner that the tightening and loosening of the belt will cause the carrying pulley to advance toward or recede from the driving pulley. 5th. The combination, of pulleys A, B, C, belt D, and boxes J, with set screws I and I', for the purpose of limiting the movements of the boxes J. 6th. The combination, of pulleys A, B, C, and belt D, with a support H, so arranged that belt D may be released from contact with pulley A.

No. 39,880. Reel or Holder for Twine.

(*Dévidoir à ficelle.*)

John Briggs Holmes, New York, State of New York, U.S.A., 18th August, 1892; 6 years.

Claim.—1st. In a reel, a self acting brake whereby upon pulling the line the same is raised from the spool, and by releasing the line the brake is again shut down, locking the reel. 2nd. In a reel, provided with projections located upon the spool, a self acting brake provided with extensions adapted and arranged to engage with the spool. 3rd. In a reel, provided with projections located upon the spool, a self acting brake provided with extensions adapted and arranged to engage with the spool, the noise of contact of the reel and brake being deadened by intermediate cushions constructed of rubber. 4th. A reel, provided with an adjustable shifting stand.

No. 39,881. Section Insulator and Lightening Arrester for Electric Railways. (*Isoloir et paratonnerre pour chemins de fer électriques.*)

Elihu Thomson, Swampscott, Massachusetts, U.S.A., 18th August, 1892; 6 years.

Claim.—1st. A section insulator for insulating adjacent sections of an electric railway line conductor, comprising separate conducting plates secured in place, but spaced apart and insulated at points somewhat above their contact surfaces and having such contact surfaces separated entirely from one another by an air insulation space, but rounded and arranged in line to form a continuation of the path of travel of the contact device. 2nd. The combination of the clamping ears connected with the adjacent ends of a sectional line conductor for electric railways, with a bolt connecting said ears mechanically and a series of conducting plates separated by intermediate insulation supported upon, but insulated from, said bolt and with their contact ends arranged in the path of travel of the contact device. 3rd. The combination of the bolt B between adjacent sections of an electric railway line conductor and insulated therefrom, with the conducting plates arranged side by side upon the same in the path of travel of the contact device, but insulated from the bolt, and the washers of insulating material between the plates, as described. 4th. The combination of the adjacent sections of an electric railway line conductor and clamping ears connected therewith, with the insulated bolt joining said ears, the conducting plates thereon, the intermediate washers of non-inflammable material, and the holding pin W, as described. 5th. The combination of an insulating device connected with an electric railway line conductor for insulating adjacent sections of the same from one another and comprising a series of conducting surfaces separated from one another by intervening insulation, with a ground connection leading from one or more of the plates at or near the middle of the series, as described.

No. 39,882. Dynamo Electric Machine.*(Machine dynamo-électrique.)*

Ernest P. Clark, New York, State of New York, U.S.A., 18th August, 1892; 6 years.

Claim.—1st. A regulator for a shunt wound dynamo consisting of an electric motor whose armature is maintained at a constant speed and is included in the field magnet circuit of the dynamo, and whose field magnet coils are included in the main circuit of the dynamo, for the purpose of varying the counter E, M, F, of the motor as the main current varies in strength. 2nd. A regulator for shunt wound dynamo electric machines having its armature included in the field magnet circuit of the dynamo, and its field magnet coils included in the main circuit, and a variable resistance arranged as a shunt to the field magnet coils of the regulator, an electro-magnet in the main circuit arranged to control said variable resistance for the purpose of magnifying the variations in the magnetic strength of the regulator field magnets caused by changes in strength of the current in the main circuit. 3rd. The combination of a dynamo electric machine having its field magnet coils in shunt or derived circuit, an electro-motor maintained at a certain unvarying speed, and having its armature in circuit with the field magnet coils of the dynamo and its field magnet coils in circuit with the lamps or other translating devices, a variable resistance arranged as a shunt to the field magnet coils of the regulating motor, an electro-magnet or solenoid located in the main circuit controlling said variable resistance, and so arranged as to intensify the variations in magnetisms of the field magnets of the regulator caused by variation in the main circuit current for the purpose of maintaining a constant strength of current in the main or working circuit, notwithstanding variations in potential or a varying speed of the dynamo. 4th. A regulator for a shunt wound dynamo consisting of an electro-motor whose armature is included in the field magnet circuit of the dynamo, and whose field magnet coils are arranged so that the full current on the main circuit of the dynamo will pass through them, for the purpose of varying the counter electro-motive force of the motor as the main current varies in strength.

No. 39,883. Process of Preparing and Hardening Lime Stones.*(Procédé pour préparer et durcir la pierre à chaux.)*

George James Randall, Marbrier, Longley Road, Traveney, Surrey, England, 18th August, 1882; 6 years.

Claim.—1st. The process herein described for hardening, preserving, and preparing volitic and other lime stones, consisting in subjecting the stone to a temperature sufficient for the purposes hereinbefore set forth, immersing said stone in a bath of the compound of lime, acetic acid, and saccharine matter, then removing said stone thus treated and rubbing to a face with a fine grit, and then drying the same, substantially as set forth. 2nd. The process hereinbefore described for hardening, preserving, and preparing volitic and other lime stone, consisting in subjecting the stone to a temperature sufficient for the purposes hereinbefore set forth, immersing said stone in a bath of the compound of lime, acetic acid, and cane sugar, then removing said stone thus treated, and rubbing to a face with a fine grit, and then drying the same, substantially as set forth.

No. 39,884. Grain Binder.*(Lièuse à grain.)*

John S. Davis, Cleveland, Ohio, U. S. A., 18th August, 1892; 6 years.

Claim.—The combination of the cam disk having its surface notched or cut away, as shown, and the rack coincident with the notch in the cam, with the retainer arms shaft, the pinion I and the arm I¹, and its anti-friction rollers, both of which lie in close proximity to the periphery of the disk to insure the proper engagement of the rack and pinion, substantially as hereinbefore set forth.

No. 39,885. Circular Saw.*(Scie circulaire.)*

George Cassidy, Vancouver, British Columbia, Canada, 18th August, 1892; 6 years.

Claim.—A circular saw consisting of a stout centre A having a tapered edge *a*, a recess on the reverse with undercut shoulder *a*¹ and a series of tapped holes in said recess and an eye *a*¹¹, and a series of segmental saw blades B fitting the recess and the centre and secured therein by a series of counter-sunk screws B¹ passing through holes corresponding to those in the recess and having tongued and grooved joints *b* sloping at an angle, substantially as set forth.

No. 39,886. Crossing for Railways.*(Passage de chemin de fer.)*

Walter Monterey Axtell, Fruit Vale, California, U.S.A., 18th August, 1892; 6 years.

Claim.—1st. In a railway crossing, and in combination with the crossing and crossed rails, the inclined plane H¹, on the outer sections of the crossing rails and the sliding inclined planes H, on the intervening section of the crossing rails, the upper ends of said inclined planes being level with the upper surface of the head of the crossed rails, substantially as herein described. 2nd. In a railway

crossing, and in combination with the crossing and crossed rails, the inclined planes H¹, of the outer sections of the crossing rails, the sliding inclined planes of the intervening sections of the crossing rails, the tops of said planes being level with the tops of the crossed rails, and springs acting upon said sliding planes to hold them normally close to the inner surfaces of the crossed rails, substantially as herein described. 3rd. In a railway crossing, and in combination with the crossing and crossed rails, the inclined planes H¹, of the outer sections of the crossing rails, the upper ends of said planes being level with the tops of the crossed rails, the sliding inclined planes of the intervening section of the crossing rails, the upper ends of said planes being level with the tops of said crossed rails, springs for holding said sliding inclined planes up close to the inner surfaces of the crossed rails, and arms connected with said sliding inclined planes adapted to be acted upon by the flanges of wheels upon the crossed rails, whereby said planes are moved inwardly to permit the passage of the wheel flanges, substantially as herein described. 4th. In a railway crossing, the guards on the inner sides of the crossed rails and sliding beside the adjacent ends of the intervening sections of the crossing rails, consisting of the inwardly curved arms *e*, the braces and connecting pieces, guides for directing the movement of said guards, the inclined planes H, of said guards, and the springs G, for holding the guards and inclined planes to the inner surfaces of the crossed rail, substantially as herein described. 5th. In a railway crossing, the combination, of the crossing and crossed rails, the inclined planes H¹, of the outer sections of the crossing rails, the sliding guards E, of the intervening sections having the inclined planes H, arms *e*, suitable guides connecting said guards with the intervening sections of the crossing rails, and the springs G, controlling said guards, substantially as herein described. 6th. In a railway crossing, the combination, of the crossed rails A, the crossing rails having the shoes or stringers D, passing under and on each side of the rails A, and widened out to form a bed *d*, the inclined planes H¹, of the outer sections of the crossing rails, the guards E, of the intervening sections of the crossing rails, the inclined planes H, and arms *e*, of said guards, suitable guides for directing the movement of the guards and connecting them with the intervening sections of the crossing rails and with the bed *d*, of the shoes or stringers D, and the springs for controlling said guards, substantially as herein described.

No. 39,887. Lathe for Turning Spirals.*(Tour à tourner en spirale.)*

Michael Brochu, Grand Rapids, Michigan, U.S.A., 18th August, 1892; 6 years.

Claim.—1st. In a lathe for turning spirals, and in combination, a yoke pivoted to adjust in a vertical plane, a cutter-head arranged in a line with the axis of said pivot, secured to a spindle journaled in said yoke, a bar adapted to slide horizontally toward and away from said head, and a carriage provided with heads for supporting the work, adapted to move longitudinally across and attached to said bar, substantially as described. 2. In combination with a frame and table, a yoke pivoted to said table and adapted to be adjusted in a vertical plane, a spindle journaled to said yoke, and carrying a cutter-head arranged in a line with the axis of said pivot, a bar adapted to slide horizontally toward and away from said cutter, a post secured to said bar, and a carriage provided with heads for supporting the work, and feed screws for traversing the table longitudinally, and having a slot, as C¹, adapted to said post, said post being provided with a head, substantially as and for the purpose set forth. 3rd. In combination with a frame and table, a yoke pivoted to and dependent from said table, provided with a bolt, and a frame having a curved slot adapted to said bolt for adjusting the vertical inclination thereof, a cutter-head arranged to rotate in line with the vertical plane of said pivot, secured to a spindle journaled in said yoke, a bar attached to said table, adapted to slide horizontally toward and away from said head, provided with a lever and connections for operating said bar, a post provided with an enlarged head secured to said bar, and a carriage provided with heads for supporting the work and traversing it along the table attached to said post, substantially as described. 4th. In combination with a frame and table and a cutter-head secured to a spindle journaled in a yoke pivoted to said table, the cutter-head being arranged in a line with the vertical plane of the axis of said pivot, a bar arranged in the same line, adapted to slide horizontally toward and away from said head, provided with a weighted lever fulcrumed in the same line and connections for operating said bar, a post having an enlarged head provided with a semi-cylindrical channel, a cap provided with a corresponding channel provided with threads secured to said head and forming a bearing for a feed-screw, said post being secured to said sliding bar, and a carriage having a longitudinal slot C¹, adapted to receive said post, and provided with heads for holding the work and engaging the feed-screw, for traversing it along the table, substantially as described. 5th. The combination, with the frame and table, of the carriage C, centrally pivoted to the slide 3, substantially as described, the slide 3, the bell-crank lever V, provided with the weight W, and means of adjustment, substantially as described, ways D, heads E¹, E², E³, feed screw F, gears S², S³, the shaft and crank T, centres N, N¹ sleeve O, and means of adjusting said sleeve, arranged substantially as described. 6th. The combination, with the frame and table, of the carriage C, provided with the centrally arranged pivot post 12, adapted to

act both as a journal bearing and pivot post, and arranged at the end of the slide 3, substantially as described, and which is provided with the bell crank lever V, weight W, and connections whereby said carriage may be moved transversely on said table, substantially as described, the ways D, heads E¹, E², E³, feed screws F, gears S², S³, crank and shaft T, cutters 11 and 4, form 17, arranged at the rear edge of C, the bracket 20, roll 19, and arm 18, whereby the said carriage is made to describe the outline of said form in traversing said table, longitudinally, substantially as described. 7th. In combination with a frame and table and a revolving cutting head secured to a spindle, journaled in a yoke pivoted to said table, a bar arranged in a transverse groove in said table, a longitudinally movable carriage mounted on said table, provided with heads for holding the work, pivoted to said bar, a form as 17, secured to the edge of said carriage, and a bearing roll, as 19, adapted to said form, secured to an arm secured to said table, said yoke pivot, carriage pivot, cutting head, and a roll all being arranged in the same vertical plane, substantially as described, and for the purpose herein set forth. 8th. In a lathe for turning spirals, and in combination a frame supporting a table resting thereon, a yoke supporting bracket secured to said table, a spindle carrying yoke pivoted to said bracket, having its outer end adapted to adjustment by a bolt adapted to a curved slot arranged in said frame concentric to said pivot, a spindle journaled in said pivoted yoke, having a cutter-head provided with the knives, a carriage pivoted on said table at a point opposite to the point of pivoting of said yoke and adapted to move transversely on said table, a form 17, secured to the edge of said carriage, and a roller placed in an arm secured to said yoke supporting bracket, a feed screw adapted to be operated by a hand crank journaled in suitable heads secured to said carriage, and centres adapted for holding the work parallel with said feed screw, and opposite to said cutter head, all arranged to operate substantially as described.

No. 39,888. Electro-Magnetic Traction Increasing System for Railways. (*Système électro-magnétique à traction croissante pour chemins de fer.*)

Mark Wesley Dewey, Syracuse, New York, U. S. A., 18th August, 1892; 6 years.

Claim.—1st. The combination, in an apparatus for electrically increasing the traction of a vehicle moving upon a railway, of a source of electricity, coils distributed at intervals along the railway, a circuit leading from the source of electricity and including the coils, stationary cores in the said coils having their poles connected to or in contact with the rails, and the wheels and axles of the vehicle. 2nd. The combination, in an apparatus for electrically increasing the traction of a vehicle moving upon a railway, of a suitable source of electricity, coils distributed at intervals along the railway, a circuit leading from the source of electricity and including the coils in series, stationary cores for the said coils having their poles connected to or in contact with the rails on both sides of the track, and the wheels and axles of the vehicle. 3rd. The combination, in an apparatus for electrically increasing the traction of a vehicle moving upon a railway, of a source of electricity, coils distributed at equal distances apart along the railway, a circuit leading from the source of electricity and including the coils, stationary cores in the coils having their poles connected to or in contact with the rails, and the wheels and axles of the vehicle. 4th. The combination, in an apparatus for electrically increasing the traction of a vehicle moving upon a railway, of a source of electricity, coils distributed at intervals along the railway and below the surface of the road bed, a circuit leading from the source of electricity and including the coils, stationary cores in the said coils having their poles connected to or in contact with the rails, and the wheels and axles of the vehicle. 5. The combination, in an apparatus for electrically increasing the traction of a vehicle moving upon a railway, of a source of electricity, coils distributed at intervals along the railway, a circuit leading from the source of electricity and including the coils, means to regulate the current in the circuit, stationary cores in the said coils having their poles connected to or in contact with the rails, and the wheels and axles of the vehicle. 6. The combination, in an apparatus for electrically increasing the traction of a vehicle moving upon the railway, of a source of electricity, coils distributed at intervals along a portion of the railway, a circuit leading from the source of electricity and including the coils, stationary cores in the said coils having their poles connected to or in contact with the rails, and the wheels and axles of the vehicle. 7th. The combination, in an apparatus for electrically increasing the traction of a vehicle moving upon a railway, of a source of electricity, coils distributed at intervals along a grade portion of a railway, a circuit leading from the source of electricity and including the coils, stationary cores in the said coils having their poles connected to or in contact with the rails, and the wheels and axles of the vehicle. 8th. The combination of a vehicle moving upon a railway, a source of electricity, coils, distributed at intervals along the railway or a portion thereof, line conductors extending from the source along the railway, a shunt circuit of the conductors, including the coils, stationary cores in the said coils, having their poles connected to the rails, the wheels and axles of the vehicle, an electric motor for propelling said vehicle, and a circuit including the motor in movable connection with the line conductors. 9th. The combination

of a vehicle moving upon a railway, a source of electricity, coils distributed at intervals along a railway or a portion thereof, line conductors extending from the source along the railway, a circuit including the coils and connected to a line conductor, stationary cores in the said coils, having their poles connected to the rails, the wheels and axles of the vehicle, an electric motor for propelling said vehicle, and a circuit including the motor in movable connection with the line conductors. 10th. The combination, in an apparatus for electrically increasing the traction of a vehicle moving upon a railway, of a source of electricity, a coil, a circuit leading from the said source and including the coil, a stationary core for the coil, having one of its poles in contact with a rail, and one or more wheels of the vehicle travelling upon said rail. 11th. The combination, in an apparatus for electrically increasing the traction of a vehicle moving upon a railway, of a source of electricity, stationary means to magnetize the rails of the railway connected to the source, and magnetizable wheels for the vehicle. 12th. The combination, in an apparatus for electrically increasing the traction of a self-propelled vehicle moving upon a railway, of a source of electricity, permanently stationary means to magnetize the rails of the railway or a portion thereof connected to the source, and magnetizable wheels for the vehicle.

No. 39,889. Electric Traction Increasing System for Railways. (*Système électrique à traction croissante pour chemins de fer.*)

Mark Wesley Dewey, Syracuse, New York, U.S.A., 18th August, 1892; 6 years.

Claim.—1st. The combination, with a wheeled vehicle and a metallic track for the vehicle to move upon, of a stationary source of heavy current or currents connected to the rails of the track, and two or more wheels of the vehicle and one or more axles or other low resistance conductor extending between the wheels to electrically connect said rails together or complete the circuit between the rails, for the purpose described. 2nd. The combination, with an electrically propelled wheeled vehicle, a metallic track for the vehicle to move upon, and a line working conductor arranged along the track to supply current to the motor on the vehicle, of a stationary transformer connected to the line, a secondary circuit of said transformer with its terminals connected to the rails of the track, and two or more wheels of the vehicle and one or more axles or other low resistance conductor extending between the wheels to electrically connect said rails together or complete the circuit between the rails, for the purpose described. 3rd. The combination, with an electrically propelled wheeled vehicle, a metallic track for the vehicle to move upon, and a source of electricity to supply the motor on the vehicle, of an auxiliary stationary source of electricity, electric connections leading from the latter source and connected to the rails of the track, and two or more wheels of the vehicle and one or more axles or other low resistance conductor extending between the wheels to electrically connect said rails together or complete the circuit between the rails, for the purpose described. 4th. The combination, with an electrically propelled wheeled vehicle, a metallic track for the vehicle to move upon, and a line working conductor arranged along the track to supply current to the motor on the vehicle, of a stationary electric motor connected to the line, a dynamo mechanically connected to the motor, electric connections leading from the dynamo to the rails of the track, and two or more wheels of the vehicle and one or more axles or other low resistance conductor extending between the wheels to electrically connect said rails together or complete the circuit between the rails, for the purpose described. 5th. The combination, with a wheeled vehicle and a metallic track for the vehicle to move upon, of a stationary source of heavy current or currents connected to the rails of a portion of the track, insulation between said portion and the other portion of the track, and two or more wheels and one or more axles or other low resistance conductor extending between the wheels to electrically connect said rails together or complete the circuit between them, for the purpose described. 6th. The combination, with a wheeled vehicle and a metallic track having a grade portion for the vehicle to move upon, of a normally open electric traction circuit connected to the rails on the grade portion, and means to automatically close said circuit through two or more wheels of the vehicle, and one or more axles or other low resistance conductor extending between the wheels when approaching the grade portion and to open said circuit when leaving said grade portion. 7th. The combination, with a wheeled vehicle and a metallic track having a portion thereof insulated from the other portion and for the vehicle to move upon, of a normally open electric traction circuit including when completed the rails of the insulated portion of the track, and two or more wheels and one or more axles or other low resistance conductor extending between the wheels, and means to automatically close the circuit when approaching said insulated portion of the track and to open said circuit when leaving said portion. 8th. The combination, with a wheeled vehicle and a metallic track having an upgrade for the vehicle to move upon, of a stationary source of heavy current or currents connected to the rails on the upgrade, insulation between the rails of the upgrade and between said rails and the other portion of the track, and two or more wheels of the vehicle and one or more axles or other low resistance conductor extending between the wheels to electrically connect said rails together or complete the circuit between the rails, for the purposes described. 9th. In a traction increasing system for a railway,

the combination, with the rails insulated from each other, of a stationary source of electricity having its terminals connected to the rails, and a vehicle to travel on said rails adapted to electrically connect the rails together through the wheels and one or more axles, for the purpose described. 10th. In a traction increasing system for railways, a track having suitably insulated conducting rails for a vehicle to move upon, a stationary source of electricity, electric connections between the source and the rails, conducting wheels for the vehicle, and two or more conducting axles or other low resistance conductor or conductors between the said wheels, as and for the purpose described. 11th. In a traction increasing system for railways, a track having suitably insulated conducting rails for a vehicle to move upon, a permanently stationary source of electricity, electric connections between the source and the rails, conducting wheels for the vehicle, and one or more conducting axles or other low resistance conductor or conductors between said wheels, as and for the purpose described. 12th. In a traction increasing system for railways, a track having suitably insulated conducting rails for a vehicle to move upon, a stationary source of alternating currents, electric connections between the source and the rails, conducting wheels for the vehicle, and one or more conducting axles or other low resistance conductor or conductors between the said wheels, as and for the purpose described.

No. 39,890. Machines for Bending and Embossing Wood. (*Machine à plier et gaufrer le bois.*)

Bernhard Ludwig, Vienna, Austria, 18th August, 1892; 6 years.

Claim—1st. In a machine for permanently bending dry wood, a pair of hollow rollers heated from within, in combination with an inclined guide at the side where the wood leaves the said heated rollers, substantially as set forth. 2nd. In a machine for permanently bending dry wood, a pair of hollow rollers heated from within, and provided with longitudinal grooves to prevent the wood under treatment from slipping, and in combination with an inclined guide at the side, where the wood leaves the heated rollers, substantially as set forth. 3rd. In a machine for permanently bending and embossing dry wood, a pair of hollow rollers having engraved surfaces, in combination with gas pipes, provided with gas burners and passing through the hollow rollers, which rollers are heated from their interior by the aid of the gas burners, substantially as shown and described.

No. 39,891. Hydraulic Motor. (*Moteur hydraulique.*)

John William Garrett, jr., Spartanburg, and George Preston Garratt, Union, both of South Carolina, U.S.A., 18th August, 1892; 6 years.

Claim—1st. In a hydraulic motor, the combination, with separate pump cylinders connected with service pipes and having suitable valved inlets, of rising and falling accumulators having the piston rods connected thereto, said accumulators being connected by a chain, cord or strap, passing over a pulley, a conduit arranged above the upper limit of movement and having valved openings, latches containing the accumulators when raised, and floats having stems carrying collars to trip the latches, the bottom of the accumulators having valved openings, substantially as described. 2nd. In a hydraulic motor, the combination, with pump cylinders receiving the water to be raised and having communication with the service pipes, of accumulators having valved discharge openings and connected by a chain or strap passing over a pulley above, said accumulator being connected to the piston rods, a conduit arranged above the upper limit of movement and having valved discharge openings, pivoted latches sustaining the accumulators when raised, and floats mounted on rising and falling stems having adjustable collars arranged to strike arms on the latches and trip the same, substantially as described. 3rd. In a hydraulic motor, the combination, with the separate pump cylinders connected by valved pipes to a common service pipe and having valved inlets, of rising and falling accumulators having discharge openings in their bottoms, and provided with free valves having a plurality of stems lying in and depending below the said discharge openings, piston rods rigidly connected to said accumulators and to a chain or strap passing over a pulley above, a conduit arranged beneath the pulley and provided with valved discharge openings, the stems of said valves being lifted by segmental parts of covers on the accumulators, pivoted latches sustaining the accumulators when raised, and floats carrying stems provided with the adjustable stops and adjustable collars, the latter tripping the latches as the floats are raised by the water in the accumulators, substantially as described. 4th. In a hydraulic motor, the combination, with a plurality of cylinders connected to separate service pipes, of connected accumulators carrying the piston rods of said cylinders and having valved openings in their bottoms, a conduit arranged above the upper limit of movement of said accumulators and provided with valved openings, pivoted latches to sustain the accumulators while filling, and floats carrying stems having adjustable collars to trip the latches, substantially as described. 5th. In a hydraulic motor, the combination, with a plurality of cylinders, each having a separate service pipe and inlet, and provided with a valved discharge opening, of a series of piston rods, an accumulator connected to said piston rods and connected by a flexible connection to another and similar accumulator, and a conduit arranged above the accumulators and provided with valved discharge openings, substantially as described. 6th. In a hydraulic

motor, the combination, with one or more pump cylinders having each a valved inlet and outlet, of a piston rod in each cylinder, an accumulator rigidly connected to said rod and having a flexible connection supported by a pulley, with a similar accumulator, a conduit arranged above the cylinders and accumulators, and provided with valved openings for supplying the accumulators, and automatic devices for sustaining the accumulators when raised and releasing the same when filled, substantially as described. 7th. In a hydraulic motor, the combination, with one or more pump cylinders having suitable valved inlets and outlets, of piston rods operating the pistons in said cylinders, accumulators connected to said piston rods and to each other, a pulley over which the flexible connection passes, a conduit arranged above the accumulators and having valved discharge openings to supply the accumulators when raised, and automatic devices for sustaining the accumulators when raised, and floats operating adjustable releasing devices, whereby the accumulators may be dropped when filled to the desired point, substantially as described.

No. 39,892. Lamp Hanger. (*Suspension de lampe.*)

The Pittsburg Brass Company, Pittsburg, Pennsylvania, assignee of Thomas Hipwell, Astoria, New York, all in the U.S.A., 18th August, 1892; 6 years.

Claim—1st. In a lamp-holder, the combination, with the hanger, of a ring at the base thereof, a bail journaled in the ring, and cam mechanism for contracting the bail, so that the bail when so contracted forms a support for the fount, substantially as and for the purpose set forth. 2nd. In a lamp-holder, the combination with the hanger of a ring, at the base thereof, said ring having lugs formed on the interior face thereof at opposite points thereon, and a bail journaled in the ring and provided with arms engaging with said lugs and extending beyond the same for the support of the fount, substantially as and for the purposes set forth. 3rd. In a lamp-holder the combination with the hanger of a ring at the base thereof, said ring having an inwardly extending flange at the upper edge thereof, and lugs formed on the lower edge of said ring at opposite points thereon, and a bail journaled in said ring having arms engaging with said lugs and extending beyond the same for the support of the fount, substantially as and for the purposes set forth. 4th. In a lamp-holder, the combination with the hanger *a* of the ring *c*, having the flange *d*, lugs *e* and recesses *i*, and the bail *j*, having the arms *k* at an angle to the bail, substantially as and for the purposes set forth. 5th. In a lamp-holder, the combination with the hanger *a* of the ring *c*, having the lugs *e*, the bail *j*, having the arms *k* and auxiliary bail *n*, having the loop *p*, substantially as and for the purposes set forth.

No. 39,893. Indicator for Liquid Measures.

(*Indicateur pour mesureurs de liquides.*)

The Pittsburg Brass Company, Pittsburg, Pennsylvania, assignee of Thomas Hipwell, Astoria, New York, both in the U.S.A., 18th August, 1892; 6 years.

Claim—1st. In a liquid measure indicator, the combination of a dial, a tubular case extending down therefrom and having a slot therein, an angular rod journaled in the case and carrying the indicating finger, and a float encircling the case and having a guide pin or finger passing through the slot and engaging with the rod within the case, substantially as and for the purposes set forth. 2nd. In a liquid measure indicator, the combination of a dial, a tubular case extending down therefrom and having a slot therein, a spiral guide rod journaled in said case and carrying an indicating finger, and a float encircling the case and having guide pin or finger engaging with the spiral guide rod, substantially as and for the purposes set forth.

No. 39,894. Wick Raiser for Lamps.

(*Appareil pour monter les mèches.*)

The Pittsburg Brass Company, Pittsburg, assignee of William M. Hoerle, Allegheny, both in Pennsylvania, U.S.A., 18th August, 1892; 6 years.

Claim—1st. A wick raising device having two or more pinions mounted on axes on spiral lines with relation to the central draft tube engaging with the wick, an interiorly toothed wheel engaging said pinion, and mechanism for rotating said gear wheel, substantially as and for the purposes set forth. 2nd. A wick raising device having two or more pinions mounted on spiral lines with relation to the central draft tube engaging with the wick, an interiorly toothed wheel engaging said pinions, and a pinion operated from without the fount engaging with the said wheel to rotate said wheel, substantially as and for the purposes set forth. 3rd. A wick raising device having two or more inclined pinions engaging with the wick, and a gear wheel having teeth on its inner face engaging with said pinions, the outer teeth of said gear wheel engaging with a pinion operated from without the fount, substantially as and for the purposes set forth. 4th. The combination, with the supporting ring *c*, of two or more inclined pinions journaled therein engaging with an interiorly toothed gear wheel supported by said supporting ring, and a pinion operated from without the fount engaging with said gear wheel, substantially as and for the purposes set forth. 5th. The combination, with the supporting ring *c*, of the inclined brackets

j, the pinions *k*, journaled therein, the gear wheel *f*, supported by the flange *e*², the interior teeth *f*², engaging with the pinions *k*, and the pinion *g*, meshing with the teeth of said gear wheel and operated by the knob *h*¹, substantially as and for the purposes set forth.

No. 39,895. Wick Raiser for Lamps.

(*Appareil pour monter les mèches.*)

The Pittsburgh Brass Company, Pittsburgh, assignee of William M. Hoerle, Allegheny, both in Pennsylvania, U.S.A., 18th August, 1892; 6 years.

Claim.—1st. The combination, of a cylindrical wick tube, a vertically movable rod, and two curved wick fingers pivotally connected with said rod, with a plate *G*, having a vertical slot, the walls of which diverge at its upper end, and a pointed finger *g*, which bifurcates said slot, substantially as shown, whereby the side walls of said slot hold the wick fingers in position to engage with the wick, and the pointed finger *g*, spreads them apart and thereby disengages the wick.

No. 39,896. Lamp. (Lampe.)

The Pittsburgh Brass Company, Pittsburgh, Pennsylvania, assignee of Thomas Hipwell, Astoria, New York, both in the U.S.A., 18th August, 1892; 6 years.

Claim.—1st. In lamps, the combination with the central tube, of an annular frame surrounding the same and secured at an angle thereto within the lamp fount, and having an annular flange extending out therefrom, and lips extending inwardly from said flange, and a flat annular feeding wheel having a serrated inner edge, said wheel being mounted in the frame within the annular flange and being held within the frame by said inwardly extending lips, substantially as and for the purpose set forth. 2nd. In lamps, the combination, with the central tube, of an annular frame *c*, surrounding the same and secured at an angle within the lamp fount, and having an annular flange *g*, around its edge, said flange being cutaway as at *i*, the flat annular feeding wheel *d*, having a serrated inner edge and a geared outer edge or periphery *f*, said wheel being mounted in the frame, and having its geared edge exposed at said cutaway portion, and a pinion engaging with the feeding wheel at said cutaway portion of the frame, substantially as and for the purposes set forth. 3rd. In lamps, the combination, with the central tube, of two annular feeding wheels surrounding the same and set at opposite inclines thereto, said wheels having serrated inner edges close to the central tube on opposite sides thereof respectively, substantially as and for the purposes set forth. 4th. In lamps, the combination, with the central tube of the frame surrounding the same formed of the ring *e*, and ring *m*, said rings being set at an angle to each other, the feeding wheels *d*, *n*, mounted in said rings, and the pinion *k*, engaging with the sides of said wheels, substantially as and for the purposes set forth.

No. 39,897. Radiator. (Colorifère.)

The Holland Radiator Manufacturing Company, assignee of Timothy Holland, both of Chicago, Illinois U. S. A., 18th August, 1892; 6 years.

Claim.—1st. A radiator consisting of loop shaped sections, each having an elbow connection at its lower end cast on its upper side with an external projecting lug arranged centrally between the upright parts forming the loop and containing at one end an internal right hand screw thread and at the opposite end an internal left hand screw thread, and solid right and left hand screw threaded bolts rigidly connecting the lugs outside the tubular connections between the radiator sections and each provided intermediate its ends with an angular or similar head to receive a wrench, substantially as described. 2nd. A radiator consisting of independent loop shaped sections having upper communicating elbow connections, each cast with an external lug, the lengthwise adjustable and independent short bolt sections extending through the lugs on the outermost sections, the lengthwise adjustable and independent right and left hand screw threaded rods extending through lugs on the intermediate radiator sections, and right and left hand screw threaded unions or nuts connecting the said rods with each other and with the short bolt sections, substantially as described. 3rd. A radiator consisting of independent loop shaped sections having upper and lower communicating elbows, the upper elbows being each cast with an external lug and the lower elbows packed and clamped by a gang of independent connections, the lengthwise adjustable and independent short bolt sections extending through the lugs on the outermost sections, the lengthwise adjustable and independent right and left hand screw threaded rods extending through the lugs on the intermediate radiator sections, and right and left hand screw threaded unions or nuts connecting the said rods with each other and with the short bolt sections, substantially as described.

No. 39,898. Car Coupler. (Attelage de chars.)

Henry Schaeffer, Charles E. Criswell, James L. Smith and Joseph L. Criswell, all of Ridgeway, Colorado, U.S.A., 18th August, 1892; 6 years.

Claim.—1st. In a car coupling, the combination, with a slotted draw head having a mouth provided with a cross-shaped aperture, and a link that is cross-shaped in transverse section and provided

with an arrow-shaped head, of a pair of vertically swinging yokes pivoted horizontally above and below the draw head and normally in contact therewith in position to engage the shouldered ends of the link, substantially as described. 2nd. In a car coupling, the combination, with a slotted draw head having a mouth provided with a cross-shaped aperture, and a link that is cross-shaped in transverse section and provided with a shouldered arrow-shaped head, of a pair of vertically swinging yokes pivoted horizontally above and below the draw head and provided with laterally projecting plates, and springs arranged to bear on said plates and hold the yokes normally in position to engage the shouldered ends of the links, substantially as described. 3rd. In a car coupling, the combination, with a slotted draw head having a mouth provided with a cross-shaped aperture, and a link that is cross-shaped in transverse section and provided with a shouldered arrow-shaped head, of a pair of vertically swinging yokes pivoted horizontally above and below the draw head and provided with laterally projecting horizontal plates, springs arranged to bear on said plates and hold the yokes normally in position to engage the shouldered ends of the link, a cam mounted between said plates to spread the yokes apart and thereby release the link, and mechanism for actuating said cam, substantially as described. 4th. In a car coupling, the combination, with a longitudinally slotted draw head having its upper and lower surfaces recessed, of a pair of vertically swinging yokes pivoted horizontally above and below the draw head and normally in contact with the said recessed surfaces thereof, horizontal laterally projecting plates attached to said yokes, springs arranged to bear on said plates and hold the yokes normally in position to engage a shouldered link, a cam mounted between said plates to spread the yokes apart and thereby release the link, and mechanism for actuating said cam, substantially as described. 5th. In a car coupling, the combination of the recessed and longitudinally slotted draw head having a mouth provided with a cross-shaped aperture, a link that is cross-shaped in transverse section and provided with a shouldered arrow-shaped head, a pair of vertically swinging yokes pivoted horizontally above and below the draw head in position to normally engage the shouldered ends of the link, springs to hold said yokes in engagement with the link, and a cam and its actuating mechanism for spreading the yokes vertically apart to release the link and uncouple the cars, substantially as described. 6th. In a car coupling, the combination, with a draw head having a mouth provided with a cross-shaped aperture, of a link that is cross-shaped in transverse section, whereby it is prevented from turning when engaged in said draw head, and mechanism for interlocking with said link to couple the cars to which it is attached, substantially as described. 7th. In a car coupling, the combination of a draw head having a mouth provided with a cross-shaped aperture, a link that is cross-shaped in transverse section, automatic mechanism for engaging and interlocking with said link, and means for releasing and disengaging the link, substantially as described.

No. 39,899. Sheaf Carrier for Harvester Binders.

(*Porte-gerbe pour moissonneuse-lieuse.*)

The Massey-Harris Company, assignee of Lyman Melvin Jones and James Kent Wedlake, all of Toronto, Ontario, Canada, 18th August, 1892; 6 years.

Claim.—1st. As an improved sheaf carrier, a series of fingers located at the discharge side of the binder table and operated by mechanism arranged to drop the ends of the fingers and then swing them clear, substantially as and for the purpose specified. 2nd. As an improved sheaf carrier, a series of fingers located at the discharge side of the binder table, each finger independently carried in a horizontal journal box provided with a vertical stud fitted into a suitable bearing box in combination with mechanism by which the fingers are dropped and then swung upon their vertical bearings, substantially as and for the purpose specified. 3rd. A rolling rod *E*, suitably journaled to the frame of the machine and having a double crank *F*, formed at its lower end, a bracket *G*, fixed to a journaled rock shaft *H*, and connected to the crank *F*, in combination with a series of the fingers *J*, independently journaled in journal boxes *M*, each journal box having a vertical stud *N*, which is journaled in a bracket fixed to the rock shaft *H*, substantially as and for the purpose specified. 4th. A series of fingers *J*, each finger carried in a pivoted journal box *M*, and each journal box connected to the bar *P*, having a slot *R*, made in it in combination with the rod *O*, crank *F*, all arranged and operating, substantially as and for the purpose specified. 5th. The combination with a series of fingers *J*, of a finger or fingers *U*, connected to the hinged bar *V*, substantially as shown and described.

No. 39,900. Grain Binder. (Lieuse à grain.)

The Massey-Harris Company, assignee of Lyman Melvin Jones and James Kent Wedlake, all of Toronto, Ontario, Canada, 18th August, 1892; 6 years.

Claim.—1st. A header board adjustably connected to a rod having an end set at right angles to it, designed to pivot in a journal set at right angles to the surface of the binder table, substantially as and for the purpose specified. 2nd. A header board adjustably connected to a rod having an end set at right angles to it, designed to pivot in a journal set at right angles to the surface of the binder table, a spring arranged to throw the header board towards the centre of the table, substantially as and for the purpose specified.

3rd. A header board adjustly connected to a rod having an end set at right angles to it, designed to pivot in a journal set at right angles to the surface of the binder table, and an off set extending behind the said end and acted upon by a spring, substantially as and for the purpose specified. 4th. A crank shaft journaled on the outside of the elevator and connected to the binder table in combination with a hand lever fixed to the crank shaft and set so that when it has adjusted the binder table for long grain, it lies at an angle below the grain line of the elevator, substantially as and for the purpose specified. 5th. The combination with a deflector N, and vibrating butter board O, of a shield P, arranged between the two, substantially as and for the purpose specified.

No. 39,901. Harvester Binder. (Moissonneuse-lieuse.)

The Massey-Harris Company, assignee of Lyman Melvin Jones and James Kent Wedlake, all of Toronto, Ontario, Canada, 18th August, 1892; 6 years.

Claim.—1st. The combination, with the binder frame of a bracket extending from the frame and arranged to form a support for the packer shaft, driver gear, etc., substantially as and for the purpose specified. 2nd. A rectangular frame composed of a bracket A, and bail B, fixed to the frame below the binder table and arranged to support the packer shaft, the driving and tripping mechanism of the knoter, substantially as and for the purpose specified. 3rd. A stop arm arranged to engage with a dog K, and fixed to a spindle suitably journaled and having a slotted arm projecting from it, in combination, with a trip lever pivoted on the spindle of the stop arm and adjustly connected to the projecting arm, substantially as and for the purpose specified. 4th. A stop arm arranged to engage with a dog K, and fixed to a spindle suitably journaled and having a slotted arm projecting from it, in combination, with a cam formed on the hub of the needle, substantially as and for the purpose specified. 5th. A stop arm held in the path of the dog K, by a spring R, and fixed to a spindle suitably journaled and having a slotted arm projecting from it, in combination, with a cam formed on the hub of the needle, substantially as and for the purpose specified. 6th. A spring V, fixed to a bracket A, in combination, with a cam projection W, fixed to the spur wheel I, substantially as and for the purpose specified.

No. 39,902. Buffer. (Lissoir de cordonnerie.)

Sidney Wilmot Winslow, assignee of Andrew Wilson Rogers, both of Beverly, Massachusetts, U.S.A., 18th August, 1892; 6 years.

Claim.—1st. As an improved article of manufacture, an abrading covering having a reinforcing button fixed directly to the inner face thereof at its centre, substantially as described. 2nd. In combination, with the yielding foot of a buffer, an abrading cover and a reinforcing button fixed directly to the inner face of the cover at its centre, the said button forming a means of connection with the stem of the buffer foot, substantially as described. 3rd. In combination, with an abrading covering having a button fixed to its central inner face, a felt foot and projections set at intervals directly to the inner face of the covering adapted to enter the felt foot and hold the covering against turning, substantially as described.

No. 39,903. Band Saw Machine. (Scierie à ruban.)

Thos. S. Sprague & Son, assignee of John Harley, both of Detroit, Michigan, U.S.A., 18th August, 1892; 6 years.

Claim.—1st. In a band saw machine, a rotary annular feed table adapted to carry the work, and revolving with its inner edge in proximity to the saw, substantially as described. 2nd. The combination with the table of a bandsaw machine of a rotary annular feed table mounted thereon, to revolve with its inner edge in proximity to the saw, and a fence within said feed table, substantially as described. 3rd. The combination with a table of a bandsaw machine of a rotary annular feed table mounted on said table, revolving with its inner edge in proximity to the saw, and of a saw slot in said feed-table adapted to register with the saw slot of the bandsaw table, substantially as described. 4th. The combination with the table of a bandsaw machine of a rotary annular feed table, mounted on said table, with its inner edge in proximity to the saw, a saw slot in said feed table adapted to register with the saw slot of the band saw table, and a detachable connection between the severed ends forming the sawslot, in said feed table, substantially as described. 5th. In a bandsaw machine, the combination with the saw table, of the rotary feed table mounted thereon, to revolve with its inner edge in proximity to the saw, a supplementary table hinged at its inner edge near the inner edge of said rotary feed table, and provided with work-carrying stops and a guide rail secured to the saw table, and adapted to lift up the outer edge of the supplementary table, substantially as described. 6th. The combination in the bandsaw machine, of the bandsaw table, a rotary annular feed table mounted thereon, to revolve with its inner edge in proximity to the saw, and a rotary feed table mounted above the said annular rotary feed table, and revolving with its outer edge in proximity to the saw, substantially as described. 7th. The combination with a bandsaw machine, provided with the saw-slot E, of the rotary annular feed table G, the saw-slot M, in said feed table adapted to register with the saw-slot E and the

dowel pin N, substantially as described. 8th. The combination with a bandsaw machine, of the annular feed table G, the supplementary hinge table G', and the guide rail L, substantially as described. 9. The combination with a bandsaw machine, of a rotary annular table G, having work-carrying stops K, and a fence secured within said annular table, an upper feed table, adjustly secured above the lower feed table, and provided with work-carrying devices, and actuated by the lower feed table, substantially as described. 10th. The combination with a bandsaw machine, provided with an annular feed table G, which is provided with work-carrying stops, and a fence secured within said annular feed table, of the upper feed table O', provided with an oscillating lever W, and carrying the supplementary bed R', substantially as described. 11th. The combination with a bandsaw machine, of a rotary annular feed table mounted thereon to revolve with its inner edge in proximity to the saw, of a fence secured within the said rotary feed table, and provided with a circular outer face of the same radius as the cut of the saw on the work, substantially as described.

No. 39,904. Apparatus for Raising Liquids.

(Appareil pour pomper les liquides.)

Otto Schulze, Berlin, Prussia, 18th August, 1892; 6 years.

Claim.—An apparatus with suction pump for raising and drawing off liquids, having a pipe at one side carrying a nozzle with tap, after the closing of which the liquid raised by the suction pump flows out continuously without further pumping.

No. 39,905. Electro-Motive Force Regulator Adapted for Electric Generators and Motors. (Régulateur de force électro-motive adapté aux générateurs électriques et moteurs.)

Edward M. Bentley, Boston, Massachusetts, U.S.A., 18th August, 1892; 6 years.

Claim.—1st. The method of regulating electric generators or motors, which consists in dividing them into two sources of electro-motive force and completing the circuit of each source through a variable portion of the other source. 2nd. The method of regulating electric generators or motors, which consists in dividing them into two sectional sources of electro-motive force and completing the circuit of each source through a variable number of sections of the other. 3rd. The combination, with two electric generators or motors constituting sources of electro-motive force, of two line conductors connected, respectively, to one terminal of the respective sources, the other terminals of the sources being each provided with a shifting connection by which the circuit of each source is completed through a variable portion of the other source. 4th. The combination, with two electric generators or motors constituting sources of electro-motive force divided into sections, of two line conductors connected, respectively, to one terminal of the respective sources, the other terminals of the sources being connected each to a moving contact adapted to pass over a series of plates connected to successive sections of the opposite source. 5th. The combination, in a regulator for a dynamo-electric machine or motor, of two armatures or sources of electro-motive force, with their respective commutators, a permanent connection between one commutator brush of each armature and one of the two line conductors, respectively, a moving contact on each commutator adapted to pass from the positive to the negative position, and a permanent electrical connection between each of said contacts and the other commutator brush of the opposite armature. 6th. The combination, in a regulator for an electric motor, of two armatures or sources of counter electro-motive force, with their respective commutators, means for changing the said armatures from series to multiple arc connection, consisting of a moving contact adapted to pass from the positive to the negative position of each commutator and permanently connected to one commutator brush of the opposite armature, and a field magnet regulator for preventing substantial increase of field magnet strength as to the armatures are changed from series to multiple arc connection. 7th. The combination with two motors in series on a constant potential circuit, of a field magnet coil shunting the armatures of one of the two motors. 8th. The combination, with two motor armatures on a constant potential circuit, of means for changing the said armatures from series to multiple arc connection, and a field magnet coil shunting one of the said armatures. 9th. The combination with two motors on a constant potential circuit, of means for changing their armatures from series to multiple arc connection, a series field magnet coil for each motor, and a supplementary field magnet coil for each motor shunting the armature of one of the two motors. 10th. The combination, with two motor armatures on a constant potential circuit, of means for changing them from series to multiple arc connection, a series field magnet coil for each of said armatures, and a supplementary variable coil dependent upon the armature connections, whereby the field magnet strength of the motors is not increased as the motors are changed from series to multiple arc connection. 11th. The combination in an electro-motive force regulator, of two armatures and suitable field magnet coils therefor, movable commutator contacts for each armature, by means of which the armatures may be changed from series to multiple arc connection, and a common operating device for said contacts, whereby they may be moved simultaneously and equally.

No. 39,906. Detergent. (Détersif.)

William Bayann Brittingham, New York, State of New York, U. S. A., 18th August, 1892; 6 years.

Claim.—A detergent compound containing a tungstate of an alkali, substantially as described.

No. 39,907. Fuse. (Fusée.)

Edwin Wilbur Rice, Jr., Lynn, Massachusetts, U. S. A., 18th August, 1892; 6 years.

Claim.—1st. A fuse for the protection of electric circuits, comprising a plurality of fuse wires bundled together, each insulated by a separate insulating sheath and all attached to a single set of terminals, furnishing means for including the fuse in an electric circuit. 2nd. A fuse for the protection of electric circuits, consisting of the enlarged end terminals, the fuse wires bundled together and attached thereto, and a separate insulating tube inclosing each such fuse wire, as described. 3rd. A fuse for the protection of electric circuits, consisting of a plurality of fuse wires connected in multiple between and attached to a single set of contact terminals, and insulated one from the other for a portion of their length with a flexible insulating material, the said fuse wires and insulating material being bundled together, so that the wires are supported and held in place, as described. 4th. As an article of manufacture, an electric fuse consisting of contact terminals and multiple fuse wires attached thereto, and bundled together with intervening insulating material, insulating the wires one from another for a portion of their length, as described.

No. 39,908. Appliance for Handling Invalids.

(Appareil pour manier les invalides.)

James Gosling Thrower, Atlanta, Georgia, U. S. A., 19th August, 1892; 6 years.

Claim.—1st. In an apparatus for handling invalids, the combination of the transportable frame, the roller supported thereon and having different diameters, the mechanism for operating the same, the hangers B forming part of the said frame their upper ends connected by a rod carrying pulleys, and the ropes G and G¹ passing over said pulleys to the roller, substantially as and for the purpose set forth. 2nd. In an apparatus for handling invalids, the combination of the transportable frame, the roller supported thereon having different diameters, the mechanism for operating the same, the hangers B secured to said frame and having their upper ends connected by a rod carrying pulleys, the ropes passing over said pulleys from the litter to said rollers and a litter consisting of the rod I, bails I¹, and the strap I², all arranged substantially as and for the purpose specified. 3rd. In an apparatus for handling invalids, the combination of the transportable frame, the roller supported thereon, and having different diameters, the mechanism for operating the same, the hangers B secured to said frame and having their upper ends connected by a rod carrying pulleys, the ropes G and G¹ passing over said pulleys to the roller, and the sliding floor C adapted also to enlarge the base of the frame, substantially as and for the purpose specified. 4th. In a device for handling invalids, the combination of the transportable frame, the roller supported thereon having different diameters, the mechanism for operating the same, the hangers B supported by said frame, and having their upper ends connected by a hollow bar H carrying pulleys, the ropes passing over said pulleys from the litter to said rollers, and the rod J sliding in said bar H, and the bail I¹ suspended from the outer end of said rod J, substantially as shown and described and for the purpose specified.

No. 39,909. Grinding Mill. (Moulin à blé.)

James Jones and Aldred James Jones, both of Thorold, Ontario, Canada, 19th August, 1892; 6 years.

Claim.—1st. In a grinding mill a stationary roll having its periphery composed of a series of flat longitudinal corrugated surfaces, in combination with a revolving roll designed to operate in connection with the flat corrugated surface contiguous to it, substantially as and for the purpose specified. 2nd. The combination of the stationary roll having its periphery composed of a series of flat longitudinal corrugated surfaces and the bearing boxes supported in their frames which are adjustable on the main frame, substantially as and for the purpose specified. 3rd. The combination of the stationary roll having its periphery composed of a series of flat longitudinal corrugated surfaces and the bearing boxes supporting the same, the ends of which are grooved to, receive the ribs on the frame in which they are adjusted vertically by screw spindles, substantially as and for the purpose specified.

No. 39,910. Hydrocarbon Burner and Furnace.

(Foyer à hydrocarbures et fourneau.)

Robert Ferguson, St. Paul, Minnesota, U.S.A., 19th August, 1892; 6 years.

Claim.—1st. In a hydrocarbon furnace, the combination with its heating oven, of the combustion chamber and a superheating chamber respectively connected therewith, air and steam pipe coils arranged in said superheating chamber, and a burner arranged in said combustion chamber, having suitable connection with an oil

supply pipe, and with said air and steam coils, substantially as and for the purposes set forth. 2nd. In a hydrocarbon furnace, the combination with its heating oven provided with suitable doors, of a combustion chamber arranged in front of said oven and connected therewith, a superheating chamber arranged beneath said oven and said combustion chamber, and connected with said oven and the chimney flue, a hydrocarbon burner arranged in said combustion chamber, air and steam pipes arranged in said superheating chamber connected severally with suitable sources of supply and with said burner and an oil supply pipe connected with said air and steam pipes between said superheating chamber and said burner, whereby the superheated air and steam are separately mingled with the oil, and forced together through the burner, as and for the purposes set forth. 3rd. In a hydrocarbon furnace, the combination of its heating oven having doors in the side walls thereof, a combustion chamber connected with said oven provided with a suitable burner, a superheating chamber connected with said oven and the chimney flue, and air and steam coils arranged in said superheating chamber and connected with said burner. 4th. In a hydrocarbon furnace, the combination with its oven provided with suitable outer doors, of a combustion chamber arranged in front of the same and connected therewith, a burner arranged in said combustion chamber, receivers connected with said burners and arranged in the smoke flue of the furnace, a superheating chamber arranged underneath the oven connected at the rear with the oven and opening into the chimney flue, steam and air pipes arranged in said superheating chamber and connected severally with sources of supply and with oil supply pipes and said receivers, substantially as and for the purposes set forth. 5th. The combination of the oven 3, having the doors 4, the combustion chamber 5 connecting therewith, a burner extending through the wall of the furnace into the combustion chamber, the superheating chamber 8 arranged underneath the oven and connected therewith by the flues 9 and opening into the chimney flue 10, the coils 11 and 12 arranged in said superheating chamber and connected respectively with air and steam supply sources, and also with an oil pipe and said burner, substantially as and for the purposes set forth. 6th. In a hydrocarbon furnace, the combination of a heating oven for treating the metals to be worked, a connected combustion chamber provided with a hydrocarbon burner adapted to the use of oil coming led separately with superheated air and steam, and a superheating chamber intermediate of the oven and chimney flue and connected therewith, and coils of air and steam pipes arranged therein and leading to said burner, whereby the products of combustion are used first to heat the metals treated in the furnace, and afterwards to superheat the air and steam conveyed to the burner, as and for the purposes set forth. 7th. The combination of inner and outer burner pipes, a receiver connected with each of said pipes, steam and oil pipes connected with one of said receivers, air and oil pipes connected with the other receiver, and means for superheating the steam and air passed through said pipes, substantially as and for the purposes set forth. 8th. A hydrocarbon burner comprising in combination two burner pipes arranged one within the other, a receiver connected with each of said pipes, an oil pipe connected with each of said receivers, a steam pipe surrounding one of said oil pipes and connecting with its receiver, and a hot air pipe surrounding the other oil pipe and connected with its receiver, substantially as and for the purposes set forth. 9th. A hydrocarbon burner, comprising in combination interior and exterior burner pipes, receivers connected respectively with said pipes, oil pipes connected with said receivers, a steam pipe surrounding one of the oil pipes and connected with its receiver, an air pipe surrounding the other oil pipe and connected with its receiver, and means for superheating the air and steam supplied to said pipes, substantially as and for the purposes set forth. 10th. A hydrocarbon burner comprising in combination an exterior and an interior burner pipe, a steam pipe connected with one of said burner pipes, an air pipe connected with the other of said burner pipes, oil pipes entering said steam and air pipes, and means for superheating the steam and air supplied to said steam and air pipes, substantially as described.

No. 39,911. Device for Operating Car Brakes.

(Appareil pour actionner les frein de chars.)

Robert Andrew Kiskadden, Pittsburg, Pennsylvania, U.S.A., 19th August, 1892; 6 years.

Claim.—In a device for manually operating car brakes, the combination, with a main cylinder and two pistons arranged in opposite ends thereof, of two supplementary cylinders *f f*, arranged on opposite sides of said main cylinder and each communicating at one end with said main cylinder at a point between the two pistons therein, and having a check-valve *v*, a valved piston *h*, operating in each of the supplementary cylinders and connected with a hand lever at the end of a car, a relief-valve *l*, communicating with said main cylinder at a point between the pistons thereof and having an axially-turning body, and a treadle *o* connected with said relief-valve by an intermediate connection *m*, whereby air may be admitted to the brake cylinder through the relief-valve and operate the pistons in the main cylinder to release the brake-shoes, substantially as and for the purpose described.

No. 39,912. Composition for Converting Cast Iron into Steel. (*Composition pour convertir le fer en acier.*)

William J. Miles, Kansas, Illinois, U.S.A., 19th August, 1892; 6 years.

Claim.—1st. The herein-described process of converting malleable cast-iron into steel, the same consisting in placing the castings in a metal box, sifting over them a compound of ferro-cyanide of potassium, cyanide of potassium and carbonate of potassium, surrounding the castings by layers of charcoal, and raising and maintaining the castings at a bright red heat, substantially as and for the purpose described. 2nd. The herein-described compound for converting malleable cast-iron into steel, the same consisting of ferro-cyanide of potassium, cyanide of potassium, and carbonate of potassium in the proportions described, substantially as described.

No. 39,913. Sifter for Cinders. (*Crible à cendres.*)

John H. Hunt, Hamilton, Ontario, Canada, 20th August, 1892; 6 years.

Claim.—1st. In a cinder-sifter, the combination of the box, A, having flanged cover B, and the inclined barred screens, C and D, in position as described, substantially as and for the purpose hereinbefore set forth. 2nd. The box A, having cover B, and sliding door I, the cinder receptacle E, provided with side extensions K, the guides J, on sides of box, and bracket H, the ash-drawer F, and the rockers M, in combination with the two inclined screens C and D, arranged substantially as and for the purpose hereinbefore set forth.

No. 39,914. Fire Escape. (*Sauveteur d'incendie.*)

Charles Edmond Sansoucy, Duluth, Minnesota, U.S.A., 20th August, 1892; 6 years.

Claim.—1st. A fire escape, comprising the case or closure, the vertical shaft journaled therein, the worm on said shaft, the cable or chain having the waist strap at its end, the drum or spool carrying said cable and provided with gear engaging said worm, and the governor actuated friction brake on said shaft, substantially as specified. 2nd. A fire escape, comprising the case or closure, adapted to be inclosed in the wall of a building, near an exit thereof, the spools or drums journaled therein, the gear on said drums, the cables or chains carried thereby, and the straps or bands connected to said cables, the vertical shaft carrying a worm in engagement with the gear of said drums and the governor actuated friction brake on said shaft, substantially as specified. 3rd. The fire escape, comprising the case or closure, adapted to be inclosed in the inner face of a wall or building near an exit thereof, the spools or drums journaled therein, the chains or cables carried thereby, the straps, the vertical shaft carrying a worm in engagement with the gear of said drums, the friction brake for said shaft, and the second and smaller case on the outer wall of the building, and provided with a spring-actuated hinged faced or cover, substantially as specified. 4th. In a fire escape, the combination with the drums or spools, and the ropes or cables carried thereby, the gear and the vertical shaft having the worm thereon, in engagement with said gear, of the block on said shaft, the governor arms connected to said block, the loose block adapted to be operated by said arms, and friction discs in contact with said loose block, substantially as specified.

No. 39,915. Electric Warming Bottle.

(*Chauffage électrique pour bouteilles.*)

Thomas Ahearn, Ottawa, Ontario, Canada, 20th August, 1892; 6 years.

Claim.—In an electric warming bottle, the combination of a bottle or bag of flexible waterproof material A, a long neck B with mouth *b* thereon, a resistance coil C within said bottle, and the leads *c* extending through said neck, substantially as set forth.

No. 39,916. Electric Oven. (*Four électrique.*)

Thomas Ahearn, Ottawa, Ontario, Canada, 20th August, 1892; 6 years.

Claim.—1st. An oven having in its hearth inclosed pits in which electric heaters are placed, connected with an electric circuit, substantially as set forth. 2nd. An oven having in its hearth inclosed pits, electrically heated air circulating stoves in said pits connected with a circuit, incandescent lamps hung within said oven, and glazed apertures in the front of said oven, substantially as set forth. 3rd. In an electric oven, the combination, with the hearth walls and arch thereof forming an inclosed space, of pits *b*, electric heaters C placed in said pits, guards B¹ on said pits, electric lamps E placed within said space, and the glazed frames D¹, substantially as set forth.

No. 39,917. Electric Flat Iron. (*Fer électrique à repasser.*)

Thomas Ahearn, Ottawa, Ontario, Canada, 20th August, 1892; 6 years.

Claim.—1st. In an electrically heated flat iron, the combination of a chambered body A open at the top, a plate B closing said chamber and provided with handle and binding posts and rigidly secured to said body, a resistance coil D held upon a suitable support secured to said plate and connected to the binding posts, layers of

insulation against electricity and heat between said coil and said plate and a filling of powdered whiting in said chamber, substantially as set forth. 2nd. In an electrically heated flat iron, the combination of a chambered body A open at the top, a plate B closing said chamber and provided with handle and binding posts and rigidly secured to said body, a core C having the recessed heads *c* secured to said plate, a resistance coil composed of coils 4, 5, and 6 and connected to said binding posts, electric and heat insulation E and F, between said coil and plate and the filling F around said wound core, substantially as set forth.

No. 39,918. Regulator for Steam Furnaces.

(*Régulateur pour chaudières à vapeur.*)

John Levey, Lindsay, Ontario, Canada, 20th August, 1892; 6 years.

Claim.—1st. The combination, with a steam boiler furnace and smoke stack, of the cylinder connected and communicating with the boiler, a piston and piston rod, a casing or tube having a vertical slot connected with said cylinder, a rack-bar and a rod connected with said piston rod, an adjustable nut in the upper end of said tube, a coiled spring intermediate of said rack-bar and nut, a damper located in said smoke stack and secured to a damper shaft journaled in said stack, and a cogged segment secured to said shaft and meshing with the rack-bar in the tube or casing, substantially as described. 2nd. The combination, with a steam boiler furnace and smoke stack, the cylinder connected and communicating with the boiler, a piston and piston rod, a casing or tube having a vertical slot connected with said cylinder, a rack-bar and rod connected with said piston rod, an adjustable nut in the upper end of said tube, a coiled spring intermediate of said rack-bar and nut, a damper located in said smoke stack and secured to a damper shaft journaled in said stack, a cogged segment secured to said shaft and meshing with the rack-bar in the tube or casing, and the downwardly depending weighted lever secured to the damper shaft, substantially as described.

No. 39,919. Supporter for Corsets.

(*Support pour corsets.*)

Eugene Pearl, New York, State of New York, U.S.A., 20th August, 1892; 6 years.

Claim.—1st. The combination, with a corset composed of a textile fabric and steels or bones, of a support secured inside thereof at the waste line, said support consisting of a piece of woven wire fabric cut bias and a covering of elastic textile material, substantially as shown and described. 2nd. A support for corsets composed of a piece of woven wire fabric cut bias and a covering of yielding textile fabric securing thereto and adapted to be secured inside the waist line of the corset, substantially as shown and described. 3rd. A support for corsets, composed of a piece of woven wire fabric cut bias, vertical steels, and a covering of textile fabric all secured together, substantially as shown and described. 4th. A support for corsets, composed of a piece of woven wire fabric and a covering of yielding elastic textile fabric upon opposite sides of the wire fabric, the opposing faces being united by an adhesive waterproof gum, substantially as shown and described. 5th. A support for corsets, composed of a piece of woven wire fabric cut bias, vertical steels, and two pieces of yielding textile fabric united face to face, with the wire fabric and steels between them, by an adhesive waterproof gum, substantially as shown and described.

No. 39,920. Machine for Forming Type Bars Matrices, Etc. (*Machine à faire les barres de caractères, matrices, etc.*)

Ottmar Mergenthaler, Baltimore, Maryland, U.S.A., 20th August, 1892; 6 years.

Claim.—1st. The magazine tube having the longitudinal side opening and the inwardly turned edges along the sides of said opening. 2nd. The magazine tube having the enlarged upper end the longitudinal side opening and longitudinal internal ribs or lips terminating below the upper end to permit the free entrance of the matrices. 3rd. The throat frame for the magazine having the series of partitions each composed of a stationary stud, a flexible plate *r*¹ fixed thereto, and an overlying plate *r*². 4th. The sustaining frame, and the series of independently removable magazine tubes engaged therewith, in combination with the locking bar acting to hold all the tubes in engagement. 5th. In combination with the conductor E, into which the matrices are delivered at different points in its length, an air conductor with openings located at different points in the length of the conductor E, and adapted to deliver the air lengthwise of said conductor E, whereby the matrices are subjected to successive impulses of air in the course of their passage. 6th. In combination with the trough like conductor E, the blast pipe F discharging therein, and a longitudinal partition, *e*¹, extending but a portion of the length of the conductor, and adapted as described, to divide the ingoing blast. 7th. In a composing mechanism, the combination substantially as shown of a trough or conductor adapted to admit matrices at different points in its length, a blast mechanism provided with discharge openings delivering air into and longitudinally of said channel at different points in its length, magazine tubes located above and at

different points in the length of the channel and ejecting devices whereby the type are delivered from the tubes into the channel.

8th. In combination with the inclined conductor E, having a horizontal end to receive the advancing matrices, the internal longitudinal wires or guides e^1 , extended through the inclined portion of the conductor and continued downward over one end of the horizontal portion; whereby the advancing matrices are prevented from jumping out of position as they leave the guide.

9th. In combination with the vertically swinging and laterally moving arms H, H¹, and their sustaining shaft movable one in relation to the other as described, the connecting rod h^4 , attached to one arm and adapted to engage the other as described and shown.

10th. In combination with a guide or conductor E, to sustain the matrices, the vertically and laterally movable arm H, provided with the extension blade h^2 , adapted to enter the guide or conductor opposite the end of the line of matrices and the vertically movable head or yoke I, for lowering the matrices past the blade, whereby the matrices are prevented from shifting laterally during their descent.

11th. In combination with the vertically slotted guide or conductor in which the matrices are assembled and supported, the vertically swinging and laterally movable arm H, the blade h^2 , pivoted thereto, and the stationary pin h^3 , controlling the movement of said blade as it descends.

12th. In combination with the guide or conductor on which the matrices are assembled, the receiving head or yoke I, at its end, and the flanged blocks e^9 , mounted on the conductor as described to guide the matrices and keep them in position during their transfer to the yoke.

13th. In combination with the rising and falling head I to sustain the line of matrices, the laterally movable arm H, having the depending blade h^2 , to act against the rear end of the matrix line, and an upright arm, j^3 , to act upon the forward end of the matrix line; whereby the descending line of matrices is properly guided between the blade h^2 and arm j^3 , in descending to the mould.

14th. In combination with the head or yoke I for lowering the matrices to the mould, the movable matrix confining clamp provided with an uprising arm j^3 , to assist in guiding the line of matrices during its descent.

15th. In combination with the main frame, the mold and vertically movable head or yoke I to support the matrices and present them to the mold, a locking device acting to hold the yoke firmly down in place.

16th. In combination with the main frame, the mold, the vertically movable yoke I, and the pivoted dog or hook i^4 , whereby the yoke is held down in place during the casting operation.

17th. In combination with the main frame, and the rising and falling head I, the rock shaft i^3 , the locking dog and the arm i^2 , connected to said shaft, and the vibratory arm i^2 , connected to the arm i^2 , whereby it is caused to serve the double purpose of raising and lowering the yoke and of operating the locking device therefor.

18th. The combination of the yoke I, the locking dog mounted thereon, and provided with the operating arm i^5 , the spring i^6 , the operating arm i^2 , and the yielding link i^1 , connecting the arms i^2 and i^5 .

19th. In combination with the mold, the vertically movable head or yoke I divided horizontally into two parts, said parts connected to admit of a limited vertical play between them, and the lower part adapted to sustain the matrices, as described.

20th. In combination with the mold having a shoulder i^5 thereon, the vertically movable horizontally divided head or yoke I, its lower member adapted to sustain the matrices and its upper member adapted to bear thereon, in combination with the operating device connected to the upper member, whereby the upper member is caused to effect the accurate alignment of the matrices after they are presented to the mold by the lower member.

21st. In combination with the mold having the shoulder j^6 , and the main frame, the horizontally divided vertically movable yoke or yoke I, adapted to bear upon the mold and upon the main frame, as described.

22nd. In combination with the main frame having the vertical shoulder a^{10} to form a bearing therefor, the vertically movable head I, adapted to sustain the matrices and to bear against their outer or forward edges for substantially their entire height, the horizontally movable mold adapted to bear against the opposite edges of the matrices, whereby the matrices are firmly confined between the mold and the opposite faces of the yoke, and the latter in turn sustained directly by the main frame.

23rd. The movable matrix yoke or head I, grooved to receive the supporting shoulders of the matrices, with one wall extended downward to support the forward edges of the matrices, but the opposite wall of less vertical width than the face of the mold may pass thereunder to the edges of the matrices as shown in fig. 2.

24th. In combination with the mold wheel and the ejector L, the stationary trimming blade W having its edge adjacent to the mold, the underlying stationary blade w^1 having its side adjacent to the mold wheel the stationary blade w^2 and the spring supported plate w^3 , the two latter lying beneath a stationary surface, to guide the type.

25th. In a linotype machine, the linotype mold having the mold proper j , provided in one wall with two or more grooves perpendicular to the front end of the mold and to the face of the type cast therein, whereby the linotypes are formed with raised ribs for spacing or leading purposes.

26th. In combination with the rotating mold wheel movable in the direction of its axis, the main frame provided with a stud adapted to engage said wheel when in its operative position and thereby hold it against rotation.

27th. The sustaining rails P and the matrices provided with suspending shoulders to ride on said rails and with notches o^9 in one edge, in combination with the slide O, and the stud o^{10} , whereby the matrices and the slide are arrested in the event of a matrix being reversed.

28th. In combination with guides P to support the matrices and the vertical slide Q to lift them singly therefrom, the horizontal slide O for advancing the matrices to the lifting slide, and the movable stop s to arrest the advance of the slide O, and suitable means, substantially as described for imparting a constant vibration to the stop.

29th. In combination with the lifting slide Q, the constantly reciprocating slide s^1 to sustain the matrices lifted, the stop or dog s^2 actuated by the slide s^1 , and the horizontal slide O for advancing the matrices.

30th. In combination with the matrix rails or supports in advance of the distributor, the spring actuated slide O for advancing the matrices thereover, and the latch o^{12} for locking said slide at the will of the operator when retracted.

31st. In a mechanism for separating the matrices from the longer space bars, the reciprocating slide recessed in its upper end to receive and carry the matrices, and provided below the recess with the yielding finger to engage the space bars and carry them downward.

32nd. In combination with the distributing rail, the matrix lifting slide, its operating pitman Q, their actuating crank, and the eccentric and adjusting device between the pitman and the slide, whereby the rise of the slide may be adjusted in proper position to the distributing rail.

33rd. The matrix having a letter or character in one edge and the longitudinal recess or depression in its side face from end to end.

No. 39,921. Cooking Vessel. (*Ustensil de cuisine.*)

Richard C. Anderson, Pawnee, Nebraska, U. S. A., 20th August, 1892; 6 years.

Claim.—1st. The cooking vessel having a close cover and double walls fixed together, the space between the walls communicating with the interior of the vessel just below the close cover and with a space or chamber immediately underneath the food receptacle and above the foot of the outer wall of said vessel, substantially as set forth.

2nd. The cooking vessel provided with a steam tight cover and with two walls 1 and 2, the former extending below the latter, the plate 5 having the upturned lips 6, said plate being adapted to enclose a space above the foot of the outer wall and below the bottom of the food receptacle, said space being in communication with that immediate below the central receptacle, and also with the interior of the latter at its upper part, substantially as set forth.

No. 39,922. Combined Cigar Lighting and Advertising Apparatus. (*Allumoir de cigares et appareil d'annonces combinés.*)

Arnold Neuhaus, London, England, 20th August, 1892; 6 years.

Claim.—1st. In combined cigar lighting and advertising apparatus the combination of the revolving drum or drums a provided with advertisements and the gas light radiating arm i arranged to operate the said drum or drums substantially as described.

2nd. In combined cigar lighting and advertising apparatus the combination of the revolving drum or drums a provided with advertisements, the shaft b for revolving the same, the casing c having apertures e^1 the ratchet wheel d , fixed to the shaft b the weighted pawl e for operating the wheel d , the crank e^1 , shaft f , crank g , shaft h , spring p , crank n , and rod o and the operating gas light radiating arm i constructed arranged and operating substantially as described.

3rd. The combined cigar lighting and advertising apparatus arranged, combined and operating substantially as herein described and shown.

4th. The modification of the apparatus above claimed substantially as described.

No. 39,923. Double Hand Winch.

(*Tourniquet à double manivelle.*)

Franz Uhlig, Topkowitz, Bohemia, Austria, 20th August, 1892; 6 years.

Claim.—A portable double hand winch having the chain or rope drum t loose upon a shaft w , but prevented to slide thereon and rotatively moveable by means of a crank shaft w^1 pinion i^1 fast thereon and gearing into a spur wheel i fast on the drum, and also by means of two mitre-gear shafts with worm s gearing in a worm wheel s^1 on the drum shaft the latter connected to said shaft by means of a clutch coupling k^1 and said drum provided with brake pully m controllable by means of a brake lever with strap, substantially as set forth.

No. 39,924. Carbon Product. (*Produit de carbone.*)

Louis Siegfried Langville, Troy, New York, U. S. A., 20th August, 1892; 6 years.

Claim.—As a new article of manufacture, a carbon product made from wood-cellulose, and the resinoid residuum of wood-pulp manufacture, and in which the bulk of the silica of the wood cellulose has been removed, and the lighter carbon produced from the resinoids combined with the denser carbon of the wood-cellulose as and for the purposes set forth.

No. 39,925. Rough Rounding and Channelling Machines. (*Machine à arrondir et canneler.*)

Henry Briggs, Philadelphia, Pennsylvania, U. S. A., 20th August 1892; 6 years.

Claim.—1st. In a rough rounding and channelling machine, the pivoted throat plate and gage, in combination with and actuated by

the sliding pin and clamp feed and mechanism for operating them, substantially as shown and described. 2nd. In a rough rounding and channelling machine, the combined lock clamp feed, sliding pin, and pivoted throat plate and gage, in combination with the four motion drop feed, and mechanism for operating them, substantially as shown and described. 3rd. A rough rounding and channelling machine, provided with the oscillating cutting blade 89, having its cutting edge parallel with its axis of oscillation, a work support, and a four motion drop feed, with a combined lock feed clamp, sliding pin, and throat plate and gage, in combination with a vertically vibrating adjustable channelling knife and mechanism for operating the cutting blade, four motion drop feed, lock clamp feed, sliding pin, pivoted throat plate and gage, and channelling knife, substantially as shown and described. 4th. In a rough rounding and channelling machine, the adjustable rests 113 and 114, constituting a support for the work, and mechanism for the channelling knife and rough rounding cutting blade, substantially as shown and described. 5th. A channelling machine, provided with a channelling knife supported by a holder or carriage mounted on a vertically vibrating arm mechanism, substantially as described, for supporting and adjusting the holder or carriage vertically, and means for supporting the material operated on and for feeding it against the cutting edge of the channelling knife, substantially as shown and for the purpose described. 6th. A channelling machine provided with a channelling knife supported by a holder or carriage mounted on a vertically vibrating arm mechanism, substantially as described, for supporting and adjusting the holder or carriage vertically, means for adjusting the same laterally while the machine is in operation, and means for supporting the material operated on and for feeding it against the cutting edge of the channelling knife, substantially as shown and for the purpose described.

No. 39,926. Method of and Apparatus for Utilizing the Force of Water Falls. (Méthode et appareil pour utiliser la force des chutes d'eau.)

Mamian Hamilton, executrix of the will of Silas Hanes Hamilton, both of New York, State of New York, U.S.A., 20th August, 1892; 6 years.

Claim.—1st. The method of utilizing the force of water of a water fall without affecting the appearance of the fall, which consists in providing a motor situated behind the sheet of falling water, and causing a portion of such sheet taken from the rear side thereof to infringe upon and actuate the motor, substantially as and for the purpose specified. 2nd. The method of utilizing the force of water of a water fall without affecting the external appearance of the fall, which consists in providing a suitable motor situated to the rear of the falling sheet of water, deflecting a portion of such sheet from its rear side, and directing it to or upon the motor, so as to actuate the latter, substantially as and for the purposes shown. 3rd. The method of utilizing the force of water of a water fall, which consists in providing within a suitable chamber in the breast of the fall and to the rear of the descending sheet of water, a suitable water motor, deflecting or separating a portion of said sheet of water from its rear side, guiding it to the motor so as to drive the same, and connecting machinery with the motor to be driven thereby, substantially as and for the purpose set forth. 4th. As an improvement in mechanism for utilizing the force of falling water, a motor that is located within the breast of a water fall in the rear of the falling sheet of water, in combination with means for deflecting a portion of the falling water from the rear side of the sheet, and guide it so that it will infringe upon and operate the motor, substantially as and for the purpose described. 5th. As an improvement in mechanism for utilizing the force of water, a motor located within the breast of a water fall to the rear of the sheet of water, and an adjustable deflector for separating a part of the water from the rear side of such sheet and causing it to infringe upon and actuate the motor substantially as and for the purpose specified. 6th. As an improvement in mechanism for utilizing the force of falling water, a motor which is located within the breast of a water fall to the rear of the sheet of water, in combination with a chute that has one end connected with the casing of such motor and its opposite end made adjustable by mechanism, substantially as shown, toward and from the falling water, whereby a portion of such water may be caused to pass into or infringe upon such motor, substantially as and for the purpose shown.

No. 39,927. Process of and Dies for Making Belt Fasteners. (Procédé et étampe pour faire les agrafes de courroie.)

The Steel Belt Fastener Company, assignee of Gilbert Patrick Kenahan, all of Cleveland, Ohio, U.S.A., 20th August, 1892; 6 years.

Claim.—1st. A step in the process of making belt fasteners, which consists in simultaneously bending and shaping the prongs of the fastener blank, substantially as set forth. 2nd. A step in the process of making belt fasteners, which consists in simultaneously bending the prongs of the fastener blank along two lines at each side of the blank and shaping said prongs, substantially as set forth. 3rd. The process of making belt fasteners, which consists in first cutting the blank and thereupon simultaneously bending and shaping the prongs, substantially as set forth. 4th. The process of mak-

ing belt fasteners, which consists in first cutting the blank, thereupon simultaneously bending and shaping the prongs, and finally chamfering the outer sides of the ends of the prongs, substantially as set forth. 5th. A set of dies for bending and shaping the prongs of belt fastener blanks, consisting of a recessed female die and a correspondingly shaped male die, one of said dies having shaping recesses in its sides for the prongs of the blank, substantially as set forth. 6th. A set of dies for bending and shaping the prongs of belt fastener blanks, consisting of a straight sided and right angled female die having ribs upon the sides of its recess, and a correspondingly shaped male die having corresponding grooves and ribs in and upon its sides formed with prongs shaping recesses in their faces, substantially as set forth. 7th. The combination with a pair of dies for bending and shaping belt fastener blanks, of an upwardly movable expeller fitting in the bottom of the female die, substantially as set forth. 8th. The combination, with a male die and a female die for bending and shaping belt fastener blanks, said female die having a longitudinal groove in its bottom, of an expeller shaped to fit into said groove and connected to be withdrawn by the male die, substantially as set forth. 9th. The combination, with a male and female die for bending and shaping belt fastener blanks, said male die having projecting pins upon its ends and said female die having a longitudinal groove in the bottom of its recess, of a stirrup-shaped expeller fitting in the groove of the female die and having longitudinally slotted sides sliding upon the pins at the male die, substantially as set forth.

No. 39,928. Machine for turning Buttons.

(Machine pour tourner les boutons.)

Dilman Brubacher Shantz, Berlin, Ontario, Canada, 20th August, 1892; 6 years.

Claim.—1st. The combination, with the cutters, of the disc provided with stationary open jaws, and pivoted adjustable spring jaws, and means whereby the jaws are opened and then closed during the period that the cutters are operating upon the preceding blank, as and for the purpose specified. 2nd. The combination, with the cutters, the stationary jaws and the pivoted adjustable spring jaws, of the plungers operated as described, so as to securely hold the blank, as and for the purpose specified. 3rd. The combination, with the disc provided with stationary open jaws and pivoted adjustable spring jaws, and means whereby the jaws are opened and then closed during the period that the cutters are operating upon the preceding blank, of the cutters and cutters spindles deriving a longitudinal intermittent reciprocating movement through the levers operated from cams on one end of the main arbor which have worm gears at their other end driven from worms on the driving shaft, as and for the purpose specified. The combination, with the disc provided with stationary jaws and pivoted adjustable spring jaws and plungers operating as specified, of the cutters and cutter spindles deriving a longitudinal intermittent reciprocating movement through the levers operated from cams on one end of the main arbor which have worm gears at their other end driven from worms on the driving shaft, as and for the purpose specified. 5th. The combination, with the cutters, the disc provided with stationary open jaws and pivoted adjustable spring jaws and split plungers operated as described, of the projecting shoulder 26, the end of which rests against the disc, as and for the purpose specified. 6th. The combination, with the cutters, of the disc secured on the end of the spindle *s*, and provided with stationary jaws and pivoted spring jaws which are adjustable as described, of the ratchet pinion and pawl which receive an intermittent motion from a cam on one of the main arbors so as to partially revolve the disc at each forward movement of the pawl, as and for the purpose specified. 7th. The combination, with the disc provided with stationary jaws and adjustable spring jaws and the split plungers arranged to operate so as to hold the jaws stationary during the period that the cutters are operating upon the blank, of the spring stop arm, the end of which is designed to fit into notches, *t*, in the disc as and for the purpose specified. 8th. In a button turning machine the combination with the main shaft, *A*, provided with the worms, *B*, *B*¹, of the arbors, *D*, *D*¹, provided with the worm gears, *C*, *C*¹, at one end meshing with the worms, and at the other end with the cams, *K*, *K*¹, arranged to operate in connection with the levers, *H*, *H*¹, and the cutter spindles, *F*, and *G*, connected to the levers, *H*, *H*¹, respectively deriving a longitudinal movement from the levers through their connection to the cams as and for the purpose specified. 9th. In a button turning machine the combination with the main shaft, *A*, provided with the worms, *B*, *B*¹, of the arbors, *D*, *D*¹, provided with the worm gears, *C*, *C*¹, at one end meshing with the worms, and at the other end with the cams, *K*, *K*¹, arranged to operate in connection with the levers, *H*, *H*¹, and the cutter spindles, *F*, and *G*, connected to the levers, *H*, *H*¹, respectively deriving a longitudinal movement from the levers through their connection to the same, and the pulleys, *F*¹, and *G*¹, designed to rotate the cutters, *F*, and *G*, respectively as and for the purpose specified. 10th. The combination with the cutters, *f*, and *g*, deriving a rotary motion and longitudinal intermittently reciprocating movement as specified, of the revolving disc, *S*, provided with open stationary jaws, *Y*, the pivoted adjustable jaws, *y*, *y*¹, the springs, *z*, designed to normally hold the jaws, *y*, *y*¹, against the stationary jaws, *Y*, the pin *z*¹, located behind the jaws *y*, *y*¹, and extending through the disc *S*, and the stationary cam designed to push the pin, *z*¹, inwardly as and for the

purpose specified. 11th. The combination with the cutters, f , and g , deriving a rotary motion and longitudinal intermittently reciprocating movement as specified, of the revolving disc, S , provided with open stationary jaws, Y , the pivoted adjustable jaws, u , u^1 , the springs, z , designed to normally hold the jaws, u , u^1 , against the stationary jaws, Y , the pin, z^1 located behind the jaws, u , u^1 , and extending through the disc, S , and the stationary cam designed to co-act with the pin, z^1 , and provided with a handle, Z^1 , so as to release the pin z^1 , as and for the purpose specified. 12th. The combination with the cutters, f , and g , deriving a rotary motion and longitudinal intermittently reciprocating movement as specified, the intermittently revolving disc, S , provided with open stationary jaws, Y , the pivoted adjustable jaws, u , u^1 , the springs z , designed to normally hold the jaws, u , u^1 , against the stationary jaws, Y , of the split plunger, 10, comprised of the parts 11 and 12, the levers 15, the upper ends of which fit into notches 14, in the parts 11 and 12, and the spiral springs 17, attached at one end to the lower ends of the levers 15, and at the other end to a portion of the frame, as and for the purpose specified. 13th. The combination with the cutters f , and g , deriving a rotary motion and longitudinal intermittently reciprocating movement as specified, the intermittently revolving disc, S , provided with open stationary jaws Y , the pivoted adjustment jaws, u , u^1 , the springs z , designed to normally hold the jaws, u , u^1 , against the stationary jaws Y , of the split plunger 10, comprised of the parts 11 and 12, the levers 15, the upper ends of which fit into notches 14 in the parts 11 and 12, the spiral springs 17, attached at one end to the lower ends of the levers 15, and at the other end to a portion of the frame, the plunger 18, connected at the top to the rocking arm 21, on the arbor D^{11} , and the cam projection 24, on the arbor D^1 , designed to come in contact with the friction roller 22, at the top of the arm 21, as and for the purpose specified. 14th. The combination with the cutters f and g , of the disc S , provided with the open jaws Y , and u , u^1 , and secured on the end of the counter shaft s , the ratchet pinion s^1 , secured on the opposite end of the counter shaft s , and the pawl s^{11} , pivoted on the loose arm T , and driven intermittently through the link T^1 , arm U , on the one end of the spindle u , and arm U^1 , at the other end provided with the pin u^1 , fitting into a cam groove u^{11} , made in the collar U^{11} , secured on the arbor D , as and for the purpose specified. 15th. The combination with the disc S , driven as specified, and having notches t , cut in its periphery, of the stop arm V , secured on the one end of the rocking spindle w , and having the spiral spring W , located behind it as and for the purpose specified. 16th. The combination with the disc S , driven as specified, and having notches t , cut in its periphery, of the stop arm V , secured at one end of the rocking spindle w , the arm X , located at the other end of the rocking spindle w , and having a pin x , which fits into the cam groove x^1 , formed in the collar X , secured to the arbor D , as and for the purpose specified. 17th. The combination with the cutters f , located on the inner end of the cutter spindle F , and driven as specified, of the lever H , pivoted at the upper end of the standard e , connected to the end of the cutter spindle F , by the forked bracket f , extending into the annular groove f , and having at the top the curved arm I , connected to the cross rod J , by the spiral spring i , and at the bottom, the cage L , connected by the screw spindle F , to the pivoted trunion M , in the lower end of the lever H , the cage L , being adjustably supported at its inner end and provided with the roller 2, which is designed to co-act with the cam, K , on the arbor D , as and for the purpose specified. 18th. The combination with the cutters and cutter spindles f , and F , and g , and G , of the levers H , H^1 , connected to the top by the arm I , I^1 , and spiral springs i , i^1 , to the cross rod J , and at the bottom to the cages L , L^1 , by the screw spindles l , l^1 , and pivoted trunnions M , M^1 , the links P , P^1 , supporting the inner end of the cages L , L^1 , and the rollers 2, and 8, journaled at the inner end of the cages L , L^1 , of the cams K , K^1 , constructed as specified and having the face rollers k , k^1 , and the cam arms Q , Q^1 , pivoted at r , r^1 , and having the curved portions R , R^1 , and R^2 , R^3 , arranged to co-act with the rollers k , k^1 , respectively as and for the purpose specified. 19th. The lever H , and H^1 , connected to the end of the cutter spindles f , and F , as specified and pivoted at the top on the adjustable screw spindles h^1 , h^1 , and at the bottom by the adjustable screw spindles l , l^1 , running through the trunnions M , M^1 , to the cages L , L^1 , provided with the rollers 2 and 8 designed to co-act with the cams K , and K^1 , respectively as and for the purpose specified. 20th. The combination with the lever H , pivoted at the top of the standard e , and connected to the end of the screw spindle h , as specified, of the shield 26, pivotally connected to the end of the arms 27, which is pivoted on the rod 28, which has an arm by which it is connected by the rod 29, to the link P , supporting the cage L , which derives a forward and backward movement from the lever H , as and for the purpose specified.

No. 39,929. Electrolytical Electrometers.

(*Electromètre électrolytique.*)

Alexander George McKenna and Henry Townsend Weed, both of Alleghany City, Pennsylvania, U. S. A., 20th August, 1892; 6 years.

Claim.—1st. In an electric meter, an electrolytic cell containing a mercurial salt, and having suitable electrodes, and a receptacle for catching the deposited mercury; substantially as and for the pur-

poses described. 2nd. In an electric meter, an electrolytic cell containing a mercurial salt, and having suitable electrodes, one of which is a body of metallic mercury and a receptacle for catching the deposited mercury; substantially as and for the purposes described. 3rd. In an electric meter, an electrolytic cell, containing a mercurial salt, and having suitable electrodes, of which the cathode is of carbon, and a receptacle for catching the deposited mercury; substantially as and for the purposes described. 4th. In an electric meter, and electrolytic cell, containing a mercurial salt, and having suitable electrodes, and a glass receptacle for catching the deposited mercury; substantially as and for the purposes described. 5th. In an electric meter, an electrolytic cell, containing an electrolyte, and having suitable electrodes, and a measuring receptacle for catching the deposited cation; substantially as and for the purposes described. 6th. In an electric meter, an electrolytic cell, containing a mercurial salt, and having suitable electrodes, and a receptacle for the cation; substantially as and for the purposes described. 7th. In an electric meter, an electrolytic cell, containing a mercurial salt, and having suitable electrodes, one of which is a body of metallic mercury, and a receptacle for the cation, substantially as and for the purposes described. 8th. An electric meter constructed, substantially as herein described, and shown in the drawings hereunto annexed. 9th. In an electric meter, an electrolytic cell, containing a suitable salt solution, and suitable electrodes, a receptacle for catching the deposited solid or liquid, which is graduated to read either the quantity of current or the price to be charged, or both.

No. 39,930. Trolley for Electric Railway Cars.

(*Trolley de chemin de fer électrique.*)

Edgar M. Touseley, Jamestown, New York, U. S. A., 20th August, 1892; 6 years.

Claim.—1st. The wheel formed with conical sockets at its sides, and placed on an axle held in the cheek pieces of the frame combining with cones placed on the axle, and fitted in said sockets and acted upon by yielding pressure for pressing the cones into the sockets, substantially as described. 2nd. The wheel having side plates chambered to form an oil reservoir, and to form inwardly projecting bosses in combination with the axle, and the oil feeder grasped between the adjacent faces of the bosses, substantially as described. 3rd. The felloe screw, threaded upon its inner periphery, and the chambered side plates screwed into the felloe, and formed with conical sockets in combination with the axle, the cones and the spring arranged to act upon the cones, substantially as described. 4th. The wheel formed with conical sockets in combination with the cones, and a U-shaped spring arranged to press upon the cones, substantially as described. 5th. The side plates of the wheel, formed with conical sockets in combination with the cones formed with shoulders at the base, and springs for pressing the cones into the sockets, substantially as described. 6th. The wheel, formed with conical sockets at its sides, and the spring applied thereto, and pins fitted in the cones for retaining the same, substantially as described.

No. 39,931. Door for Freight Cars.

(*Porte pour chars à marchandises.*)

William B. Wilson, Toronto Junction, Ontario, Canada, 20th August, 1892; 6 years.

Claim.—1st. A car door comprising an upper section 1 and a lower section 2 means for supporting the upper section in position and permitting it to be moved to cover or uncover the opening into the car, means for supporting the lower section and permitting it to be moved to uncover the lower part of the opening into the car, substantially as described. 2nd. A car door comprising an upper section 1 and a lower section 2, hangers secured to the said upper section a guide rail upon which the hangers are hung, travellers secured to the lower section 2, a guide rail supporting said travellers the side bars of the said lower section extending upwardly to the plane of the top of the car door, said lower section having an extension to the top of the plane of the car door, means for holding the said extension, substantially as described. 3rd. A car door comprising an upper section 1 and a lower section 2, hangers 3 secured to the upper section 1 a guide rail 4 secured to the car at a plane above the top of the car door and upon which the hangers 3 are hung, travellers 6 secured to the lower section 2, a guide rail 7 secured to the car at a plane below the bottom of the car door and supporting the travellers 6, a guide rail 4 holding the upper ends of the extensions of the side bars 2a, a locking bar 5 secured to the lower part of the upper section 1 and means for locking the two sections 1 and 2 together and means for locking the car door, substantially as described.

No. 39,932. Method of Manufacturing Rock Faced Artificial Stone. (*Méthode de fabrication de pierre artificielle.*)

Charles W. Stevens, Lansing, Michigan, U.S.A., 20th August, 1892; 6 years.

Claim.—The method of producing rock faced artificial stone, which consists in covering the bottom of a suitable box with a mass of sand or the like and filling the box with plastic artificial stone

material, whereby the mass of sand is partially permeated by the liquid cement of the plastic material, and is assimilated with the plastic material to form a natural broken surface for the artificial stone, substantially as set forth.

No. 39,933. Car Coupler. (*Atelage de chars*)

Urgel Beauséjour, Saginaw, Michigan, U.S.A., 20th August, 1892; 6 years.

Claim.—1st. In a car coupler, the combination of a laterally movable draw-bar, a hook thereon, and means for rotating said draw-bar to uncouple the same, substantially as described. 2nd. In a car coupler, the combination of a laterally movable draw-bar, an intermediate rotary bearing L for said draw-bar, and a side spring bearing for said draw bar, substantially as described. 3rd. In a car coupler, the combination of a draw bar slidingly secured in a guide block intermediate its length, and a hanger K for said guide block allowing lateral movement of the draw-bar, substantially as described. 4th. In a car coupler, the combination with a draw-bar, a hook thereon, a guide block with which said draw-bar slidingly engages, a pivotal bearing for said guide block, and means for rotating said guide block and draw-bar, substantially as described. 5th. In a car coupler, the combination with the draw-bar, the guide block L, the hanger K, the bearing M therein, the arm N, and connecting rod P, substantially as described. 6th. In a car coupler, the combination with the draw-bar and the guide block, of the stirrup K, socket J¹, follower J, and spring I, substantially as described. 7th. In a car coupler, the combination with a draw-bar adapted to be uncoupled by rotating the same, of the connecting rod P, having the notch R¹ in its lower face, the bracket S¹, the cross bar S, and the spring T, substantially as described.

No. 39,934. Steam Engine. (*Machine à vapeur*.)

Edward W. Curtis, Sheffield, Massachusetts, U.S.A., 20th August, 1892; 6 years.

Claim.—1st. In a steam engine, the combination, with two cylinders, of a piston in each cylinder, a valve for each cylinder, a walking beam or rock shaft connecting said valves, and ports for admitting steam between the heads of the valve chambers and the adjacent ends of the valves for actuating the latter in one direction, substantially as set forth. 2nd. In a steam engine, the combination, with two cylinders and pistons therein, of a valve chest for each cylinder, a piston valve in each valve chest, each piston valve having two annular grooves, a rock shaft connecting said piston valves, and steam ports for admitting steam to the valve chests near one end of the latter for actuating the valves in one direction, substantially as set forth. 3rd. In a steam engine, the combination, with two cylinders and pistons therein, of a valve chest for each cylinder, two pipes connecting said valve chests, an inlet pipe communicating with one of said connecting pipes, and an exhaust pipe communicating with the other connecting pipe, valves in said valve chests, and a rock shaft connecting said valves, substantially as set forth. 4th. In a steam engine, the combination, with two cylinders and pistons, of a valve chest for each cylinder, said cylinders being provided with ducts connecting the ends of the cylinders with the valve chests, and each cylinder being provided with a duct adapted to connect the cylinders and valve chests in proximity to the upper ends of the latter, and piston valves in said valve chests, substantially as set forth. 5th. In a steam engine, the combination, with two cylinders and pistons therein, of valve chests for said cylinders, piston valves in said valve chests, a link connected to each valve, and a rock shaft pivoted at its centre, and connected at its ends to said links, substantially as set forth. 6th. In a steam engine, the combination, with two cylinders and pistons therein, of a valve chest for each cylinder, each valve chest being provided with annular recesses, pipes connecting said valve chests and communicating with said recesses, a piston valve in each valve chest, a rock shaft connecting said piston valves, and steam ports for admitting steam to the valve chests near one end of the latter for actuating the valves in one direction, substantially as set forth.

No. 39,935. Electric Arc Lamp. (*Lampe électrique à arc*.)

Elihu Thomson, Swampscott, Massachusetts, U.S.A., 20th August, 1892; 6 years.

Claim.—1st. The combination, in an arc lamp, of a rotary part supporting the upper carbon and pivoted in a lever, a starting magnet acting on said lever to lower the carbon support, a retractor to lift said lever to form the arc, and a magnet-actuating feeding mechanism connected to and operating the rotary part to gradually lower the carbon. 2nd. The combination, in an arc lamp, of a rotary support directly connected to and supporting the upper carbon holder by a flexible connection, a lever in which said rotary support is pivoted, a magnet for lowering said lever, a retractor for raising it, and a feed magnet and mechanism for actuating the rotary support. 3rd. An arc lamp having a rotary carbon support, a lever in which said support is pivoted, a feeding actuator for engaging with and rotating the carbon support, and a starting magnet with its armature directly connected to the carbon support for directly con-

trolling the same and for also effecting the engagement and disengagement of the carbon support and the feeding actuator. 4th. The combination, in an arc lamp, of a rotary winding drum having the upper carbon attached thereto by a flexible winding connection, a lever carrying said drum, a worm wheel operatively connected to said drum, a feed worm with which the worm wheel may be lifted into engagement, and starting means for lowering and raising the drum supporting lever, substantially as and for the purpose set forth. 5th. A rheotomic circuit breaker for arc lamps or electric apparatus, substantially as described, comprising a magnet surrounded by a low resistance closed conductor, and an armature and stop having a yielding contact controlling the circuit of the magnet. 6th. A feed mechanism for arc lamps, comprising a ratchet connected through intermediate devices to the carbon, a pawl engaging with said ratchet, and a magnet and armature for vibrating said pawl, the magnet having a retarding closed conductor around its conductor and having its circuit controlled by the armature. 7th. An arc lamp having a rotary carbon support, a lever in which said support is pivoted, a feeding actuator for engaging with and rotating the carbon support, and a magnet and retractor respectively operating to lower and raise the said lever and bring the rotary support out of or into engagement with the feeding actuator. 8th. The combination, in an arc lamp, of a rotary carbon support, a lever in which said support is pivoted, a feeding actuator having a yielding gear with which a gear on the rotary support is engaged or disengaged as the said support is raised or lowered, and a starting magnet and retractor for raising or lowering the lever and rotary support to engage it with or disengage it from the said yielding gear. 9th. A feed mechanism for arc lamps, comprising a ratchet connected through its intermediate devices to the carbon, a pawl engaging with said ratchet, and a magnet and armature for vibrating said pawl, the magnet having a retarding closed conductor around its conductor and having its circuit controlled by the armature through a yielding contact. 10th. The combination of the shunt magnet for actuating the feeding devices, the starting magnet for lowering the carbons into contact, a cut out magnet therefor in circuit with the carbons, and a shunt magnet controlling a cut out for said last named magnet.

No. 39,936. Incandescent Lamp. (*Lampe incandescente*.)

Elihu Thomson, Swampscott, Massachusetts, U.S.A., 20th August, 1892; 6 years.

Claim.—1st. An incandescent electric lamp having its entering wires or conductors twisted around one another where they pass through and are embedded in the material of the lamp globe, so as to be normally held apart by such material, and for the purpose described. 2nd. The combination, with the lamp electrodes or contacts, of springs connected thereto and normally tending to make connection with one another, and entering conductors soldered to said springs and normally holding the same from contact, said conductors being properly arranged to be in the electric arc forming on rupture of the circuit through the lamp, as and for the purpose described. 3rd. In a series incandescent lamp a short circuiting or cut-out switch normally tending to close circuit and normally held open by a fusible material properly located to be fused by the electric arc forming on breakage of the incandescent conductor. 4th. In combination with the incandescent electric lamp a thermostatic shunting-switch located in proper position to be operated by the electric arc on continuation of the electric arc within the lamp, forming on rupture of the incandescent conductor. 5th. The combination, with an incandescent electric lamp, of a thermostatic shunting-switch normally tending to close a shunt and normally held open by a device placed in proper position to be acted upon by the electric arc forming on rupture of the incandescent conductor. 6th. The combination, with an incandescent lamp, of a shunting switch, and an entering conductor sustaining or holding the same normally open, said conductor being arranged in position to be involved in the electric arc forming on rupture of the incandescent conductor, as and for the purpose described. 7th. In an incandescent electric lamp, a cut-out composed of members held apart by a destructible fastening located in the path of the arc, which passes down the circuit wires when the filament is broken. 8th. The combination, in an incandescent electric lamp of a shunting switch, a contact therefor, and a leading-in wire normally holding or detaining said switch from action the portion of the leading-in wire used for such purpose being one that will be operated upon by the heat of the electric arc forming on rupture of the incandescent conductor.

No. 39,937. Breast Collar Coupling.

(*Attache pour harnais à poitrails*.)

Robert Casper Tambs, Magog, Quebec, Canada, 20th August, 1892; 6 years.

Claim.—1st. A breast strap coupling consisting of two plates B, B¹, one plate having two headed studs D, D¹, and the other plate two curved slots E, E¹, provided at opposite ends with an enlargement G, to admit the head of the studs. 2nd. In combination with a breast strap or collar, the plate B, having headed studs D, D¹, and the plate B¹, having curved slots E, E¹, and secured to the subdivided ends of the breast strap, for coupling the same, as set forth.

No. 39,938. Motor. (Moteur.)

James Thomas Drew, Syracuse, New York, U.S.A., 22nd August, 1892; 6 years.

Claim.—1st. The combination, with the drive shaft, and transverse ways thereon arranged spirally, of the weights mounted and adapted to slide thereon transversely to the shaft, the lifters engaging at times with the then lower ends of the weights, and the cams mounted upon a shaft and actuating the lifter, as set forth. 2nd. The combination, with the drive shaft and the transverse ways thereon arranged spirally, of weights slotted longitudinally and provided with tongues upon the sides of the slot fitting into the ways, friction rollers mounted in the ends of the weights, lifters movable vertically in guide ways upon the main frame, and provided with a curved upper face, of cams or eccentrics mounted upon a shaft parallel to and actuated by the drive shaft, and engaging with the lifters to raise the weights as they engage with the lifters, and a stationary curved face lifter with which the weights engage as they leave the lifters, substantially as set forth. 3rd. The combination, with the drive shaft, and the blocks secured thereon spirally, each block being provided with grooves on opposite sides, transverse to the shaft, and weights slotted longitudinally and fitting over the blocks and having inward tongues fitting into grooves in the blocks, and sliding thereon with the revolution of the shaft and blocks, as set forth.

No. 39,939. File for Bills. (Serre-papier.)

Edwin Baker Putney, Lyons, New York, U. S. A., 22nd August, 1892; 6 years.

Claim.—1st. In a bill file, the combination, with the base 2 having ears thereon, of the sheets of paper removably secured to said base, said bases being adapted to be loosely connected together through their ears, as set forth. 2nd. In a bill file, the combination, with the bases 2, having ears thereon, sheets of paper removably secured to said base, and having an index upon their margins. 3rd. The combination, with the bases 2, having ears thereon, and adapted to be loosely connected together, of sheets of paper removably secured to said base, and the whole mounted upon a base 4, 4, as set forth. 4th. The combination, with the bases 2, 2, having ears thereon, and adapted to be loosely connected together, means for removably securing the sheets to the said base, and the whole mounted upon a base A, as set forth. 5th. The combination, with the base 2, having ears thereon, and provided with vertical studs, sheets of paper perforated to fit over said studs, said bases being adapted to be loosely secured together at their ears, and the whole mounted upon the base A, of the brackets 8 and 9, the bracket 9 being provided upon its inner end with a crank arm and adapted to engage with the strap spring, upon the outer edge of the base, with which the crank arm engages, as set forth. 6th. The combination, with the base 2, having ears thereon, means for removably securing the sheets thereto, said bases being adapted to be loosely secured together at their ears, and the whole mounted upon the base A, of the brackets 8 and 9, the bracket 9 being provided upon its inner end with a crank arm, and adapted to engage with the strap spring upon the upper outer edge of the base, with which the crank arm engages, as set forth.

No. 39,940. Electric Arc Lamp. (Lampe électrique à Arc.)

William Hochhausen, Brooklyn, New York, U.S.A., 22nd August, 1892; 6 years.

Claim.—1st. The combination in an electric arc lamp of a perforated plate of iron constituting the armature of a magnet and mounted and sustained upon fixed pivotal bearings to one side of the vertical line in which the carbon feeds, a ring clutch loosely sustained on said armature and having an opening coincident with the perforation in the armature, and an electro magnet beneath said armature for drawing the same down to effect a release of the clutch. 2nd. In an electric arc lamp, the combination, with the regulator magnet, of a pivoted lever mounted over said magnet on suitable pivots, and constituting the armature lever of the magnet, and a ring clutch loosely sustained on top of said lever and having a movable releasing floor connected to and moving with the lever, which sustains it but at a lesser rate as the clutch is lowered by the pull of the magnet toward position to release. 3rd. In an electric arc lamp, the combination, substantially as described, of a pivoted lever or plate, a regulating electro magnet tending to swing the lever downward, and a ring clutch sustained on top of said lever and having its point of connection with the lever, where it is normally sustained thereby in position to engage and hold the carbon, and its releasing point or floor carried also by said lever, located at different distances from the pivotal point of support of the lever, the releasing point being nearer the fulcrum or pivot, so as to move at a slower rate than the point by which the clutch is normally sustained. 4th. In an electric arc lamp, the combination, with the regulator magnet through which the carbon carrier passes vertically, of an armature mounted over said magnet on suitable pivots and a ring clutch loosely sustained on top of said armature so as to be capable of tilting upon it, as and for the purpose described. 5th. In an electric arc lamp, the combination with the regulator magnet through which the carbon carrier passes vertically, of an armature perforated as described, and mounted on a fulcrum at one side of the carrier, and a tilting

ring clutch resting on bearings on top of said plate in engagement with the carbon carrier and adapted to tilt independently of the armature. 6th. The combination, in an electric arc lamp, of a regulator magnet through the axis on whose coil the carbon carrier plays vertically, a disc or plate armature perforated and sustained upon a fulcrum to one side of the carbon carrier and a ring clutch resting on bearings upon the top of said plate armature. 7th. In an electric arc lamp, a regulating magnet depending below the casing and the plate or support sustaining the working parts of the lamp, in combination with an iron waterproof jacket for said magnet, forming a magnetic extension from the lower end or pole thereof to the opposite end where it is in close proximity to the armature of the magnet, as and for the purpose described. 8th. In an electric arc lamp, a regulator magnet having a core perforated for the passage of the carbon rod or carrier, in combination with an exterior protective iron shell connected with the core at one end and extended over around the coils to form a weather protection therefor up to the opposite end of the magnet, in combination with a plate armature pivoted in the field of the core, and having its edges in close proximity to the upper end of said shell, so that the shell and plate may serve to carry the magnetism from the one pole around to the opposite pole of the magnet, as and for the purpose described. 9th. In an electric arc lamp, the combination with the regulator magnet coils, of a cast iron shell having a perforated core cast in one piece with it, and opened at its top end only to permit the coils to be inserted, a carbon carrier passing axially through the core, and a clutch supporting armature sustained upon the shell and over the coils, as and for the purpose described. 10th. A magnet core and shell for the regulating magnet of an arc lamp, consisting of a central iron core piece having one or more longitudinal perforations, an exterior cylindrical portion, and a connecting part over the portion of the coil exposed to the weather, in combination with a flange near the top of the shell, and an armature and feed regulating mechanism sustained by said flange over the magnet, as and for the purpose described. 11th. The magnet having a disc or plate armature sustained over the same by pivots located at one side and provided with an exterior iron casing extended longitudinally at the side opposite the pivots to a level above the same, as and for the purpose described. 12th. A regulator magnet having an iron casing upon its exterior, provided with a laterally extending flange or plate near its top integral with said casing, and forming the base plate or support which carries the working parts of the lamp, in combination with a casing sustained on said flange, and lamp side rods attached to and depending from the same, as and for the purpose described. 13th. In an electric arc lamp, the combination with a regulator magnet having its axis vertically disposed and provided with a vertical passage for the carbon rod or carrier, of an exterior iron protective case forming a carrier of magnetism from the lower end of the magnet to the upper end thereof, a flange formed on such case, a perforated pivoted armature pivoted in supports on said flange, and having its edges in close proximity to the upper edge of the iron protective case, and lamp side rods also sustained by and depending from said flange. 14th. The combination, in an electric arc lamp, of a regulator magnet through which the carbon carries passes vertically, an iron casing for the magnet coils, forming a carrier of magnetism from one end to the other thereof, as well as a weather protective case, a lateral flange or plate extending from the casing between its ends, a frame sustained thereby over the magnet, guides or bearings for the carbon carrier, supported respectively on said frame at the lower end of the iron casing, and a perforated pivoted armature carried by the flange and having its edges in close proximity to the edges of the iron casing, as and for the purpose described. 15th. In a double carbon lamp, a trip or transfer lever supported on the feed regulating and carbon sustaining lever, as and for the purpose described. 16th. The combination, with the carbon carriers and their clutches sustained wholly by the magnet, of the transfer lever also sustained by said magnet. 17th. The combination, in an electric arc lamp, of two carbon carriers, the ring clutches therefor sustained on a vertically movable armature plate, and a transfer lever engaging with one of said clutches, and provided with a spring for normally holding the clutch in engagement with its carbon carrier, as and for the purpose described. 18th. The combination, in a double carbon lamp, of a vertical regulator magnet through which the two carbon carriers are fed an armature plate sustained over said magnet and provided with perforations through which the carbon carriers pass, clutches supported on the top of said plate and engaging respectively with said carriers, and a transfer lever also pivoted on said plate and connected with one of said clutches, as and for the purpose described. 19th. The combination, in an electric arc lamp, of a feed regulating magnet, two carbon carriers passing vertically through said magnet, an armature lever sustained over the magnet and cut away to form openings for the passage of the carbon carrier, feed regulating devices sustained on top of said armature, and a trip or transfer lever also sustained by said armature lever, as and for the purpose described. 20th. The combination, in an electric arc lamp, of a feed regulating magnet having an exterior casing of iron provided with a flange, lamp mechanism sustained on said flange over the magnet, a lamp horn and top plate cast in one piece and posts uniting said top plate and flange, as and for the purpose described. 21st. The combination in an electric arc lamp, of the lamp magnet having the laterally extending flange projecting from

its iron casing, a frame sustained on such flange and carrying electrodes to which the working parts of the lamp are connected, a lamp horn and cover plate united together, means for uniting said cover plate and flange, and electrodes covered by the cover plate and horn and adapted to engage with the electrodes within the lamp when the parts are secured together, as and for the purpose described. 22nd. In an electric arc lamp, the combination of the cover plate and horn, a lamp frame carrying the working parts of the lamp and detachable therefrom, and the electrodes sustained by the lamp and by the cover plate or horn, respectively, and adapted to register with one another, said electrodes forming respectively, the terminals of the line and of the lamp mechanism, as and for the purpose described. 23rd. An electric arc lamp having a cover plate and horn formed of iron cast in one piece and provided with posts extending down for attachment of the base carrying the working parts of the lamp. 24th. In an electric arc lamp leading wires or conductors housed, within the lamp horn and terminating at the top and bottom of the horn respectively, in contacts or electrodes adapted to engage, respectively, with contacts within the lamp casing and with contacts or electrodes on the hanger board. 25th. The combination in an electric arc lamp, of the lamp horn, the conductors within the same, clamps for fastening said conductors at the lower end of the horn or chimney, spring electrodes carried by the lamp frame and in position to be engaged by the lower ends of such conductors, clamping devices at the top of the horn for holding such conductors at the opposite end, and a hanger board provided with spring electrodes adapted to receive the bared upper ends of said conductors. 26th. In an electric arc lamp, the combination, with the vertical lamp magnet having an exterior casing of iron provided with a flange cast in one piece therewith, of a lamp horn, cover plate, and vertically depending posts all cast in one, said post being adapted to connect the cover plate and flange, as and for the purpose described. 27th. The combination, with the lamp magnet and its exterior casing, provided with a laterally extending flange at or near the top of the casing, of the depending side rods carrying the lower carbon holder and bolted to said flange, and the lugs or projections at or near the bottom of the magnet case, and through which said rods pass. 28th. The combination of the lamp magnet, having an exterior iron casing provided with a flange, as described, of a frame sustained on such flange, spring plates or electrodes having horizontal spring terminals sustained on such frame, a lamp chimney or horn extending upward from the cover plate, and containing conductors which terminate within the cover in electrodes or terminals adapted with the spring electrodes carried by the frame, and means for detachably fastening the flange and cover plate together. 29th. The combination in an electric arc lamp, of the vertical lamp magnet, provided with the exterior iron casing and flange, magnet coils within such casing connected respectively into a derived circuit around the arc, and into a starting circuit or branch, and a switch mechanism controlling such starting circuit, and sustained by a frame supported on the flange. 30th. The combination, in an electric arc lamp, of a magnet having a starting coil, and provided with an iron casing and flange E , of a magnet supported on a frame sustained by the flange, a movable core for said magnet coils, an iron plate at the lower end of the core, and a switch in the starting circuit sustained above the magnet, and operated by said core. 31st. The combination, with the regulating magnet for an arc lamp, of an iron protective casing surrounding the coils thereof, a flange near the upper end of the casing forming the bottom plate of the lamp, a casing for the working parts of the lamp sustained by said flange, a cover plate and posts uniting the same to the flange. 32nd. The combination, with the lamp hanger board, having spring electrodes, and means for connecting the same with the line terminals, of wires or conductors housed within the lamp horn, and adapted to engage with the electrodes on the hanger board when the horn is locked to the board. 33rd. In a hanger board for electric arc lamps, a disc or plate of slate or similar non-combustible insulator having on its bottom surface a socket adapted to receive the lamp horn, means for locking the horn in position, conductors passing down through the lamp horn and terminating at the upper end thereof, openings in the hanger board plate, located within the socket in position to receive the bared ends of such conductors, and spring electrodes on the opposite side of the plate for engagement by such conductors, when the horn is locked in position. 34th. The combination, with a hanger board plate of insulating material, of a metallic socket on its lower side adapted to receive the upper end of the lamp horn, spring electrodes on the opposite side of the plate adapted to be engaged by conductors passing down through the horn when the horn is locked in position, a cut out switch located on the upper side of the hanger board plate, and a vertical spindle carrying said switch, and provided below the plate with an operating handle. 35th. The combination in a hanger board for electric lamps, of a plate of slate or similar insulator, an unbroken casing covering the parts on the top side of said plate, and extending down over the edge to form a drip flange, a rotary cut out switch located within said casing, a spindle or rock shafts extending vertically through the plate, and the laterally extending handle below the plate connected to said spindle. 36th. The combination, substantially as described, of an electric arc lamp having contact terminals or electrodes forming the terminals of the lamp circuits, a lamp horn sustaining the electrodes adapted to engage with those in the lamp and connected with the hanger board, means for detachably fastening or sustaining the lamp from

the horn, a cut out switch located on the hanger board, and means for connecting the line wires to blocks or plates on the hanger board. 37th. A hanger board for electric arc lamps, comprising a disc or plate of non-combustible insulator, a socket on the lower side thereof adapted to receive the lamp horn, line or binding posts on the upper side of the plate, located in position to register with vertical openings, through which the line wires may be passed from beneath, spring contacts connected with said posts and forming terminals of a cut out switch, spring sockets or electrodes located over the socket for the lamp horn and adapted to be engaged by conductors carried by the horn, and spring contacts connected with said sockets or electrodes and forming other terminals of the cut out switch. 38th. In a hanger board for electric lamps, spring contact sockets sustained on suitable conducting plates or blocks fastened to the top of an insulating plate, and contact springs extending from such blocks or plates and forming terminals of a cut out switch, located also on the plate. 39th. The combination, substantially as described, of the slate base the spring contacts or electrodes adapted to be engaged by conductors leading down to the lamp a pair of contact springs sustained, respectively, in electrical connection with the said sockets another pair of contact plates connected to binding posts or blocks upon the top side of the insulating plate and adapted to form line terminals, and a rotary insulating disc mounted on a vertical spindle running down through the plate and carrying two conducting arcs as and for the purpose described.

No. 39,941. Stopper for Bottles. (*Bouchon de bouteille.*)

Joseph A. Stukeley, Columbus, Ohio, U.S.A., 22nd August, 1892; 6 years.

Claim.—In a bottle stopper, the combination with the doubled spring wire stem a^1 , integrally formed disc holding buttons b \bar{v}^1 , surrounding as described, the adjoining portions of said spring wire arms, and a ball shaped shell b^2 , formed integral with said buttons and incasing, as shown and described, the doubling point of said stem wire, substantially as and for the purpose specified.

No. 39,942. Drip Board for Sinks.

(*Toulotte pour éviers.*)

Henry J. Coben, Cleveland, Ohio, U.S.A., 22nd August, 1892; 6 years.

Claim.—1st. As a new article of manufacture a drip board having parallel grooves of gradually increasing depth and ribs between the said grooves formed on top to drain laterally into the grooves, substantially as set forth. 2nd. A drip board with parallel grooves increasing gradually in depth from end to end, and ribs between the grooves curved laterally from their top centre to drain the liquid into the grooves, substantially as set forth. 3rd. A drip board formed with parallel grooves of gradually increasing depth and concave in cross section at the bottom, and ribs between the grooves constructed to drain laterally from their top centre to the sides and into said grooves, substantially as set forth.

No. 39,943. Pen Holder. (*Porte-plume.*)

Henry Joseph Kennedy, North Andover, Massachusetts, U.S.A., 22nd August, 1892; 6 years.

Claim.—1st. The combination, in a penholder, of the recessed socket having a curved back and a cross plate, said cross plate being perforated, a filling block adapted to the orifice between the curved back and cross plate, the said block having a screw-threaded opening with a thumb-screw adapted to pass through the orifice in the cross plate and into and through the screw-threaded opening in the filling block, so as to press against the under side of the pen, substantially as and for the purpose described. 2nd. The combination, in a penholder, of the recessed socket having a cross-plate and a curved back a filling block having a curved back of a radius less than that of the back of the socket, with a thumb-screw passing through said cross plate and filling block and adapted to press against the under side of the pen and force the same against the curved back of the socket, substantially as specified.

No. 39,944. Process of Roasting Sulphur Bearing Ores. (*Procédé de grillage du soufre contenant des minerais.*)

Charles Wade Stickney, Butte City, Montana, U.S.A., 22nd August, 1892; 6 years.

Claim.—1st. The process of roasting sulphur bearing ores, and depositing the sulphur in solid form by passing steam or a mixture of steam and air at a red or higher heat into intimate contact with the ore, and conducting the resulting gases into contact with a solution of alumina, substantially as described. 2nd. The process of roasting sulphur bearing ores and depositing the sulphur in solid form by passing steam, or a mixture of steam and air at a red or higher heat into intimate contact with the ore, and bringing the resulting gases into intimate contact with a mixture of highly superheated steam air, and water holding clay in suspension, substantially as described. 3rd. The process of roasting sulphur bearing ores and depositing the sulphur in solid form by roasting one portion by means of superheated steam, whereby sulphuretted hydrogen is generated and roasting another portion of ore by means of air, whereby sulphurous acid gas is generated, and bringing these

mingled gases into intimate contact with a solution of sulphate of alumina, whereby the sulphur is caused to aggregate in ready settling particles, substantially as described. 4th. The process of roasting sulphur bearing ores and depositing the sulphur in solid form by roasting one portion by means of superheated steams whereby sulphuretted hydrogen is generated and roasting another portion of ore by means of air, whereby sulphurous acid gas is generated, and bringing these mingled gases into intimate contact with a solution of a sulphate of a heavy metal, whereby the sulphur is caused to aggregate in ready settling particles, substantially as described.

No. 39,945. Trap for Sewers. (*Fermature d'égout.*)

Frederick N. DuBois, New York, State of New York, U.S.A., 22nd August, 1892; 18 years.

Claim.—The improved article of manufacture, a waste pipe trap of uniform bore throughout, the delivery bend of which is formed by a cylindrical open bottom and lateral delivery turn cock or valve and its casing, placed in the axial line of the trap, and having its joint above the water line, substantially as set forth.

No. 39,946. Holder for Paper. (*Porte-papier.*)

Doctor Franklin Oliver, Oakland, California, U.S.A., 22nd August, 1892; 6 years.

Claim. 1st. In a paper holder, the elastic scroll 1¹, in combination with the base portion A, for the purpose set forth, substantially as described. 2nd. In a paper holder, the elastic scroll having the corrugations 8, in combination with the base A, substantially as described. 3rd. In a paper holder, the elastic scroll 1¹, in combination with the perforated base A, substantially as described. 4th. In a paper holder, the elastic scroll 1¹, in combination with the ruled base A, substantially as described. 5th. In a paper holder, the elastic scroll 1¹, in combination with the perforated and ruled base A, substantially as described. 6th. In a paper holder, the combination of the scroll 1¹, having corrugations 8, with base plate A, provided with a ruled surface, and perforations 4¹, for the purpose set forth, substantially as described.

No. 39,947. Duplicating Cheque Books.

(*Livret duplicata.*)

Joseph Oldfield, Toronto, Ontario, Canada, 22nd August, 1892; 6 years.

Claim. 1st. In a duplicating cheque book, and in combination with the fly leaf, of the duplicate leaf having a transparent strip made across it in the paper itself above the reversely printed number on the back of the leaf, as and for the purpose specified. 2nd. In a duplicating cheque book, and in combination with the tongue formed on the back of the book and the cleats or stitching *b*, extending through the stub and tongue, of the cover B, made with the indentation *f*¹, the sides of which extend on the outer sides of the cleats as and for the purpose specified. 3rd. In a duplicating cheque book, and in combination with the tongue formed on the back of the book and the cleats or stitching *b*, extending through the stub and tongue, of the cover B, made with the indentation *f*¹, the sides of which extend on the outer sides of the cleats, and the supplemental tongue *f*¹, extending with the tongue *h*, into the pockets *e*¹, of the stiff cover C, as and for the purpose specified. 4th. In a duplicating cheque book, and in combination with the book, of the portion *f*, of the cover detachably connected to the book and the portion *e*, partially carbonized and having margins *e*¹ and *e*¹¹, as and for the purpose specified. 5th. The combination with the book A, of the portion *f*, detachably connected to the book A, and the portion *g*, having the pad of tally sheets attached thereto on the side *g*¹¹ and portion of the side *g*¹¹¹, as and for the purpose specified. 6th. The combination with the duplicating cheque book of the portion *f*, detachably connected thereto, the portion *e*, partially carbonized and having margins *e*¹ and *e*¹¹, contiguous to the portion *f* at one side, and the portion *g*, contiguous to the portion *f* at the other side, and provided with tally sheets *g*¹, having their edges connected together on the side *g*¹¹, and portion of the side *g*¹¹¹, as and for the purpose specified.

No. 39,948. Gas Burner for Furnaces.

(*Bec à gaz pour fournaises.*)

James S. Rogers, Saratoga Springs, New York, U.S.A., 22nd August, 1892; 6 years.

Claim.—1st. In a brick or tile gas burner for furnaces, having longitudinally opening or passage for gas, the combination, of a covering for such passage, consisting of brick or tiles, as 8, having small interstices between the same, an air flue below the passage for gas, and a deflector plate or plates, as 14, whereby the air from such flue is directed to the top of the burner and mingled with the gas at the point of ignition, substantially as shown and described. 2nd. A brick or tile burner for furnaces, having a longitudinal opening or passage for gas, a covering for such passage, consisting of bricks or tiles, as 8, having interstices between the same, broken brick or other refractory material placed upon said bricks or tiles, an air flue below the gas passage, and deflecting tiles, bricks, or plates, as 14, whereby the air from such flue is directed to the top of the burner and mingled with the gas at the point of ignition, substantially as

shown and described. 3rd. A brick or tile gas burner for furnaces, having a longitudinal opening or passage for gas, a covering for such passage, consisting of bricks or tiles, as 8, arranged alternately high and low, with small interstices between them, an air flue below the gas passage, and deflecting tiles, bricks, or plates, as 14, whereby the air from such flue is directed to the top of the burner and mingled with the gas at the point of ignition, substantially as shown and described. 4th. A brick or tile gas burner for furnaces, having a longitudinal opening or passage for gas, an air flue below the same, air chambers in communication therewith and with the top of the burner by means of spaces at each side of the walls of the gas passage, bricks or tiles covering such gas passage and having interstices between the same, and deflecting tiles or plates whereby the air from the air chambers is caused to pass close to the sides of the burner and mingle with the gas at the point of ignition, substantially as shown and described. 5th. A brick or tile gas burner for furnaces, having a longitudinal opening or passage for gas covered by bricks or tiles having small interstices or openings between them, air flues on either side of the passage for gas, and deflecting plates or tiles covering said air flues, by which the air therein is directed to the top of the burner and mingled with the gas at the point of ignition, substantially as shown and described.

No. 39,949. Apparatus for Preparing Grain, etc.

(*Appareil pour préparer les grains, etc.*)

Charles Lampitt, Nelson Villa, Bounds Green Road, Southgate, Middlesex, England, 22nd August, 1892; 6 years.

Claim.—1st. In a new or improved mechanical device an apparatus for separating, cleaning, grading and sorting grain and other substances and materials, or any combination of materials or particles of varying dimensions, not in actual adhesive contact with each other, the construction and use of the mechanism herein described and shown, and the several parts constituting the same, made of any suitable material or combination of materials connected, combined and operating, substantially as herein set forth and for the purposes stated. 2nd. In a new or improved apparatus for the purposes set forth in the preceding claim, the construction and use of a frame A, carrying shafts B and B¹, each provided with a keyway or keyways *c*, and carrying any number of bearing C, each provided with an internally threaded bore, or its equivalent D, and each accompanied by a disc E, with externally threaded projection *a*, fitting and screwing into D, and provided internally with a key or keyways *c* for engaging with *c*. The rollers F, F¹, the former having a single, double or treble helicoidal or spiral projection formed thereon or connected thereto, or grooves formed therein in lieu thereof, and borne within the bearings C, arranged in series at each end of A, the worm wheels *e* mounted upon, and keyed or otherwise fixed to one end of the rollers F, F¹, and in gear with and rotated by a worm G, or its equivalent, borne within suitable journals upon the frame A, and carrying pulleys *f*, *f*¹, the horizontal shaft or spindle K, with worms J, J¹, and wheel or handle L, operating for the rotation of worm wheels H, H¹, fixed by any suitable means to the projecting ends of the shafts B, B¹, for adjusting the spaces between the bearings C and the rollers F, F¹, by operating upon both ends thereof simultaneously, the plates *m* and *n*, and springs *o*, or their equivalents. The whole provided with a hopper M, with regulating feed slides *h*, *h*¹, and outlet shoots N, P, combined and operating substantially as and for the purposes herein described and shown by the accompanying drawings.

No. 39,950. Alloy. (*Alliage.*)

Frederick William Martino, Sheffield, York, England, 22nd August, 1892; 6 years.

Claim.—Manufacturing the said alloys directly from ores containing the metals of the said alloys, or some of the said metals instead of obtaining the metals separately and afterwards melting them together or alloying them, the said manufacture being conducted in the ways hereinbefore described, whereby the said alloys are obtained economically and with the exact composition required.

No. 39,951. Cutting Pliers. (*Coupe-net.*)

Sanford Obadiah Root, Lodi, New York, U. S. A., 22nd August, 1892; 6 years.

Claim.—1st. As an improvement in pliers, the combination, with the pivoted members consisting of handles, jaws and intermediate fulcrum discs, the latter being provided with transverse, radially disposed slots, and with angular sockets or recesses in their inner faces adjacent to said slots, of removable and reversible cutters corresponding to and secured in said sockets or recesses, and formed with independent cutting edges, substantially as set forth. 2nd. As an improvement in pliers, the combination, with the pivoted members comprising handles and jaws, of the intermediate fulcrum discs integrally connecting the respective handles and jaws, and provided each with a transverse, radially disposed slot extending nearly to the centre of said discs, reinforcing bosses formed integral with, and provided at the outer faces of said discs, for the purpose described, and a pivot screw disposed centrally through the discs, substantially as set forth. 3rd. As an improvement in pliers, the combination, with the pivoted members consisting of handles, jaws, and intermediate fulcrum discs formed integral therewith, said discs

being reinforced at their outer sides, a transverse, radially located slot formed in each of the discs, and extending nearly to the centre thereof, and an angular socket or recess provided in the inner face of each disc adjacent to said slots, of removable and reversible cutters corresponding to and secured in the sockets or recesses, each cutter having a number of independent cutting edges, and a pivotal screw passing centrally through the discs, substantially as set forth.

4th. As an improvement in pliers, the combination, with the pivoted members comprising coincident countersunk fulcrum discs, provided each with a radially arranged slot extending nearly to the centre of the fulcrum, and removable and interchangeable cutters rigidly secured at the opposing faces of the fulcrum discs, and adjacent to the slots, substantially as and for the purpose set forth.

No. 39,952. Machine for Making Wire Fences.

(*Machine à clôture de fil de fer.*)

William P. Shattuck, Minneapolis, Minnesota, U. S. A., 22nd August, 1892; 6 years.

Claim.—1st. In a machine of the class described, the combination with the spiral twisters and means for rotating the same with a continuous and uniform movement, of means for feeding the slats or pickets transversely between said twisters while they are in motion, and means for moving the pickets lengthwise of the twisters simultaneously with their transverse movement between the twisters.

2nd. In a machine of the class described, the combination with the spiral twisters and means for rotating the same, of means for feeding the slats or pickets between the twisters and the travelling guides for directing said pickets in their passage between the twisters and giving them simultaneously a movement lengthwise of the twisters.

3rd. In a machine of the class described, the combination with the spiral twisters, of the endless chains or belts arranged in proximity to said twisters and provided with the series of guides for directing the pickets between the twisters, means for rotating said twisters, and means for giving said chains and guides a continuous movement.

4th. In a machine of the class described, the combination with the twisters, of the endless chains or belts 27, the blocks 26 having the bevelled ends, secured on said chains and provided with the bevelled projections substantially as described.

5th. In a machine of the class described, the combination with the series of spiral twisters, of the funnel shaped guides arranged to move longitudinally of said twisters.

6th. In a machine of the class described, the combination with the series of spiral twisters, of the chains or belts 27 arranged alongside of said twisters, the guides secured upon said chains and the inclined guide bars arranged above said guides, substantially as described.

7th. The combination with the twisters, of the picket feeding mechanism, an endless chain having dogs arranged to engage the rear ends of the pickets and means permitting said dogs to disengage the pickets automatically when the forward ends of the pickets reach the limit of movement without regard to the position in which the rear ends of the pickets may be, substantially as described.

8th. The combination with the twisters, of the picket feeding chain, means for moving said chain continuously, a series of dogs secured to said chain, and means for tripping said dogs to disengage them from the pickets.

9th. The combination with the spiral twisters, and means for moving the pickets longitudinally thereof, of the picket feeding chain provided with dogs adapted to engage the pickets, and the diagonally arranged guide over which said chain passes.

10th. The combination, with the spiral twisters, of the feed chain, the guide 16, the plate 18 engaging said guide, the dog pivoted on said plate, and having an arm engaging said guide and an arm engaging the end of the pickets, substantially as described.

11th. The combination, with the twisters, of the reciprocating bars arranged in front of said twisters, the adjustable collars arranged upon said bars and the yielding dogs arranged upon said collars, substantially as described.

12th. The combination, with the twisters, of means for moving the pickets from between the ends of the twisters, consisting of the reciprocating pivoted pawls and the fixed stops against which the ends of said pawls are adapted to strike, substantially as described.

13th. The combination, with suitable twisters, of means for advancing the fence, and independently operating means for moving the picket from between the twisters and into the light of said wires while the fence is advancing.

14th. The combination, with suitable twisters, of means for advancing the fence, and means for moving the picket from between the twisters after the fence has begun to advance and at a greater speed than the fence is moved, whereby the picket is brought into the light of the wires, as described.

15th. Means for operating reciprocating mechanism in a fence making machine, comprising in combination an endless chain, wheels supporting said chain, and a reciprocating rod attached to and moving with said chain.

16th. The combination, with a fence advancing mechanism, of an endless chain capable of being shortened or lengthened, a connection between said chain and said advancing mechanism, and wheels supporting said chain, one of said wheels being adjustable.

17th. The combination, with a reciprocating mechanism of a fence machine, of an endless chain capable of being shortened or lengthened, wheels supporting said chain, one of which is adjustable, and a reciprocating rod attached to and moving with said chain and operating said reciprocating mechanism, as described.

18th. The combination, with the rock shaft 42, connected with the fence advancing mechanism and provided with the arm 49, the wheel 53, the adjustable wheel 54, the chain 55 supported on said wheel,

the rod connecting with said chain, and chains 50 and 51 connecting said rod 52 with the opposite side of said arm 49, for the purpose set forth.

19th. Means for stopping the machine in case of breakage of a wire, comprising dogs bearing upon the wires and held out of engagement with the pickets by said wires, and adapted to engage the picket upon the breakage of the wire and then to be moved with the picket, and means connecting said dogs with the machine operating mechanism.

20th. The combination, with means for advancing the fence or fabric, of the dogs bearing upon the wires, and thereby held out of engagement with the pickets and adapted to engage the pickets upon the breakage of the wire and then to be moved with the picket, and means connecting said dogs with the machine operating mechanism.

21st. The combination, with the twisters, fence advancing mechanism and the reel, of the die arranged between said twisters and said reel, the knife arranged to operate in connection with said die and means for operating said knife whereby the pickets are shaped after they are secured to the wires and before they are wound upon the reel.

22nd. The combination, with the fence advancing mechanism and the reel, of the wire cutters arranged between said fence advancing mechanism and said reel, and means for operating said cutters whereby the wires may be cut as the fence advances.

23rd. The combination, with the machine controlling mechanism, of a pivoted plate arranged in the path of the picket and adapted to be turned on its pivot to permit the picket to pass, and a stop mechanism connected with and controlled by said plate.

24th. The combination, with the spool, of the shaft provided with a friction plate adapted to engage said spool, the spring holding said plate in engagement with the spool, and an arm on said shaft carrying a guide for the wire, for the purpose set forth.

25th. The combination, with the reel, of a movable frame supporting the reel, and a reel operating mechanism connected with and controlled by said frame.

26th. The combination, with the reel, of the swinging frame supporting said reel and the clutch connected with and controlled by said frame, substantially as described.

27th. The combination, with the reel, provided with the worm wheel, the shaft having a worm engaging said wheel, a clutch controlling said reel and a movable frame supporting said reel and controlling said clutch.

28th. The combination, with the frame advancing mechanism, of the counting device, comprising the endless chain 103, supported on suitable wheels, provided with the lug 105, the rock shaft 42, by which the fence advancing mechanism is moved, having the pawl 114 and arm 112, the ratchet 110, the bell 108, and the lever 106, all substantially as described.

29th. The adjustable counting device comprising the alarm, the chain capable of being shortened or lengthened and carrying a lug adapted to operate said alarm, and means supporting said chain, substantially as described.

30th. The combination, in a machine of the class described, with the twisters, of the fence advancing mechanism arranged to move toward and from the twisters, and a series of dogs engaging two or more pickets that have been twisted into the fence, and arranged to pass under the pickets as the frame is moved toward the twisters and capable of independent adjustment in the direction of the movement of said frame.

31st. The combination with the twisters of a sliding frame arranged in front of said twisters and provided with a series of yielding dogs engaging two or more of the pickets that have been twisted into the fence or fabric, independent adjustment in the direction of the movement of said frame, and adjustable mechanism for reciprocating said frame.

32nd. In a machine of the class described, a reciprocating fence advancing mechanism provided with a series of yielding dogs engaging two or more pickets that have been twisted into the frame, and independent adjustment in the direction of the line of reciprocation of said mechanism.

33rd. The combination in a machine of the class described, with the twisters, the fence advancing mechanism and the reel, of a friction clutch arranged to transmit power to said reel and a lever controlling said clutch.

34th. The combination, in a machine of the class described, with the twisters and picket feeding mechanism of a stop mechanism for the machine, and a picket receiver located in the path of the picket as it is moved in the twisters and arranged to throw said stop mechanism out of operative position each time a picket is brought against said picket receiver.

35th. The combination in a machine of the class described, with the twisters and picket feeding mechanism and with the driving mechanism of the machine, of a picket receiver located in the path of the picket as it is moved across the machine in the twisters and arranged to be encountered by the picket when it reaches its proper position in the machine, and a stop mechanism controlled by said picket receiver.

36th. The combination, with the twisters, of the laterally oscillating dogs arranged in front of said twisters and provided with springs arranged to hold them in an elevated position, substantially as described.

No. 39,953. Sheaf Carrier for Harvesters.

(*Porte gerbe pour moissonneuses.*)

Joseph H. Feeny, Toronto, Ontario, Canada, 22nd August, 1892; 6 years.

Claim.—1st. A sheaf carrier for self binding harvesters, consisting of a series of curved fingers having their inner ends pivotally secured to the under side of the deck of the machine, and their outer ends normally upstanding, said fingers forming an incline natural with the incline of said deck, for the sheaves to slide down into the curved or cradle portion, and suitable mechanism for operating said fingers, substantially as and for the purpose set forth.

2nd. A sheaf carrier

for self binding harvesters, consisting of a series of curved fingers, having their inner ends pivotally secured to the under side of the deck of the machine, and their outer end normally upstanding, said fingers forming an incline natural with the incline of said deck, for the sheaves to slide down into the curved or cradle portion without causing them any fall or drop, the said inner ends being provided with a crank connected to a link bar moved by an operating lever, operated by a worm on the packer shaft, substantially as and for the purpose specified. 3rd. A sheaf carrier for self binding harvesters, consisting of a series of curved fingers, pivoted in and supported by a bracket secured to the under side of the deck of the machine, the outer end of the curved fingers normally upstanding, and forming a cradle between said outer end and the inner or shank end, the said fingers forming an incline natural with the incline of the deck, for the sheaves to easily slide down from the knotted or tying attachment into the cradle portion of said fingers, the inner end of said fingers provided with a crank, the tooth of which is inserted in the link bar connected to an operating lever, said operating lever operated by means of a worm on the packer shaft, substantially as and for the purpose specified. 4th. A sheaf carrier for self binding harvesters, consisting of a series of curved fingers, having their inner ends pivoted in bearings secured to the under side of the deck of the machine and their outer ends normally upstanding, forming a cradle between the said outer end and deck, said fingers forming an incline natural with the incline of said deck inner end of said fingers, provided with a crank, the tooth of which is inserted in the link bar connected to the operating lever, said operating lever operated by means of a trip rod under the control of the driver, substantially as and for the purpose specified. 5th. A sheaf carrier for self binding harvesters, consisting of a series of curved fingers, the inner ends of which are pivoted in bearings secured to the under side of the deck of the machine, and their outer ends normally upstanding, the said inner end provided with a detachable crank, the tooth of which is inserted in a link bar connected to the operating lever, said operating lever operated by means of a worm on the packer shaft and thrown into and out of action by means of a trip rod entirely under the control of the driver, substantially as and for the purpose specified. 6th. A sheaf carrier for self binding harvesters, consisting of a series of curved fingers, the inner ends of which are pivoted in bearings secured to the under side of the deck of the machine, and the outer ends curved upward, forming a cradle between said outer end and inner end, the fingers forming an incline from said inner end to the cradle natural with the incline of said deck, the inner ends provided with a crank, the tooth of which is inserted in a link bar suitably connected to the operating lever, said operating lever pivoted in a bracket rigidly connected to some portion of the frame of the machine, a second bracket placed on said operating lever carrying a dog which engages with a worm on the packer shaft, the said worm working said dog and operating lever backward, a trip rod entirely under the control of the driver, throwing said dog into and out of action with said worm, substantially as and for the purpose specified. 7th. A sheaf carrier for self binding harvesters, consisting of a series of curved fingers, the inner ends of which are pivoted in bearings secured to the under side of the deck of the machine, and the outer ends curved upwards, forming a cradle between said outer end and inner ends, the fingers forming an incline from said inner ends to the cradle, natural with the incline of the deck, the inner ends of each finger provided with a crank, said crank coupled together by means of a link bar, the said link bar connected to one end of an operating lever pivoted in a bracket rigidly connected to some portion of the frame of the machine, the opposite end of said lever operated by mechanism entirely under the control of the driver, substantially as and for the purpose specified. 8th. A sheaf carrier for self binding harvesters, consisting of a series of curved fingers, the inner ends of which are pivoted in bearings secured to the under side of the deck of the machine, and the outer ends curved upward, forming a cradle between said outer and inner ends, the fingers forming an incline from said inner end to the cradle, natural with the incline of said deck, the inner end of each finger provided with a crank, the said cranks coupled together by means of link bars, the said link bars connected to one end of an operating lever with a cushioning spring between said link bar and lever, the opposite end of said lever operated by mechanism entirely under the control of the driver, substantially as and for the purpose specified. 9th. A sheaf carrier for self binding harvesters, consisting of a series of curved fingers having their inner ends pivotally secured to the under side of the deck of the machine, and their outer ends normally upstanding, said fingers forming an incline natural with the incline of said deck, the inner end of each finger provided with a crank, said fingers forming a sheaf carrier divided into two or more sections, and the cranks of the fingers of each section coupled by means of link bars, the said link bars coupled together by a yoke to which is connected one stem of the turn buckle, whilst the other stem of said turn buckle is connected to one end of an operating lever, the cushioning spring coiled on the lever stem, acting as a cushion to relieve the machine from any strain or jar caused by the rapid return of said fingers when the operating mechanism is released, the opposite end of said lever, provided with an eye through which passes the packer shaft, and rigidly pivoted in a bracket firmly secured to some portion of the frame of the machine, the second bracket firmly secured to said operating lever between its pivoted bracket and eye, a trip dog pivoted in said second bracket, engaging with a worm on the

packer shaft of the machine, said worm working the trip dog and inner end of the operating lever, rearward, and moving the outer end of said operating lever, forward, substantially as and for the purpose specified. 10th. A sheaf carrier for self binding harvesters, consisting of a series of curved fingers having their inner ends pivotally secured to the under side of the deck of the machine, and their outer ends normally upstanding, said fingers forming an incline natural with the incline of said deck, the inner end of said finger provided with a crank, said fingers forming a sheaf carrier divided into two or more sections, and the cranks of the fingers of each section coupled by means of link bars, the said link bars coupled together by a yoke to which is connected one stem of the turn buckle, whilst the other stem of said turn buckle is connected to one end of an operating lever, the cushioning spring coiled on the lever stem, acting as a cushion to relieve the machine from any strain or jar caused by the rapid return of said fingers when the operating mechanism is released, the opposite end of said lever provided with an eye through which passes the packer shaft and rigidly pivoted in a bracket firmly secured to some portion of the frame of the machine, the second bracket firmly secured to said operating lever between its pivoted bracket and eye, a trip dog pivoted in said second bracket engaging with a worm on the outer side of the eye, on the inner end of said lever is a spring pressing said eye towards the worm, said worm working the trip dog and inner end of the operating lever rearward, and moving the outer end of said operating lever forward, substantially as and for the purpose specified. 11th. A sheaf carrier for self binding harvester consisting of the combination of a series of curved fingers, the inner ends of which are pivotally secured in bearings connected to the under side of the deck and the outer ends curved upward forming a cradle or belly between said inner and outer ends, said fingers inclined between said inner end and belly, natural to the incline of said deck, the inner end of each finger provided with a crank in the form of a separable bracket, from which said fingers can be withdrawn, said cranks coupled together and connected to one end of an operating lever, the other end of said operating lever driven by mechanism entirely under the control of the driver, substantially as and for the purpose specified. 12th. A sheaf carrier for self-binding harvesters consisting of a series of curved fingers having their inner ends pivotally secured to the under side of the deck of the machine, and their outer ends normally upstanding, said fingers inclined at an angle natural with the incline of said deck, the inner end of each of said fingers provided with a crank in the form of a separable bracket, from which said fingers may be withdrawn when the parts of said bracket are unloosed, said cranks coupled together by means of link bars connected by a cushioning spring to one end of an operating lever pivoted in a bracket secured to some portion of the framework of the machine, the opposite end of said lever operated by means entirely under the control of the driver, substantially as and for the purpose specified.

No. 39,954. Machine for Separating Cream from Milk.

(Appareil pour séparer la crème du lait.)

Walter Cole, London, England, 22nd August, 1892; 6 years.

Claim.—1st. A machine or apparatus for separating cream from milk consisting of a vessel rotated round an axis by suitable driving mechanism, an inlet through which is fed to the vessel the milk to be treated, two outlets so arranged as to respectively draw off from the said vessel the skim milk and the cream separated from each other by centrifugal action caused by the rotation of said vessel, substantially as described. 2nd. A machine or apparatus for separating cream from milk consisting of a vessel rotated round an axis by suitable driving mechanism, an inlet through which is fed to the vessel the milk to be treated, two outlets, through one of which is drawn the skim milk and through the other the cream separated by centrifugal action, one of said outlets communicating with the outer side of the vessel and the other with the inner side, substantially as described. 3rd. A centrifugal machine or apparatus for separating cream from milk consisting of a series of separating vessels, each of which is provided with an inlet pipe in communication with a receptacle for the milk to be treated and with the interior of the respective separating vessels at a point between the inner and outer sides or end thereof, an outlet pipe communicating with the outer side of the separating vessel, and a second outlet pipe terminating at its inner end at or near the inner side of the separating vessel, these outlet pipes being in communication with annular discharge pipes, substantially as set forth. 4th. In a centrifugal machine or apparatus for separating cream from milk, the combination of a hollow rotary support provided with radial divisions dividing the interior into a number of compartments, each of which is fitted with a vessel, a shaft to which is fixed said rotary support, a milk chamber formed in the upper part of said rotary support, an inlet through which the milk to be treated is fed to said chamber, an outlet pipe communicating with the outer side or end of the vessel through which is drawn the skim milk, a second outlet pipe communicating with the inner side of said vessel through which is drawn the cream, the ends of each of the first mentioned outlets being connected together and the ends of each of the last mentioned outlets being connected together, a trough in connection with each of said outlets into which passes, respectively, the skim milk and cream, substantially as described. 5th. In a centrifugal machine or apparatus for separating cream from milk, the combination of a

hollow rotary support 1, provided with rotary divisions 2, serving to divide its interior into a number of compartments 3, a vertical shaft 5, to the top of which is affixed said rotary support, the milk chamber 6 formed in the upper part of said rotary support, a support, a supply pipe 7, through which milk to be treated is fed to the milk chamber 6, a nozzle 8 carried by a pivoted arm 9 holding said nozzle 8 in such a position as to close the top of the milk chamber and prevent the entrance of air thereto, a vessel 11, fitted into each compartment 3, gradually increasing in cross sectional area from the inner to the outer end, an inlet pipe fitted to each vessel and in communication with the milk chamber, an outlet pipe 13, communicating with the outer side or end of the vessel, an outlet pipe 14, in communication at its inner end with the inner or smaller side or end of each vessel, a pipe 17, connecting the ends of the several pipes 14, annular troughs 20 and 21, arranged to surround the pipes 17 and 18 respectively, and each provided with an outlet 22, an annular fence 23, surrounding the rotary support 1, of the parts carried thereby, and also the troughs 20 and 21, substantially as described. 6th. In a centrifugal machine or apparatus for separating cream from milk, the combination, of a hollow rotary support provided with radial divisions serving to divide its interior into a number of compartments, each compartment of which is fitted with a vessel 11, gradually increasing in cross sectional area from the inner to the outer end, the lower part of said rotary support fixed to the upper end of a vertical shaft by means of which it can be rotated at a high speed by any suitable driving mechanism, a milk chamber formed in the upper part of the rotary support, a supply pipe through which milk to be treated is fed to said milk chamber, a nozzle, a pivoted arm holding said nozzle in such a position as to close the top of the milk chamber and prevent the entrance of air thereto, an inlet pipe connected to each of said vessels, each of said vessels fitted with an outlet pipe communicating with the outer side or end of the vessel and an outlet pipe in communication at its inner end with the inner or smaller side or end of said vessel, an annular pipe secured to the ends of the several pipes first mentioned, a similar annular pipe secured to the outer ends of each of the last mentioned pipes, annular troughs arranged to surround respectively the first and last mentioned annular pipes, each of said troughs provided with an outlet, an annular fence surrounding the rotary support and the parts carried thereby, and also the said troughs, substantially as described.

No. 39,955. Furnace for Roasting Ores.

(*Fourneau à calciner les minerais*)

Horace Fowler Brown, Butte, Montana, U.S.A., 22nd August, 1892; 6 years.

Claim. 1st. In an ore roasting furnace having means for stirring and advancing the ore, a supplemental chamber at the side of the main roasting chamber and cut off from said main chamber by a wall or partition, and carriers in said supplemental chambers connected with the stirrers but removed from the direct action of the heat, fumes and dust, substantially as herein described. 2nd. In an ore roasting furnace having separate hearths one above the other, separate supplemental compartments at the sides of the hearths carriers in said supplemental chamber connected with stirrers in the main chamber or hearths, chains connected with the carriers and means for operating the chains, substantially as herein described. 3rd. In an ore roasting furnace having upper and lower hearths, movable vehicles at the sides of the hearths having stirrers connected with them and extending toward the centre of the hearths, chains connected with said vehicles, and walls or partitions separating the vehicles and chains from the main chambers or hearths, whereby the former are not affected by the direct heat, fumes and dust from said hearths, said walls or partitions having slots or openings in them for the passage of the stirrer support, substantially as herein described. 4th. In an ore roasting furnace, a wheeled carrier adapted to travel within the same having a laterally projecting arm to which stirrers or blades are attached, and means for operating the carrier, substantially as herein described. 5th. In an ore roasting furnace, having track rails within it, the wheeled carriers adapted to travel upon said rails, arms projecting laterally from the frames of the carriers toward the centre of the furnace, chains connected with the carriers, sleeves or casings fitted to the arms and provided with stirrers or blades, and means for operating the chains, substantially as herein described. 6th. In an ore roasting furnace, slotted walls or partitions extending longitudinally through the roasting hearth or chamber a short distance from the sides thereof to form supplemental chambers cut off from the direct heat, fumes and dust of the main chamber, in combination with wheeled carriers in said supplemental chambers having arms projecting through the slots or openings thereof into the main chamber, and provided with stirrers or blades, shields or plates on the carriers for closing the portions of the slots or openings contiguous to them whereby the carriers are protected, and means for moving the carriers, substantially as herein described. 7th. In an ore roasting furnace, the stirrer blades coated or covered with asbestos cement to form a vitrified surface impervious to ordinary heat, and the action of the fumes and acids arising from the ore, substantially as herein described. 8th. In an ore roasting furnace, the stirrer carriers having laterally projecting arms, and means for operating the carriers, in combination with sleeves or casing fitted to the arms, and having an inner

lining of asbestos and stirrers or blade on the sleeves or casings, substantially as herein described. 9th. In an ore roasting furnace, having side chambers cut off by a slotted wall or partition from the main chamber, the operating chains, the wheeled carriers in said side chambers let into the length of the chains to support the latter the stirrers or blades supported from the carriers and extending through the slotted wall or partition into the main chambers, and wheels or rollers on the floor of the supplemental chambers for assisting in supporting the chains, substantially as and for the purpose described. 10th. An ore roasting furnace, having longitudinally extending slotted walls or partitions along the sides of its main chambers to form supplemental chambers, movable carriers in said side chambers provided with means for stirring the ore, the openings in the sides of the furnace leading to the side chambers whereby air is admitted in thin sheets to the main chambers through the side chambers and slotted walls or partitions, substantially as and for the purpose described. 11th. In an ore roasting furnace, having upper and lower hearths for the desulphurization and chloridization of the ore and provided with longitudinally extending walls or partitions forming supplemental side chambers, the roofs or arches of the hearths, extending over and closing the tops of the side chambers and forming a centrally disposed opening over the body of ore, fire boxes having flues leading to central openings, and carriers in the supplemental side chambers having stirrers extending into the main chambers for agitating and advancing the ore, substantially as herein described. 12th. In an ore roasting furnace, having a main chamber or hearth, a supplemental slagging hearth under the main hearth, and a fire box contiguous thereto having a flue or passage leading to the main hearth or chamber, whereby the products of combustion from the fire box pass over the slagging hearth and enter the main hearth or chamber to assist in the roasting of the ore, substantially as herein described. 13th. In an ore roasting furnace, the combination of the roasting chambers, and connecting passages, the slotted partitions in said chambers forming supplemental side chambers and extending beyond the ends of the furnace to form housings, shafts journaled in the housings, doors pivotally mounted on said shaft at the ends of the main and supplemental chambers, and carriers in the side chambers supporting stirrers arranged in the main chambers, said carriers adapted to travel through the furnace and actuate the doors in their passage, substantially as herein described. 14th. In an ore roasting furnace, wheeled carriers adapted to travel within the furnace and provided with means for agitating and advancing the ore, in combination with housings at the ends of the furnace, pivotally mounted doors in said housings having radial arms, said carriers provided with means for actuating the doors in their passage to impart a partial revolution, and to bring the arms successively into position to close the entrance to the furnace chambers, substantially as herein described. 15th. In an ore roasting furnace, the combination of the main roasting chambers, the slotted partitions therein forming side chambers, carriers in the side chambers provided with means for stirring the ore in the main chambers, a fire box having a surrounding air space, an air space below the upper main chamber provided with means for regulating the flow of air, branch passages leading from the air spaces upward through the slotted partitions and discharging into the main chambers, substantially as herein described. 16th. In an ore roasting furnace having connected roasting hearths, and a supplemental hearth for the fusing of the roasted ore, flues of passages leading from the supplemental hearth through the sides of the main roasting hearths, whereby the heat from the supplemental hearth enters the main hearths at one or more places. 17th. In an ore roasting furnace, the upper and lower hearths and means for stirring and advancing the ore therein, in combination with a supplemental hearth upon which the roasted ore is collected in charges, and flues or passages at the sides of the main hearths, opening at one end through the sides thereof, and having their opposite ends in communication with the heat from the supplemental hearth whereby the main hearths receive heat at different places along their sides, substantially as herein described. 18th. In an ore roasting furnace, the upper and lower hearths and means for advancing the ore therein, in combination with a supplemental hearth upon which the roasted ore from the main hearth is received, and flues or passages at the sides of the furnace having one end in communication with the flue of the supplemental hearth, and the other end opening through the sides of the main hearths at different places, substantially as herein described. 19th. In an ore roasting furnace, the main hearth, the main flue communicating with the interior thereof and connecting with the dust flue leading to the stack, a supplemental hearth upon which the roasted ore from the main hearth is received, side flues leading from the supplemental hearth through the inner sides of the main hearths, and damper controlled flues or openings connecting the side flues with the main dust flues from the roasting hearth, substantially as herein described. 20th. An ore roasting furnace having main hearths with a dust flue leading to the stack, a supplemental hearth upon which the roasted ore is delivered, and damper controlled openings or flues between the flue of the supplemental hearth and the dust flue from the main hearths, whereby the heat from the supplemental hearth may be delivered directly to the main stack. 21st. In an ore roasting furnace, having roasting hearths, perforated boxes or pipes located at or near the arches or roofs of the hearths, said boxes or pipes connecting with a gas supply, and adapted to throw a series of flame jets upon the ore

at intervals, substantially as herein described. 22nd. In an ore roasting furnace, the roasting hearths, the supplemental hearth upon which the roasted ore is received, a dust flue from the main hearths connecting with a dust chamber leading to the stack, side flues connecting with the flue from the supplemental hearth, and entering through the inside of the roasting hearth, a horizontal flue extending centrally along the furnace, communicating at one end with the flue from the supplemental hearth, other side flues connecting with the central flue and leading to the inside of the roasting hearth, and a safety door and operating means for closing the end of the horizontal central flue, and cutting off communication with the dust chamber when desired, substantially as herein described. 23rd. In an ore roasting furnace, having roasting hearths, the means for stirring and advancing the ore therein comprising wheeled carriers, hubs or sockets extending therefrom into the body of ore, parallel arms or rods extending from the hubs or sockets, stirrer blades having wings bent in opposite directions, and provided with holes through which the rods or arms pass, and sleeves or spreaders having squared ends mounted on the arms or rods between the bent portions of the blades, substantially as herein described. 24th. In an ore roasting furnace, a stirrer composed of two parallel arms supported at one end upon a movable carrier and blades inclined with relation to the arms and having oppositely bent wings at right angles with the arms and provided with holes through which the latter pass substantially as herein described. 25th. In an ore roasting furnace, a stirrer blade having a portion of each side cut away and bent at right angles in opposite directions, in combination with two parallel supporting arms separated from each other and adapted to pass through the wings, and a movable support for the arms, substantially as herein described. 26th. In an ore roasting furnace, a stirrer consisting of two parallel arms, blades fitted at an angle between said arms, and having wings through which the arms pass, and spreaders having squared ends on said arms alternately with the blades and adapted to form a rigid support for the same, substantially as herein described.

No. 39,956. Telephone Receiver.

(Récepteur téléphonique.)

Edwin Charles Hess, Camden, New Jersey, U. S. A., 22nd August, 1892; 6 years.

Claim.—1st. The combination in a telephone receiver, of the main standard receiver to which the main wires are attached an arm pivoted to said main receiver, a second receiver carried at the opposite end of said arm, with wires passing through the arm from the main wires, and attached to the opposite receiver so that both instruments will be in circuit without disturbing the general arrangement of the standard receiver, substantially as described. 2nd. The combination of the standard receiver as a main receiver, the ear piece B secured thereto, a hollow arm D, pivoted to the ear piece B, with a receiver E, a universal joint connecting the receiver E with the hollow arm, an ear piece F on the receiver E, with wires x, x' , passing from the standard receiver through the arm D, to the receiver E, substantially as described. 3rd. The combination of the main receiver A, with an ear piece B, having a central projection b adapted to enter the ear, a passage in said projection communicating with the space in front of the diaphragm of the main receiver, a hollow arm D pivoted to said ear piece, and communicating with a space in front of the diaphragm of the receiver A, with a receiver E, a hollow projection b thereon adapted to the ear, said receiver being connected to the tubular arm D, thus forming communication between the two receivers, substantially as described. 4th. The combination of the receiver A, the yoked hollow arm D, an ear piece B to which the yoke is pivoted, a receiver E, having an ear piece F, wires x, x' , extending along the receiver A, into openings g, g' , at the rear of the yoke sections of the arm and passing through the arm to the receiver E, the whole arranged, substantially as described. 5th. The combination of the receiver, the ear piece B, the central projection b , with passage therein communicating with the space in front of the diaphragm of the receiver, a hollow annular cushion C secured to the ear piece, and extending beyond the central projection b , substantially as described.

No. 39,957. Air Valve for Drain Pipes.

(Soupape atmosphérique pour tuyaux de drainage.)

Ezra Spencer McClellan, Paterson, New Jersey, U. S. A., 22nd August, 1892; 6 years.

Claim.—1st. The combination, with the case body of a glass mercury holding cup, means for securing the glass cup to the case, a cup-shaped air valve having its lower edge in the mercury, and means for guiding the air valve as it moves vertically, substantially as set forth. 2nd. The combination, with the case body, of an annular glass mercury cup, with packing between the upper end of the cup and the case body, a ring for supporting the glass cup, a connection between the same and the case body, and an inverted cup-shaped air valve with its lower edge in the mercury, substantially as set forth. 3rd. The combination, with a supporting bracket having a vertical pin and the inverted cup-shaped air valve, of a case containing the air valve, and a mercury holding cup, and hav-

ing an opening central to the annular mercury holding cup for the reception of the pin of the bracket, substantially as specified. 4th. The combination, in an air valve of a case body, an annular glass mercury cup having internal guide ribs, means for connecting the glass mercury cup with the case body, and an inverted cup-shaped valve, the lower edge of which is in the mercury, substantially as set forth. 5th. The combination, in an air valve of a metallic case body having a rim around the downward opening, a cup-shaped air valve, an annular glass mercury cup, packing between the glass and the case body, a ring and clamping bolts connecting the ring to the case body and securing the glass mercury holding cup in position, substantially as set forth. 6th. The combination, in an air valve for traps in sewers, of a case and annular mercury holding cup, an inverted cup-shaped air valve, a ring below the mercury cup, having a central opening, and a bracket having a pin entering the opening for supporting the mercury holding cup and parts connected therewith, substantially as set forth. 7th. The combination, with an annular mercury holding cup, of a cup-shaped air valve, a case connected with the mercury holding cup, with an opening through the case for supplying mercury to the cup, a removable plug for filling the opening, and a ring for supporting the mercury holding cup, and connections from the same to the case body, substantially as set forth.

No. 39,958. Art of and Means for Recovering and Amalgamating Metals. (Art et moyen de faire revénir et amalgamer les métaux.)

William L. Candler, Boston, Massachusetts, assignee of Jacob Charles Wiswell, West Medford, Massachusetts, U. S. A., 22nd August, 1892; 6 years.

Claim.—1st. The combination of pulverizing devices, adapted to grind various grades of friable material at the levels they would tend to stratify in water, consisting of annular trough b' , hollow rolls R, revolving in the bed b' , the interior of the rolls R, carrying therein rings r' , each, with an apparatus for continuously manufacturing a compound solution for chlorinating and amalgamating mercury, gold and silver, and then precipitating the gold, silver and mercury in condition for absorption and incorporation by metallic mercury, substantially as set forth. 2nd. In an apparatus for reducing gold and silver ores, or other metal bearing ores amenable to such treatment, the combination of the device for generating chlorine gas by chemical or electrolytical means, or both, chlorinating mercury therewith, with machinery adapted to pulverize the ores in a solution so prepared and permit of the chlorination, amalgamation and precipitations of the gold, silver and mercury and conservation of the same, substantially as set forth. 3rd. In the treatment of the finely ground ores of metals, the combination of brine, chlorine, mercurial chloride, sodium oxide and chlorohydric acid, substantially as set forth. 4th. In combination, with machinery constructed and operating, substantially set forth, a solution in water of salt, hydrochloric acid, chlorine mercury and additers of iron in the process of trituration, and precipitation.

No. 39,959. Furnace for Roasting Ores.

(Fourneau à calciner les minerais.)

William L. Candler, Boston, assignee of Jacob Charles Wiswell, West Medford, both in Massachusetts, U. S. A., 22nd August, 1892; 6 years.

Claim.—1st. An ore calcining furnace, consisting of gas and heat refractory material, means for the admission of the previously pulverized material, means for causing the said pulverized material to be moved from one end of each cylinder to the other, and discharged into the next below, substantially as and for the purpose described. 2nd. An ore roasting or calcining furnace for desulphurizing and oxidizing pulverized ores, consisting of cylinders B, composed of material for resisting high temperatures, and containing therein worms, exteriorly driven, whereby the ore is caused to traverse from the entering end to the exit end, from the top to the one next below, substantially as set forth. 3rd. A furnace consisting of grates E, for the combustion of fuel for exteriorly heating cylinders B, containing worms c 1, for moving previously pulverized ore from one end to the other, in combination with injectors I, which acting under pressure from the supply pipe C, cause an influx of air or other vapour, for more perfectly removing deleterious gases from the ores, substantially as hereinbefore set forth. 4th. A furnace for roasting or calcining ores, consisting of walls A, for containing and confining heat, cylinders B, having heads D, of similar refractory material, and provided with packing boxes f 2, supporting and serving as bearings to exteriorly driven hollow shafts f 1, the front heads D, of which are provided with tubes i 1, for conveying the useless gases into condensers F, substantially as described. 5th. The combination of the grates E, the grate supports b, b 2, walls A, cylinders B, the within contained worms c 1, mounted on hollow shafts f 1, the packing boxes f 2, plug f 3, heads D, hopper G, and agitator I, inspirators I, and exit d 1, with the supply pipe C, gear wheels f 4, and f 5, also in combination with the escape pipes i 1, and condensers F, all acting as and for the purpose substantially as set forth and described.

No. 39,960. Apparatus for Feeding Paper to Printing Presses. (*Appareil d'alimentation du papier aux presses à imprimer.*)

Randal Cresswell and Matthew Heslop, London, England, 22nd August, 1892; 6 years.

Claim.—1st. In a feeding apparatus for printing machines and like purposes, the combination, of the feed roller or bar *a*, guide bar *d*, and the table supporting paper with weights or other means for adjusting the pressure thereon, all operating together, substantially as described and set forth. 2nd. In a feeding apparatus, the combination, of the feed roller *a*, guide bar *d*, pressure bar *g*, and table as herein described and set forth. 3rd. In the above combination, the use of the bar *a*¹, as a substitute for the feed roller *a*. 4th. In a feeding apparatus, the arrangement for reversing the working parts and feeding either from the top or from the bottom of the pile of paper as herein described and set forth. 5th. In an automatic or other feeding apparatus, the combination of the various parts herein described, or their mechanical equivalents as herein described and set forth.

No. 39,961. Pan for Grinding and Amalgamating Purposes. (*Bassinnet pour broyer et amalgamer.*)

William Roberts, Petersham, near Sydney, and Howard Raymond Belden, Sydney, both of New South Wales, Australia, 22nd August, 1892; 6 years.

Claim.—1st. The improved grinding and amalgamating pan, the essential features being a series of adjoining concentric basins or grinding pans in one or more of which is a set of revolving mullers, and in each of which is a set of suspended drags or sliding disintegrators constructed and arranged, substantially as herein described and explained and as illustrated in the drawings. 2nd. In grinding and amalgamating pans, the combination and arrangement with a grinding face, of drags or sliding disintegrators having part of their grinding surfaces fluted or corrugated, substantially as herein described and explained. 3rd. In grinding and amalgamating pans, the combination and arrangement with a wearing face, and mullers and disintegrators grinding thereon, of a lever and other mechanical parts or other means for freeing said grinding parts from the pan and wearing faces, substantially as herein described and explained. 4th. In grinding and amalgamating pans, the combination and arrangement with and in an annular basin or wearing surface, of a set of revolving mullers, and a set of drags or sliding disintegrators adapted to travel around together in said basin, substantially as herein described and explained. 5th. In grinding and amalgamating pans, the combination and arrangement and in annular basins having set of revolving mullers, drags or grinders of the wearing surfaces in said basins set with upward and centrally inclined faces, substantially as herein described and explained. 6th. In grinding and amalgamating pans, the combination and arrangement with and in annular basins having mullers and grinders, and mercury wells of circular splash boards to minimize currents and compel the travelling material to enter said mercury wells, substantially as herein described and explained. 7th. In grinding and amalgamating pans, the combination and arrangement with annular basins having mullers and grinders, and mercury wells with circular splash boards, of teasers or travelling stirrers in said wells outside said splashboards, substantially as herein described and explained.

No. 39,962. Baking Powder. (*Poudre à cuisson.*)

The Rumford Chemical Works, assignee of Charles Albert Catlin, all of Providence, Rhode Island, U.S.A., 22nd August, 1892; 6 years.

Claim.—A baking preparation containing phosphoric acid or its compounds in granular condition essentially free from pulverulent, phosphatic material, substantially as described.

No. 39,963. Cutting, Grinding and Polishing Material. (*Matière pour couper, broyer et polir.*)

The Pittsburg Crushed Steel Company, Limited, assignee of Charles Mortimer Lindsey, all of Pittsburg, Pennsylvania, U.S.A., 22nd August, 1892; 6 years.

Claim.—As a new article of manufacture, a cutting, grinding or polishing material composed of tempered particles of fractured steel which has been crystallized by heating to a "burnt" temperature and quenching, substantially as and for the purposes described.

No. 39,964. Combined Electric Indicating Switch and Current Reverser. (*Aiguille indicatrice électrique et courant à renverse combinés.*)

The Strouger Automatic Telephone Exchange, assignee of Almon B. Strouger and Walter S. Strouger, all of Chicago, Illinois, U.S.A., 22nd August, 1892; 6 years.

Claim.—1st. A combined indicator, switch and current reverser, consisting of an indicator, a series of pairs of contact heads, the heads of each pair being adapted to be connected with the opposite poles of a battery, and a switch movable over said heads and adapted to be brought into contact therewith, and provided with means

for reversing the current, substantially as set forth. 2nd. A combined indicator, switch and current reverser, consisting of a dial, an annular series of pairs of contact heads secured thereto, the heads of each pair being adapted to be connected with the heads of the other parts and with the opposite poles of a battery, and a switch pivotally secured at the centre of said dial, and series of heads, and provided with means for reversing the current, substantially as set forth. 3rd. A combined indicator, switch and current reverser, consisting of a dial, two rows of contact heads arranged in pairs, the heads of each pair being adapted to be connected with the heads of the other pairs and with the opposite poles of a battery, the polarity of the heads of each row alternating with each other, and a switch movable over said heads and adapted to be brought into electrical connection therewith, whereby a current may be passed in either direction, through the heads and their connections, substantially as set forth. 4th. In a combined indicator, switch and current reverser, the combination, with an electric battery, a series of pairs of contact heads secured thereto and arranged in two circles around the dial, the heads of each pair being connected with the opposite poles of a battery, and the polarity of the heads of each row alternating with each other, two wires secured to the dial, one of which is a ground wire, and the other is a working wire, a switch pivotally secured at the centre of the rows of heads provided with two insulated contact points, each of which connects with the central portion of the dial, and an electrical connection between each of the contact points of the switch and each of the wires secured to the dial, substantially as set forth. 5th. In a combined indicator, switch and current reverser, the combination, with a dial of a central pivotal point and a series of metal contact heads arranged around the disc in two concentric rows, the alternate heads of the rows being of different lengths, a flexible key pivotally secured upon the central pin, and provided with two contact points at its free end, one for each row of contact heads, an electric battery, two wires leading therefrom and connecting the heads alternately, and means for establishing electrical communication with the contact points of the key, and with wires leading from the dial, substantially as set forth. 6th. In a combined indicator, switch and current reverser, the combination, with a battery of a dial, a central pivotal pin, and a series of contact heads arranged in pairs in two circles around the dial, the head of each pin being connected with the opposite poles of a battery, and the polarity of the heads of each pair alternately with each other, two discs and a key upon the central pin, the discs being insulated from each other, one of which is communicated with one of the discs and the other one with the other disc, and two brushes for engaging with said plates and establishing connection with wires from the other disc, substantially as set forth. 7th. In a combined indicator, switch and current reverser, the combination, with an electric battery of a disc provided with a central pin, and a series of contact heads arranged in pairs around the dial, the alternate pairs of heads being of different heights above the face of the dial, and the heads of each pair being connected with the opposite poles of the battery; and the polarity of the heads alternating with each other, two discs and a flexible key secured to the central pin, the discs being insulated from each other, one of the points communicating with one of the discs and the other one with the other disc, a knob on the key for forcing the free end inward to contact with the shorter heads, two binding posts on the dial, and a brush secured to each post, and contacting with the discs respectively, substantially as set forth. 8th. The combination, with an automatic electrical exchange provided with a series of magnets for operating same, the polarity of one of which, is different from the others, of a combined switch and current reverser, substantially as set forth. 9th. The combination, with an electrical exchange, provided with a series of magnets for operating the same, and with a dial, one of the magnets being of a different polarity, from the others, of a combined indicator switch and current reverser, connected therewith, whereby alternate currents may be passed through the magnets of the exchange, substantially as set forth.

No. 39,965. Art of Concentrating Ores.

(*Art de concentrer les minerais.*)

Flora Lucille Haynes Brown, Chicago, Illinois, assignee of Charles Benjamin Hebron and Carrie Jane Everson, both of Denver, Colorado, all in the U.S.A., 22nd August, 1892; 6 years.

Claim.—1st. The herein described process for concentrating ores, which consists in commingling with pulverized ore stock buoyant material, then submitting the commingled pulverized ore stock and buoyant material to movement and pressure, and so joining the buoyant material to the metallic and mineral particles in the pulverized ore, and then applying the prepared ore while in a dry state to a stratifying apparatus, whereby the buoyant metallic and mineral particles are separated from the gauge by the settling of such gauge, substantially as described. 2nd. The herein described process for concentrating ores, which consists in first commingling with pulverized ore stock, buoyant material, then submitting the commingled pulverized ore stock and buoyant material to movement and pressure and so joining the buoyant material to the metallic and mineral particles in the pulverized ore, and then applying such prepared ore while in a dry state to the surface of liquid, whereby the buoyed metallic and mineral particles are floated on such liquid and separated from the gauge, which settles in the liquid, substantially

as described. 3rd. The process, substantially as described, for concentrating ores, which consists in first joining the metallic and mineral particles in the pulverized ore with a quantity of buoyant material and then sifting or blowing the prepared ore while in a dry state upon the surface of liquid, whereby the buoyed metallic and mineral particles are made to float and thus separate from the gauge, which settles. 4th. The herein described process for concentrating ores, which consists in first joining the metallic and mineral particles in the pulverized ore with a quantity of buoyant material, then sifting or blowing the prepared ore while in a dry state upon the surface of liquid, and then in obtaining a current of air over the liquid, whereby the buoyed metallic and mineral particles are made to float and to move along on and over the surface of such liquid and thus separate from the gauge, which settles. 5th. The herein described process for concentrating ores, which consists in first joining the metallic and mineral particles in the pulverized ore with a quantity of buoyant material, of obtaining a body of liquid having an effervescent condition, and then sifting or blowing the prepared ore while in a dry state upon the surface of liquid in such effervescent condition, whereby the buoyed metallic and mineral particles are made to float on the surface of such liquid, and thus separate from the gauge, which settles. 6th. The herein described process for concentrating ores, which consist in first joining the metallic and mineral particles in the pulverized ore with a quantity of buoyant material, of obtaining a body of liquid having an effervescent condition, then sifting or blowing the prepared ore while in a dry state upon the surface of liquid in such effervescent condition, and then in obtaining a current of air over the liquid, whereby the buoyed metallic and mineral particles are made to float and to move along on and over the surface of such liquid, and thus separate from the gauge, which settles.

No. 39,966. Fence. (Clôture.)

Frederick P. Rosback and Henry F. Band, both of Chicago, Illinois, U.S.A., 22nd August, 1892; 6 years.

Claim.—1st. A tubular sheet metal post enlarged toward its lower end, and having the lapping portions of the metal sheet of which it is made free to slide upon one another along the lower end portion of the post, so that said portion can expand when driven into the ground, substantially as set forth. 2nd. A tubular sheet metal post tapered upwardly from its lower end, and formed from a sheet metal blank rolled into tubular form, with overlapping edge portions which are secured together above the ground line, substantially as set forth. 3rd. A tubular rolled sheet metal fence post having lapping edge portions held together by rail holding devices for wire or board rails or both, substantially as set forth. 4th. A tubular sheet metal post provided with a wire holder, consisting of a key arranged to extend through the post and receive and hold a wire rail, substantially as set forth. 5th. A rolled sheet metal post having lapping edge portions along the seam, and provided with keys extended through such lapping portions, and wires applied to the keys, substantially as and for the purpose described. 6th. A sheet metal post provided with holders, substantially as set forth for board rails. 7th. The combination, with a sheet metal post, of a wire holding key notched, substantially as set forth, and a wire rail applied thereto.

No. 39,967. Camera. (Camera.)

Joseph J. Clairmont, assignee of Frank N. L'Estrange, both of Rutherford, New Jersey, U.S.A., 22nd August, 1892; 6 years.

Claim.—1st. The combination with a camera body, of a lens, a film carrier or holder, and a diaphragm, all bearing a fixed relation to each other, said relation being deduced from or determined by the focal value of the lens, substantially as described. 2nd. In a camera, the combination with the body thereof, of a plate holder or film carrier, a diaphragm, a lens located between them, the distance between the film and lens being the full focal value of the lens, and the distance between the lens and diaphragm being one-quarter of such focal value, substantially as described. 3rd. In a camera, the combination of a film carrying partition or septum, and a lens septum, the film septum being disposed at an oblique angle to the lens, and fixed in relation thereto, substantially as described. 4th. In a camera, the combination with the lens septum, a film carrying septum in front of the lens septum, and a diaphragm in front of the lens, all occupying a fixed position in said camera, substantially as described. 5th. In a camera, the combination, with the camera body having a lens supporting septum, a film carrying septum to the rear, and a diaphragm supporting septum in front of the lens, and both removed therefrom, the film septum being disposed at an angle to the lens, substantially as described. 6th. In a camera, the combination of the lens and film septums, of a septum in front of and removed from the lens, said front septum having an aperture aligning with the lens, and an aperture and revolvable diaphragm supported thereon, substantially as described. 7th. In a camera, the combination of the lens and film septums, of a septum in front of and removed from the lens, having an aperture and an apertured and revolvable diaphragm supported thereon, the film septum being disposed at an angle to the lens, substantially as described. 8th. In a camera, the combination of the lens, and a film supporting septum removed therefrom, the same being disposed at an oblique angle and fixed in relation thereto, the top of said septum being farthest away from and the bottom nearest to the

lens, substantially as described. 9th. In a camera, the combination of the lens and a film supporting septum removed therefrom and fixed in relation to the lens, the longitudinal centre septum being distant from the lens its full focal length, and disposed at an angle thereto, substantially as described. 10th. In a camera, the combination of three partitions or septums, to wit, one for supporting a film, another for supporting a lens, another regulating the admission of light to the lens, each being fixed and removed from each by a measurement deduced from the focal value of the lens, the film supporting lens being inclined, substantially as described. 11th. In a camera, the combination of the following instrumentalities:—A lens, a film carrier and a diaphragm, the film carrier being disposed at the rear of the lens, the distance between the two being the focal length of the lens, the diaphragm being disposed in front of the lens, the distance between them being one-quarter of the focal value of the lens, substantially as described. 12th. The combination with the camera body 1, of the detachable septum 12, having an aperture 15, an apertured diaphragm 16, revolvably mounted on said septum, its apertures aligning with the aperture 15, the septum 10 supporting the lens 11, and the apertured septum 7, substantially as described. 13th. The combination with the camera body 1, of the detachable septum 12, having an aperture 15, an apertured diaphragm 16, revolvably mounted on said septum, its apertures aligning with the aperture 15, the septum 10 supporting the lens 11, and the apertured septum 7, the diaphragm being situated from the lens one-quarter of its focal length, substantially as described. 14th. The combination with the camera body 1, of the detachable septum 12, having an aperture 15, an apertured diaphragm 16, revolvably mounted on said septum, its apertures aligning with the aperture 15, the septum 10 supporting the lens 11, and the apertured septum 7, disposed at an oblique angle to the lens, substantially as described. 15th. The combination with the camera body 1, of the detachable septum 12, having an aperture 15, an apertured diaphragm 16, revolvably mounted on said septum, its aperture aligning with the aperture 15, the septum 10 supporting the lens 11, and the apertured septum 7, the septums being now adjustable in relation to each other, substantially as described. 16th. In a finder, the combination with the apertures 21, 22, their axes being at right angles of the inclined frame 25, a plate of reflective material 28, fixed in an inclined position thereon, and a disc 24, of transparent material in the aperture 22, substantially as described. 17th. A finder comprising two apertures, the axes of which are at right angles to each other, a plate of reflective material inclined at an oblique angle to the said axes, and a condenser in the aperture fronting the reflective plate, substantially as described.

No. 39,968. Car Coupler. (Attelage de chars.)

Thomas Sweet and Joseph E. Ellison, both of Florence, Ontario, Canada, 22nd August, 1892; 6 years.

Claim.—1st. A tug pin P, formed with the enlarged or knobbed ends E, in combination with a draw head D, formed with the flaring mouth M, and shoulders F, the gate holder H, formed with the recess R, the gates G, G, formed with the trunnions T, the levers L, L, and the spring S, substantially as shown and described and for the purpose specified. 2nd. The locking bolt or pin A, and the draw head D, in combination with the levers L, L, the gates G, G, formed with the trunnions T, T, the gate holder H, formed with the pin hole I, and the spring S, substantially as shown and described and for the purpose specified. 3rd. The combination of the levers L, L, one formed with a tongue B, and the other with a groove or recess C, in combination with the gates G, G, formed with the trunnions T, the draw head D, the gate holder H, substantially as shown and described and for the purpose specified. 4th. The rod J, wheels K, provided with the handles O, and the chains N, in combination with the arms or levers L, gates G, formed with trunnions T, the gate holder H, and the draw head D, substantially as shown and described and for the purpose specified.

No. 39,969. Electrical Generator.

(Générateur électrique.)

William Henry, Detroit, Michigan, U.S.A., 23rd August, 1892; 6 years.

Claim.—1st. In an electric generator, the combination, of two groups of insulated metallic bodies, one forming a statically electrified field of positive and negative inductors, and the other group adapted to become polarized at intervals by moving in inductive relation to said inductors, and an exterior work circuit having connecting devices electrically connecting the induced bodies receding from a negative inductor and approaching to a positive inductor with the induced bodies receding from a positive inductor and approaching to a negative inductor during their polarizations, substantially as described. 2nd. In an electric generator, the combination, of two groups of insulated metallic sectors, one statically electrified to form positive and negative inductors, and the other adapted to move in inductive relation thereto, the sectors of the two groups being arranged in relatively different inductive proximity to each other, whereby polarization takes place in the induced sectors at different moments of time, substantially as described. 3rd. The combination, in an electric generator, of two groups of insulated metallic sectors arranged radially around a common axis, one adapted to form a statically electrified field of positive and negative electrified

tion, and the other adapted to revolve within said field, the two groups of sectors being arranged in alternating planes parallel with each other and equidistant apart, and with portions of the sectors of the two groups in relative different inductive proximity to each other, a commutator and brushes for each portion of moving sectors having the same relative inductive proximity to the inducing sectors and forming the positive and negative poles thereof during their phases of polarization by the inducing sectors, and an exterior circuit electrically connecting all the brushes, substantially as described. 4th. In an electrical generator, the combination, of a group of insulated metallic sectors arranged radially around a central axis, and adapted to form a stationary electrified field of positive and negative inductors, of an armature arranged to revolve within said field and composed of a shaft and a series of sector wheels adjustably grouped upon said shaft and consisting of an insulating hub and metallic sectors radially secured thereto in planes at right angles to the shaft, substantially as described. 5th. In an electrical generator, the combination, of a group of insulated metallic sectors arranged radially around a central axis, and adapted to form a statically electrified field of positive and negative inductors, of an armature adapted to revolve within said field and composed of a group of like sectors secured to insulating hubs upon the shaft of said armature and forming sector wheels, adapted to be independently adjusted upon said shaft, and of commutators, one for each sector wheel and formed upon the hub of each sector wheel, substantially as described. 6th. In an electrical generator, the combination, of a group of stationary inducing sectors of positive and negative statical electrification, a group of movable sectors secured to a revolving shaft in alternating planes between said stationary sectors, commutator and brushes forming the positive and negative poles of the movable sectors during their phases of polarizations, an exterior work circuit connecting such poles, and a governor for regulating the inductive influence of the inducing sectors, substantially as described. 7th. In an electrical generator, the combination of stationary inducing sectors of positive and negative statical electrification, movable sectors secured by insulating hubs to a revolving shaft and forming sector wheels spirally grouped upon said shaft in inductive relation between the stationary sectors, a commutator and brushes for each sector wheel, and forming the positive and negative poles thereof, at coincident phases of polarization, of an exterior work circuit connecting such poles, and a governor for regulating the inductive influence of the stationary sectors, substantially as described. 8th. In an electrical generator, the combination of stationary sectors of positive and negative statical electrification, movable sectors secured to a revolving shaft in inductive relation between the stationary sectors, connecting devices, whereby the differently induced movable sectors are electrically united during coincident phases of polarization, and connecting devices between a portion of the stationary and movable sectors for maintaining the electrification of the inducing sectors, substantially as described. 9th. In an electrical generator, the combination of the revolving shaft, the sector wheels adjustably secured upon said shaft, a commutator for each sector wheel, a pair of brushes for each commutator, an exterior work circuit connecting all the brushes, stationary sectors radially and adjustably secured in inductive proximity between the sector wheels, and a governor for regulating the inductive influence in the stationary sectors, said governor being connected into an exterior circuit, substantially as described.

No. 39,970. Fastener for Fuse Caps.

(*Attache pour bouchets de fusée.*)

Nathan Wilson Moody, Fresno, California, U. S. A., 23rd August, 1892; 6 years.

Claim.—1st. The herein described miners' combination tool, consisting of a pair of opposite members pivoted together and terminating at their ends in inwardly curved jaws, one of which is provided with a notch and the other with a knife, adapted to interlock therewith, said notch and knife being disposed longitudinally with relation to the members, substantially as specified. 2nd. The herein described combination miners' tool, consisting of the opposite members provided between their ends with the notched cutting discs, and at one side of the same terminating in curved jaws having internal semi-circular central oppositely bevelled crimping edges, one of said jaws being provided at its extremity in line with said edge with a V-shaped notch, and the other of said jaws with a V-shaped knife adapted to fit the notch and form a continuation of the crimping edges of the jaws, substantially as and for the purpose described. 3rd. The herein described combination miners' tool, consisting of a pair of opposite members pivoted together and terminating at their ends in inwardly curved edges, the edges of said jaws being bevelled to form crimpers, substantially as described.

No. 39,971. Bowl for Water Closets.

(*Cuvette de siège d'assise.*)

John Culver Beekman, New York, State of New York, U. S. A., 23rd August, 1892; 6 years.

Claim.—1st. A water closet bowl provided with a flushing device adapted to discharge water around the rim of the bowl and a second

flushing device consisting of a flushing chamber provided with water conduits leading to the right and left and with a water conduit intermediate of those leading to the right and left, the said conduits above the overflow opening into the upper portion of the discharge conduit from the bowl, substantially as set forth. 2nd. A water closet bowl provided with a thickened portion, an inlet for the discharge of water around the interior of the body of the bowl, and a second inlet chamber formed in the thickened portion of the bowl and opening into the discharge conduit, forming an independent flush for the walls of the neck of the discharge conduit, substantially as set forth.

No. 39,972. Electric Lighting System for Trains.

(*Système électrique d'éclairage des chars.*)

Harry Ward Leonard, Chicago, Illinois, U. S. A., 23rd August, 1892; 6 years.

Claim.—1st. The combination of a movable generator, conductors and translating devices connected thereto, energized therefrom and moving therewith, a series of fixed conductors and translating devices connected therewith, and a movable connection from the generator to the fixed conductors to complete the circuit therethrough, and thus energize the fixed translating devices from the movable generator, some of such fixed translating devices being normally always energized. 2nd. The combination of a movable generator, conductors and translating devices connected thereto, energized therefrom and moving therewith, a series of fixed conductors and translating devices connected therewith, and a movable connection from the generator to the fixed conductors to complete the circuit therethrough, and thus energize the fixed translating devices from the movable generator, some of such fixed translating devices being normally always energized, said fixed conductors overlapping so as to be in contact with the movable connection in such manner as to keep one of them normally always in contact with such conductor. 3rd. The combination of a movable generator, conductors and translating devices connected thereto, energized therefrom and moving therewith, a series of fixed conductors and translating devices connected therewith, and a movable connection from the generator to the fixed conductors to complete the circuit therethrough, and thus energize the fixed translating devices from the movable generator, some of such fixed translating devices being normally always energized, said local or fixed translating devices, consisting in part of local systems containing converters such as storage batteries. 4th. The combination of a series of short wires, a series of long wires, a generator of electricity, a branched connector leading therefrom to the short wires and either one of the long wires as the case may be, and series of lamps connected some with the short wires and one of the long wires, and others with the short wires and another of the long wires. 5th. The combination of a series of short overlapping wires, two long wires, two series of lamps connected, one series from one long wire, the other series from the other long wire and both to the short wires, and a generator movable along such wires, and a branched conductor leading therefrom to the short wires and one of the long wires. 6th. The combination of a series of fixed conductors, a series of translating devices connected therewith, a generator movable along such conductors, a movable connector normally in contact with at least one of such conductors and one pole of the generator, and connections between the other pole of the generator and some of the conductors, so as to successively energize such translating devices from the moving generator, and normally to keep some of them constantly energized. 7th. The combination of a series of fixed conductors, a series of electric lamps connected therewith, a generator movable along such conductors, a movable connector normally in contact with at least one of such conductors and one pole of the generator, and connections between the other pole of the generator and some of such conductors so as to successively energize such electric lamps from the moving generator, and normally to keep some of them constantly energized. 8th. The combination of a series of fixed overlapping conductors, a series of translating devices connected therewith, a generator movable along such conductors, a movable connector normally in contact with at least one of such conductors and one pole of the generator, and connections between the other pole of the generator and some of such conductors so as to successively energize such electric lamps from the moving generator, and normally to keep some of them constantly energized. 9th. The combination of a series of fixed conductors along a railroad track, a series of translating devices connected therewith, a movable generator adapted to be carried along the track, a movable connector from one pole of the generator and normally in contact with at least one of such conductors, connections from the other pole of the generator to some of such conductors, so that the translating devices are successively energized from the generator moving on the track, and some of them always energized when in operation. 10th. The combination of a series of fixed conductors, a series of incandescent lamps connected therewith, a generator movable along such conductors, a movable connector normally in contact with at least one of such conductors and one pole of the generator, and connections between the other pole of the generator and some of such conductors, so as to successively energize such incandescent lamps from the moving generator and normally to keep some of them constantly energized.

11th. The combination of a car with a series of conductors therealong so arranged that the terminal of each is on opposite sides of each of the other terminals at the two ends of the car. 12th. The combination of a car with a series of conductors therealong, two of which together constitute when in action a return loop, said conductors so arranged that the terminals of the two conductors forming the loop have opposite relative position with reference to the remaining conductor terminals at each end of the car. 13th. The combination of a series of cars with a series of conductors in each car and connections between such conductors, said connectors containing wires so arranged that the conductor terminals in one car are connected each with oppositely located conductor terminals on the adjacent car. 14th. The combination of a series of cars with a series of conductors therealong so arranged that the terminals of each is on opposite sides of each of the other terminals at the two ends of the car, and a connector provided with wires so arranged that the conductors of one car are connected each with the oppositely arranged conductor on the adjacent car. 15th. In a system of electric lighting for cars, a connector to couple adjacent cars, consisting of two similar coupling pieces having a series of terminals and crossed wires leading from one to the other and coupling blocks having each a series of terminals. 16th. In an electric lighting system for cars, the combination, of cars and conductors with coupling blocks at each end of each car containing two terminals normally in contact so as with their conductors to make a return loop closed at such coupling block, and two terminals normally not in contact, with a coupler adapted to open such loop and connect all the terminals with the terminals of the coupler. 17th. In an electric lighting system for cars, a coupler provided with two similar coupling pieces and connecting wires, each piece having two terminals normally in contact and two normally not in contact, in combination, with a coupling block containing the terminals of the car conductors, said closed terminals on the coupler adapted to be opened and connected with terminals in the coupling block when the two are brought together. 18th. In an electric lighting system for cars, a coupler provided with two similar coupling pieces and connecting wires, each piece having two terminals normally in contact, and two normally not in contact, in combination, with a coupling block containing the terminals of the car conductors, two of which are normally in contact, and contact breaking plates on the block and the coupling piece so that when interlocked such connected terminals are separated. 19th. In an electric lighting system for cars, the combination, of the cars, conductors and coupling blocks which contain the terminals of such conductors, two of said terminals normally in contact and two normally not in contact, with a coupler consisting of coupling pieces and connecting wires, said pieces containing the terminals of said wires, and two of such terminals normally in contact and two normally not in contact, and contact breakers one on the block and one on each coupling piece so that when the block and pieces are interlocked, all of such closed terminals are opened and each car conductor is connected with its respective coupler wire. 20th. In an electric lighting system for cars, the combination of cars and their conductors with coupling blocks one at each end of each car, containing the terminals of such conductors, two of such terminals normally in contact and two normally not in contact, with a coupler consisting of two coupling pieces and connecting wires, the terminals of such wires in such coupling pieces, and two at each end normally in contact and two normally not in contact, and one contact breaker on each block and each piece. 21. In an electric lighting system for cars, the combination of a generator with a main conductor leading from one pole, a compound conductor leading from the other, storage batteries and lamps as required for the cars, said batteries coupled between the main and one branch of the compound conductor, and the lamps between the main and the other branch of the compound conductor. 22nd. In an electric lighting system for cars, the combination of a generator with a main conductor leading from one pole, a compound conductor leading from the other, storage batteries having a variable resistance in series with each set, should more than one set be used, and lamps as required for the cars, said batteries coupled between the main and one branch of the compound conductor, and the lamps between the main and the other branch of the compound conductor. 23rd. In an electric lighting system for cars, the combination of a generator with a main conductor leading therefrom and a returned conductor connected therewith so as to form a loop, and a compound conductor leading from the other pole, storage batteries and lamps as required for the cars, said storage batteries coupled between the return conductor and one branch of the compound conductor, and said lamps between the return conductor and the other branch of the compound conductor. 24th. In an electric lighting system for cars, the combination of a generator with a main conductor leading from one pole, and a compound conductor leading from the other, consisting of two branch conductors one of which contains a variable resistance, and a volt meter and connections from the main conductor to either of the branch conductors so as to test the difference of voltage between the main and either of the branch conductors. 25th. In an electric lighting system for cars, the combination of a generator with a main conductor leading from one pole, and a compound conductor leading from the other, and consisting of two branch conductors one of which contains a variable resistance, storage batteries and lamps as required for the cars, the lights coupled between the main conductor and that branch of the compound conductor containing the variable resist-

ance, and the storage batteries between the main conductor and the other branch of the compound conductor. 26th. In an electric lighting system for cars, the combination of a generator with a main conductor leading therefrom, a return wire connected with such main conductor so as to form a loop, a compound conductor leading from the other pole of the generator, having two branches, and a volt meter and connection, so that such return or main wire may be connected through such volt meter with either branch of the compound conductor. 27th. In an electric lighting system for cars, the combination of a generator with a main conductor leading therefrom, a return wire connected with such main conductor so as to form a loop, a compound conductor leading from the other pole of the generator, having two branches, and a volt meter and connections, so that such return or main wire may be connected through such volt meter with either branch of the compound conductor, and an ampere meter in each branch of said compound conductor. 28th. In an electric lighting system for cars, the combination of a generator with a main conductor leading therefrom, a return wire connected with such main conductor so as to form a loop, a compound conductor leading from the other pole of the generator and having two branches, and an ampere meter in each branch of said compound conductor. 29th. In an electric lighting system for cars, the combination of a generator with a main conductor leading therefrom, a compound conductor leading from the other pole of the generator, having two branches, an ampere meter in each of said branches, means for connecting the two branches when the generator is disconnected, and storage batteries and lights coupled between the main and such branch conductors, respectively, so that when the generator is out of circuit and the branch conductors connected the two ampere meters will be coupled in series with the batteries and lights. 30th. In an electric lighting system for cars, the combination of a generator with a main conductor leading therefrom, a return wire connected with such main conductor so as to form a loop, a compound conductor leading from the other pole of the generator, having two branches, and a volt meter and connections, so that such return or main wire may be connected through such volt meter with either branch of the compound conductor, and an ampere meter in each branch of said compound conductor, and a variable resistance in one branch thereof. 31st. In an electric lighting system for cars, the combination of a generator with a main conductor leading therefrom, a return wire connected with such main conductor so as to form a loop, a compound conductor leading from the other pole of the generator, having two branches, and an ampere meter in each branch of such conductor, and a variable resistance in one branch of such compound conductor. 32nd. In an electric lighting system for cars, the combination of a generator with a main conductor leading therefrom, a compound conductor consisting of two branches leading from the other pole, and switches in the main conductor and both branches of the compound conductor. 33rd. In an electric lighting system for cars, the combination of the generator with a main conductor leading from one pole thereof, a compound conductor leading from the other pole thereof and composed of two conductors running through the train, a resistance in such compound conductor so as to secure a difference of current strength on the two wires of the compound conductor, and lamps coupled between the main conductor and one branch of the compound, and batteries between the main conductor and the other branch of the compound conductor. 34th. In an electric lighting system for cars, the combination of the cars with a series of car conductors leading therealong and having their terminals at each end of each car, so arranged as always to occupy the same relative positions to each other when considered as series, as from right to left in horizontal line, from top to bottom in a vertical line, and the like, and viewed from without the car. 35th. In an electric lighting system for cars, the combination of a car with a series of conductors therealong, said conductors so arranged that the terminals of some of them have opposite relative positions with reference to the remaining conductor terminals at each end of the car. 36th. In an electric lighting system for cars, the combination of a generator with a main conductor leading therefrom and a compound conductor leading from the other pole and consisting of two branches, each of which contains an ampere meter.

No. 30,973. Sash Lock. (*Arrête-croisée*.)

William Koene, Cleveland, Ohio, U.S.A., 23rd August, 1892: 6 years.

Claim.—1st. In a sash lock, the combination, of the hub of the main casing having a recess with one or more inclined projections and the pivotal lever, carrying the locking plate, provided with corresponding depressions on the under side of the head thereof for lifting said plate, constructed and arranged substantially as shown and set forth. 2nd. In a sash lock, the combination, of the main casing hub having a recess with one or more cam faces, the pivotal lever, the locking plate having a partly level and partly inclined face, and a lug depending from the casing of the upper sash acting conjointly in the manner as and for the purpose set forth. 3rd. In combination, the casing A, having a lip extended partly down the side of the interior thereof, the plate C, adapted with its front face to slide under said lip, and the casing D, having a lug operating conjointly with or on said plate, substantially in the manner as and for the purpose set forth.

**No. 39,974. Method of Producing Artificial Grain-
ing.** (*Méthode de creneler le bois.*)

Frank August Walters, Atlanta, Georgia, U.S.A., 23rd August, 1892; 6 years.

Claim. 1st. The method herein described of producing artificial grain- ing and shading on the surfaces of wood, the same consisting in indenting the surface of the wood from which transfer is to be taken, and treating such wood to a chemical solution, substantially as specified, then passing a composition roller over the same, and finally passing such roller over the piece of wood on which the transfer is to be made, as set forth. 2nd. The method herein described for producing artificial grain- ing and shading on the surfaces of wood, the same consisting in indenting suitable shade designs on the surface of the wood from which transfer is to be taken and treating such wood to a chemical solution, substantially as specified, then painting the same and passing over it a composition roller, and then passing such roller over the piece of wood on which transfer is to be made, as set forth.

**No. 39,975. Method of and Apparatus for Making
Steel Direct from the Ore.** (*Méthode et
appareil de fabriquer l'acier directement du
minerai*)

William Fitz-Charles Mason McCarthy, Hagerstown, Maryland, U.S.A., 23rd August, 1892; 6 years.

Claim. 1st. The process which consists in introducing into a highly heated charge of iron ore and flux, hydrogen gas, and subsequently at different points into the charge, hydrogen and carbonaceous matter in a state of combustion, in order to melt and subsequently carbonize the metal, substantially as set forth. 2nd. The process consisting in introducing into the highly heated charge of iron ore and flux, hydrogen gas to reduce the ore, subsequently introducing hydrogen and carbonaceous matter with air at different points into the same charge to melt the metal, and finally introducing hydrogen and atmospheric air with or without carbon into the molten metal to convert it into steel, substantially as set forth. 3rd. The process herein described of producing steel direct from the ore, said process consisting in first reducing the ore by introducing pure hydrogen into the charge of highly heated ore and flux, then introducing hydrogen and carbonaceous matter with air or gas, to melt the metal, and subjecting the molten metal in its passage from the stack to the converter, to the action of hydrogen and carbonaceous matter, substantially as described. 4th. The herein described continuous process of producing steel direct from the ore, said process consisting in first introducing hydrogen in the charge of highly heated ore and flux to reduce the ore, then subjecting the charge to the action of hydrogen and carbonaceous material with air, to melt the metal, then subjecting the molten metal to the action of purifying gases and air, and finally subjecting the molten steel thus produced to the action of a vacuum, substantially as set forth. 5th. In an apparatus for producing steel direct from the ore, the combination, with the stack, having a series of tuyeres leading to different zones or belts thereof, and a converter located below the hosh and connected therewith by a narrow passage, whereby the molten metal may be withdrawn into the converter to be subsequently treated, substantially as specified. 6th. In an apparatus for producing steel direct from the ore, the combination, with the stack and converter, and the tuyeres for the introduction of the hydrogen and the carbonaceous matter, of a second converter communicating with the first and a vacuum chamber communicating with the second converter, substantially as and for the purpose specified. 7th. In an apparatus for producing steel direct from the ore, the stack provided with the inclined shelves or supports, with their inner edges overhanging the ones next below, and the tuyeres for the introduction of the gaseous fuel, in the different zones or belts of the stack, substantially as described, whereby the metal is caused to fall from shelf to shelf while under the calorific energy of the gaseous fuel introduced through the tuyeres, as set forth. 8th. In an apparatus for producing steel direct from the ore, the stack and the converter and the hosh located between the same, of flues communicating with the converter and stack, substantially as and for the purpose set forth.

No. 39,976. Taper Attachments for Lathes.

(*Appareil à diminuer pour tours.*)

Daniel Currie, Montreal, Quebec, Canada, 23rd August, 1892; 6 years.

Claim. 1st. In combination with the longitudinal and cross feed screw and apron of a lathe, a variable connection between said screw and apron of a lathe, a variable gear wheel connection between said screws. 2nd. A taper attachment for lathes, consisting of a series of interchangeable gear wheels arranged externally of and carried by the lathe apron, and connections between said gear wheels and the longitudinal and cross feed screws of the lathe. 3rd. In combination with the longitudinal and cross feed screws of a lathe, an adjustable carrier carried by the lathe apron, a series of interchangeable gear wheels set in said carrier, and connections between said gear wheels and the longitudinal and cross feed screws of the lathe. 4th. In combination with the longitudinal and cross feed screws and apron of a lathe, an adjustable carrier

carried by said apron, a series of interchangeable gear wheels set in said carrier, a gear on the end of said cross feed screw intermeshing with said series, a worm moving with said apron and having sliding and rotatory connection with said longitudinal feed screw, and gear and spindle connections between said worm and said series of worm wheels. 5th. In combination with the longitudinal and cross feed screw and apron of a lathe, an adjustable carrier consisting of a pivoted bar grooved to receive the stud mountings of a series of interchangeable gear wheels, and provided with grooved segmental end piece by means of which and a set screw it is fixed at the desired angle, a second carrier having a pivotal connection with said bar, being adjustable by pivoted link and set screw connections, and adapted to carry reversing gear wheels. 6th. In combination with the longitudinal and cross feed screws and apron of a lathe, an adjustable carrier on the face of said apron, and means for setting same at various angles, a series of interchangeable gear wheels carried by said carrier, a gear wheel mounted on said cross feed screw in line with said series, an adjustable carrier and two reversing gear wheels carried by it and interposed between the said series and the gear wheel on the cross feed screw, a worm moving with said apron, and having sliding and rotatory connection with said longitudinal feed screw, a sleeve and spindle passing through the apron, a worm gear wheel mounted loosely on said sleeve and meshing with said worm, a gear set on said sleeve and meshing with said series of gear wheels, and a friction device actuated by said spindle for effecting a union between said worm gear wheel and sleeve, as set forth.

No. 39,977. Roller Mill. (*Moulin à rouleaux.*)

Joseph Lewis Willford, Minneapolis, Minnesota, U.S.A., 23rd August, 1892; 6 years.

Claim. 1st. In a roller mill, a roll supporting rocker arm, bearings on which said arm rests, and a spring holding said arm in engagement with said bearings. 2nd. In a roller mill, a rocker arm, a roll supported upon said rocker arm, bearings upon which said rocker arm rests, arranged below the axis of said roll, and a spring holding said arm in engagement with said bearings. 3rd. The combination, in a roller mill, with the bearings 11 and 25, of the rocker arm 3 resting upon said bearings, and provided with a journal bearing located above said bearings 11 and 25, and a suitable spring tending to hold said arm in engagement with said bearings. 4th. The combination, in a roller mill, with a roll supporting rocker arm, of a laterally adjustable bearing upon which the lower end of said arm rests, the bearing 25, and a spring tending to hold said arm in engagement with both of said bearings. 5th. In a roller mill, the combination, with a roll supporting rocker arm, bearings for said arm upon the frame of the mill, and a flexible connection between said arm and one of said bearings, for the purpose set forth. 6th. The combination, in a roller mill, of a roll supporting rocker arm, a bearing supporting the lower end of said arm, an adjustable bearing supporting the upper end of said arm, and a spring holding said arm against both of said bearings. 7th. The combination, in a roller mill, of the roll supporting rocker arm 5, the block 11 forming a bearing for the lower end of said arm, the shaft 33 provided with an eccentric 35, forming a bearing for the upper end of said arm, and a spring engaging said arm at a point between said bearings, and holding the arm against both of said bearings. 8th. The combination, in a roller mill, of the roll supporting arm 5, the laterally adjustable block 11 supporting the lower end of said arm, a flexible connection between said block and said arm, and the eccentric engaging the upper end of said arm. 9th. The combination, in a roller mill, of roll supporting rocker arms 3 and 5, a laterally adjustable bearing supporting the lower ends of said arms and bearing supporting the upper portions of said arms. 10th. The combination, in a roller mill, of the roll supporting rocker arms 3 and 5 the laterally adjustable block 11, a flexible connection between said arms, the bearing 25 against which the arm 3 rests, the eccentric forming a bearing for the upper portion of the arm 5, and a suitable spring holding said arms in engagement with their bearings, substantially as described. 11th. The combination, in a roller mill, of roll supporting rocker arms, two bearings supporting each of said arms, and a spring holding each arm in engagement with both of its bearings. 12th. The combination, in a roller mill, of roll supporting rocker arms, a laterally adjustable bearing supporting the lower ends of both of said arms, bearings supporting the upper portions of said arms, and a spring holding each of said arms against its bearings. 13th. The combination, in a roller mill, with the rolls, of rocker arms supporting said rolls, and spring engaging said rocker arms and holding the rolls apart, substantially as described. 14th. The combination, in a roller mill, with the rolls, of rocker arms supporting said rolls, bearings upon which said arms rest and springs holding said rolls apart and said arms in engagement with their bearings. 15th. The combination, in a roller mill, of roll supporting rocker arms, a bearing supporting the lower ends of both of said arms, a bearing engaged by one of said arms at a point below its roll, a movable bearing engaged by the other arm at a point above its roll, and springs holding said arms in engagement with their bearings. 16th. The combination, with the rocker arms 5, provided with the bearing block 37, of the shaft 33, provided with the eccentric 35, engaging said block, the adjusting screw 30, engaging said block, and a spring holding said arm with the block 37, against said eccentric, substantially as described. 17th. The com-

bination, in a roller mill, of roll supporting rocker arms, bearings upon which said arms rest, a flexible connection between said arms, and a spring holding said rolls apart and said arms in engagement with their bearings. 18th. The combination, in a roller mill, of rocker arms supporting the rolls, bearings outside of said arms upon which said arms rest, and springs holding both of said arms in contact with their bearings, substantially as described.

No. 39,978. Rotary Disintegrator and Separator.

(*Machine rotatoire à désagréger et séparer.*)

Berthold Ziegler, Todtman, Germany, 23rd August, 1892; 6 years.

Claim.—1st. The combination, with the cylindrical wall *i*, divided into a plurality of sections, of the rotary drum *B*, having wall *h*, and blades *g*, constructed to rotate within said cylinder, and notched or otherwise formed to adapt themselves to the provision for separating the sections of said wall *i*. 2nd. The combination, with the rotating drum *B*, having peripheral blades, of the interstitial cylinder *i*, surrounding said drum, and subdivided into a plurality of sections *i*¹, *i*², as and for the purpose set forth. 3rd. The combination, with a rotary drum having blades, of perforated cylinder *l*, surrounding said drum, and annular trays *l*, carried on the interior of said cylinder and subdividing the latter into a plurality of sections, said trays constructed to conduct the residuum of one section to the next by returning such residuum towards the said blades. 4th. The combination, with the rotating drum, having beater blades of an interstitial cylinder surrounding the latter and external peripheral tray *o*, surrounding said cylinder whereby the latter is subdivided into sections and the material discharged through the upper section is conducted away from the next lower section. 5th. The combination, with a rotating drum, having beater blades, and a cylinder within which said drum rotates, of an opening for supplying water to the interior of said drum, and apertures for permitting the discharge of said water through said drum, as and for the purpose set forth.

No. 39,979. Method of Drying Malt.

(*Machine à sécher le malt.*)

George Portz, Hartford, Wisconsin, U.S.A., 23rd August, 1892; 6 years.

Claim.—1st. A method of drying malt that consists in inclosing the material within a rotative perforated drum in opposition to a perforated shell, and forcing a current of hot or warm air through the shell, malt and drum, while the latter is in rotation, substantially as set forth. 2nd. A malt dryer comprising a perforated shell, a perforated drum inclosing the shell, flues connecting said shell with a hot or warm air blast mechanism, and suitable means for rotating the drum, substantially as set forth. 3rd. A malt dryer comprising a perforated shell, a perforated drum inclosing said shell, anti-friction rollers arranged as supports for the drum, flues connecting said shell with a hot or warm air blast mechanism, and suitable means for rotating the drum, substantially as set forth. 4th. A malt dryer comprising a perforated shell, a perforated drum inclosing the shell and having its heads provided with peripheral gear teeth, pinions in mesh with the gear teeth, and flues connecting said shell with a hot or warm air blast mechanism, substantially as set forth. 5th. A malt dryer comprising a perforated shell, a perforated drum enclosing the shell and having its heads provided with peripheral gear teeth and tracks, pinions in mesh with the gear teeth, anti-friction rollers in opposition to the tracks, and flues connecting said shell with a hot or warm air blast mechanism, substantially as set forth. 6th. A malt dryer comprising a perforated shell, a perforated drum that encloses the shell and is provided at intervals of its length with openings, covers for the openings, flues connecting said shell with a hot or warm air blast mechanism, and suitable means for rotating the drum, substantially as set forth. 7th. A malt dryer comprising a perforated shell, a perforated drum that encloses the shell and is provided at intervals of its length with stay bands, flues connecting said shell with a hot or warm air blast mechanism, and suitable means for rotating the drum, substantially as set forth. 8th. A malt dryer comprising a perforated shell, a perforated drum enclosing the shell, flues connecting said shell with a hot or warm air blast mechanism, and suitable means for rotating the drum, in combination with a conveyer mechanism arranged to receive material discharged from said drum, substantially as set forth.

No. 39,980. Burner for Gas. (Bec à gaz.)

James Seymour Phillip Stutley, Adelaide, South Australia, 23rd August, 1892; 6 years.

Claim.—1st. In an incandescent gas burner, such as herein described, a perforated thimble, having the burrs made by the perforations projected inwardly, and the interior of said thimble coated with powdered or finely ground asbestos, for the purposes herein set forth. 2nd. In an incandescent gas burner, such as herein described, the connecting tube *b* provided with a wire gauze disc *c* and the asbestos wad *d*, as set forth. 3rd. In an incandescent gas burner, such as herein described, the nipple *f* provided with the binding collar *g*, for the purposes specified. 4th. In an incandescent gas burner, such as herein described, the nipple *g* provided with a chamber *h*, and the cap *j*, for the purposes herein specified. 5th. In an incandescent gas burner, the union piece *l* provided with two nipples *f*¹ and *f*², and the platinum or iridium body *k*, substantially as herein described.

No. 39,981. Meter for Electricity. (Compteur électrique.)

Francis Teague, Chalk Farm, London, England, 23rd August, 1892; 6 years.

Claim.—1st. An electric meter, operating on the known principle of the rotation of currents by magnets, comprising an electro horse shoe magnet, having a polar extension adapted to carry a pivoted armature, central and outer mercury contacts and circuit connections, a train of wheels and indexes mounted in a framework upon the said magnet, and driven from the armature axle, substantially as and for the purpose herein described. 2nd. An electro-magnet, having a tubular ended polar extension from one limb thereof, prolonged to within the pole of the other limb, with a narrow annular space adapted for the rotation of an armature between the two, substantially as and for the purpose herein described. 3rd. An armature pivotally suspended within a polar extension, adapted to revolve in a complete annular magnetic field, and to make electrical contacts at its central and outer circumferential parts, substantially as and for the purpose herein described. 4th. In an electric meter, the combination of a polar extension, a central mercury cup fitted within the same, an armature pivotally suspended within and making electrical contact with the said mercury cup, and outer annular mercury cup adapted for the rotation therein of the edge of the said armature, and a cylindrical magnetic field surrounding the said polar extension, substantially as and for the purpose herein described. 5th. In an electric meter, the combination of a truly annular magnetic field of force, with an armature having a central mercury contact and an outer annular mercury trough adjustable to regulate the immersion therein of the armature, substantially as herein described. 6th. In an electric meter, the combination of a truly annular magnetic field of force with an aluminium armature pivotally supported and having a central mercury contact, and a circumferential mercury contact and circuit connections, substantially as and for the purpose herein described. 7th. In an electric meter, the combination of a detachable self contained framework, having a train of wheels and means for indicating desired units with the face of a horse shoe magnet, an armature rotating in a truly annular magnetic field produced in the said magnet and a worm wheel, worm shaft and pinion for communicating motion to the said train of wheels from the axis of the said armature, substantially as and for the purpose herein described. 8th. In an electric meter, the combination of an electro-magnet with a magnetically neutralized resistance winding, and a circuit controlling thermostat, substantially as and for the purpose herein described. 9th. In an electric meter, having an armature with two mercury contacts in circuit, the combination therewith of an oil or glycerine bath in which the armature is partially or wholly immersed to produce a slow speed, substantially as described.

No. 39,982. Method of and Apparatus for Weaving Coiled Wire Fabric. (Méthode et appareil pour tisser les brins de fil de toile métallique.)

Clarence O. White and Marshall B. Lloyd, both of Minneapolis, Minnesota, U.S.A., 23rd August, 1892; 6 years.

Claim.—1st. In the process of forming coiled wire fabric, coiling the wire and subjecting each spiral of the running wire to a desired amount of tension as the wire is advanced. 2nd. In the process of forming coiled wire fabric, coiling the wire and subjecting the running wire to a suitable tension as it is advanced and interlocks with the preceding coil. 3rd. In the process of forming coiled wire fabric, coiling the wire and projecting it from the coiler with the spirals of the running wire in contact with a suitable tension, and thereby increasing the length of the spirals. 4th. In the process of forming coiled wire fabric, coiling the wire and guiding the running wire after it leaves the coiler throughout its travel, and simultaneously subject the spirals of the running wire to a desired amount of tension. 5th. The combination with a suitable coiler, of a series of pins or projections located in the path of the advancing wire, whereby the coiled wire after it leaves the coiler is subjected to suitable tension by contact with said pins. 6th. The combination with a suitable coiler, of a series of pins or projections located in the path of the advancing wire, and means for moving said pins, substantially as described. 7th. The combination of a suitable coiler, of means for feeding the wire, and means for exerting a tension upon the spirals as they interlock with the preceding coil. 8th. The combination with a suitable wire, of means for guiding the coiled wire into engagement with the spirals of a previously made coil after it passes the coiler, and means for subjecting the spirals of the wire to a desired amount of tension as they interlock with the preceding coil. 9th. In a machine for forming coiled wire fabric, means for coiling the wire, and means for guiding the coiled wire as it advances to cause the same to interlock with the preceding coil or coils, and simultaneously subjecting the spirals to a desired amount of tension, substantially as described. 10th. The combination in a wire coiler, of a longitudinally adjustable guide arranged in front of said coiler, and against which the wire bears as it leaves the coiler, whereby the length of the coil of wire may be regulated, substantially as described. 11th. The combination with a wire coiler, of a radially adjustable guide arranged in front of said coiler, whereby the diameter of the spiral may be adjusted, substantially as described. 12th. The combination with the coiler, consisting of a stationary tube 41, a spirally grooved core 42, arranged in said tube, feed rolls for moving the wire through said coiler, and the

longitudinally adjustable guide 49, arranged in front of said coiler and against which the wire bears as it leaves the coiler, substantially as described. 13th. The combination in a wire coiler, of the tube 42, the spirally grooved core arranged therein, means for feeding the wire through said coiler and the radially adjustable guide 46, arranged in front of said coiler and provided with an eye or groove through which the wire passes, substantially as described. 14th. In a machine for making coiled wire fabric, the combination, with the wire coiler, of means for cutting off the wire, and means for moving the end of the wire that is cut off out of the way of the end of the running wire without moving the entire coil, whereby two wires may be run side by side, substantially as described. 15th. In a machine of the class described, the combination with a wire coiler, of a receiver or guide having a longitudinal outlet and a plate projecting partially across the exit opening of the receiver into the longitudinal space between two of the coils for holding the final coil in said receiver while the running wire is passed through it, substantially as described. 16th. In a machine of the class described, the combination with a wire coiler, of a receiver or guide, a plate projecting partially across the exit opening of the receiver into the longitudinal space between two of the coils for holding the last coil in said receiver while the running wire is passed through it, and means for feeding the fabric from said receiver one coil at a time, substantially as described. 17th. In a machine of the class described, the combination, with means for coiling the wire, of a receiver, means for holding a final coil in said receiver while the running wire is passed through it and means for guiding the running wire and exerting a tension upon each spiral thereof while it passes through said receiver and interlocks with the final coil therein. 18th. In a machine of the class described, the combination, with means for coiling the wire, of a receiver or guide, means for holding the final coil therein and feeding it there from one coil at a time, means for exerting a tension upon each spiral of the running wire as it passes through said receiver and interlocks with the final coil therein, and means for regulating the size of the coil, substantially as described. 19th. In a machine of the class described, the combination with a wire coiler, of a tripping lever arranged in front of said coil and adapted to be engaged by the wire whenever it doubles up in front of said coiler, and a stop mechanism connecting with said lever, substantially as described. 20th. In a machine of the class described, the combination, with means for coiling the wire and passing the running wire through the final coil of the fabric, means for feeding the fabric and means for interlocking the feed whenever extra wires are to be inserted in any part of the fabric, substantially as described. 21st. The combination, with the means for coiling the wire of a guide or receiver having an open bottom through which the wire fabric passes, of alternating pins projecting into said receiver from opposite sides thereof, and means for withdrawing one series of said pins after the formation of each coil or coils, for the purpose set forth. 22nd. In a machine of the class described, the combination, with means for coiling the wire, of means for engaging each coil as it is formed and supporting the fabric thereby, and releasing said coil after the formation of a new coil, and permitting the weight of the fabric to move the fabric into position for the running of the next wire, substantially as described. 23rd. The combination in a machine of the class described, with the means for coiling the wire, of the guide or receiver and the series of pins 59, arranged in said receiver and adapted to exert a tension upon each spiral of the wire as it is run through said receiver, substantially as described. 24th. The combination in a machine of the class described, with the means for coiling the wire, of means for cutting the wire, the guide or receiver, pins or projections arranged in said guide, and adapted to cause a tension upon the spirals as the wire is run through the receiver, and means for holding the final coil in the guide. 25th. The combination in a machine of the class described, with means for coiling the wire, of means for interlocking the running wire with the preceding coil, and simultaneously exerting a tension upon the spiral of said running wire, means for cutting the wire, and means for stopping and starting the wire, all arranged to co-act in order. 27th. The combination in a machine of the class described, with means for coiling the wire of the wire of the guide or receiver, and means adjustable in the receiver for moving the final coil longitudinally in said receiver without moving the previously formed fabric. 28th. The combination in a machine of the class described, with means for coiling the wire, of the guide or receiver, and pins or projections arranged in said guide, means for supporting said pins, and means for moving said pins lengthwise of the receiver to move the final coil longitudinally, substantially as described. 29th. The combination with the wire coiler, of a receiver in alignment therewith, the plate arranged to project partially across the receiver into the space between two coils of the fabrics, and means for withdrawing said plate to permit the coils to pass out of the receiver. 30th. The combination with the receiver having a longitudinal outlet, opening of the plate 75, arranged to project partially across the receiver, and provided with a bevel edge, substantially as described and for the purpose set forth. 31st. The combination with the receiver, of the tension pins 59 arranged therein, and the transverse holding pins 100 constructed to en-

gage the fabric and hold the last coil in position to receive the running coil, substantially as described. 32nd. The combination with the coiler and receiver, of the tension pins 59, and the movable plate 57 supporting said pins in said receiver. 33rd. The combination with the receiver, of the tension pins 59, the transverse holding pins 100, and the plate 75 for holding the coil in said receiver.

No. 39,983. Hook for Hats and Coats.

(*Crochet pour chapeau et habits.*)

Thomas Moody, Liverpool Market, Ontario, Canada, 23rd August, 1892; 6 years.

Claim.—1st. As a new article of manufacture, a hat and coat hook provided with an enlarged elliptical head, the major axis of which are curved downwards, substantially as described. 2nd. As a new article of manufacture, a hat and coat hook consisting of projecting arms on their outer extremity of which is formed an enlarged elliptical shaped head, the major axis of which is curved downwardly to prevent the garment or hat hanging thereon being disfigured by its own weight, substantially as set forth.

No. 39,984. Machine for Making Paper Bags.

(*Machine à faire des sacs en papier.*)

Arthur L. Stevens, Philadelphia, Pennsylvania, and The Remington Machine Company, Wilmington, Delaware, both in the U.S.A., 23rd August, 1892; 6 years.

Claim.—1st. In a machine for making paper bags, the combination with feed rolls having a constant speed, of gripping rolls having a normal surface velocity greater than, but periodically retarded below, that of the feed rolls, and a vibrating severing blade having its movement timed with the said retardation of the gripping rolls. 2nd. The combination with the feeding or gripping rolls, of two gears, an intermediate gear 21, and means for shifting the latter to retard the driving action of one gear on the other, substantially as set forth. 3rd. In a paper bag machine in which a paper tube is fed by rolls having a constant speed, the combination of a device for severing the paper tubes into bag lengths, with gripping rolls having a normal surface velocity greater than that of the said paper tube, but retarded periodically to correspond to the time of severance of said tube into the bag lengths, and again accelerated to produce intervals between the succeeding lengths. 4th. A paper bag machine having paper feeding rolls running at a constant velocity, in combination with gripping rolls having a velocity which is periodically retarded and accelerated, the position of said rolls relative to the feed rolls being adjustable to correspond to the different bag lengths, and a severing blade to sever the paper into bag lengths. 5th. The combination with the feed rolls, of an adjustable frame carrying the feeding rolls, pasteur and adjacent devices, substantially as set forth. 6th. A paper bag machine comprising the feed rolls 5 and 6, the gripping rolls 16 and 25, which are retarded and accelerated alternately and periodically, the severing blade 72, vibrating tucking blade or wire 47, the fixed bar 48, and the paste box 51, having an opening or slot in its lower edge to apply paste to the paper as it is tucked by the said wire 47, substantially as set forth. 7th. In a paper bag machine, the combination of paper feeding rolls, gripping rolls and severing device, with a vibrating tucking blade or wire, a fixed bar over which the paper is folded, and a pasting device in which the box or receptacle containing paste has a slot or opening along its under side, in which is a blade to act as a valve, and which rises and falls at each bag interval. 8th. In a paper bag machine, the combination of paper feeding rolls running at a constant speed, gripping rolls which are periodically retarded by means of a gear or pinion which is intermediate between a gear on one of said gripping rolls and a larger internal gear which revolves at a constant velocity, said intermediate pinion being moved during the period of retardation with said internal gear substantially as set forth. 9th. In a paper bag machine, the combination of paper feeding rolls running at a constant velocity, gripping rolls which are periodically retarded and accelerated by means of a device consisting of an internal gear 20, revolving in a direction opposite to that of the gripping rolls, and a pinion 21, intermediate between said gear 20, and a gear 17, on the shaft of one of the gripping rolls, said pinion being carried on a radius bar, such as 34, said bar being connected to a lever, such as 38, having a roller 39, in contact with a cam on the rim of said internal gear, by means of which the intermediate pinion is moved with or contra to the motion of said internal gear, substantially as set forth. 10th. In a paper bag machine, the combination of paper feeding rolls, bottom gripping rolls, and bag length severing device, with a gear on the shaft of one of said gripping rolls, a larger internal gear, intermediate between said gears and a pinion carried on a radius bar which is connected to one end of a lever, having a roller at its other end in contact with a cam on the rim of said internal gear, substantially as described, and for the purpose set forth. 11th. The combination, with the vibrating severing blade, of means for accelerating the motion as the blade crosses the path of the paper and for retarding it as it leaves the paper, substantially as set forth. 12th. The combination of the feeding rolls and forming rolls, and means for causing them to grasp the paper at the same time, of a severing blade and means for carrying it across the paper while grasped by both rolls, substantially as set forth. 13th. The combination with the paper feeding device, of a severing blade and means for vibrating

and sliding it to cause the end to travel in an ellipse, substantially as set forth. 14th. In a paper bag machine, the combination of paper feeding rolls, and bag length gripping rolls, with a severing blade attached to a bar having one end connected to a revolving crank pin and sliding through an oscillating sleeve, substantially as described. 15th. In a paper bag machine having feed rolls and serrated former, of cutting blades, the combination of gripping rolls and bottom tucking blades, with a vibrating severing blade, the motion of which is accelerated at the time of severing the paper, but retard and withdrawn to one side during its downward stroke. 16th. In a paper bag machine, feed rolls running at a constant velocity, a vibrating blade which tucks or folds the bottom lap on the pilot end of the paper tube before the bag length is severed, a paste receptacle having an opening or slot from which the paste is wiped by the bottom lap, bottom gripping rolls which have a normal velocity greater than the paper, but which are retarded to below that velocity at the time the bottom lap enters between them, said rolls being adjustable in their relative distance from the feed rolls to correspond to the different lengths of bags, and a vibrating blade which severs the paper into bag lengths while the bottoms are between the gripping rolls. 17th. In a paper bag machine, the combination of the bottom gripping rolls 16 and 26, and fixed bar 48, with the rock shaft 45, having arms 46, and tucking blade or wire 47, the roller 49, carried on an arm on said rock shaft, the cam 19, and spring 50, substantially as described. 18th. In a bag machine, the bottom gripping rolls 16 and 26, the fixed bar 48, and vibrating wire 47, in combination with the paste box 51, having a slot or opening 52, in its lower extremity and near the bar 48, said slot being closed by a valve or blade 53, which is raised to feed paste to each bag bottom, substantially as described. 19th. In a paper bag machine, the movable frame 14, supporting the roll 16, in fixed bearings, and the roll 26, being supported in sliding boxes, the spring 31 to force said roll against the roll 16, the miter gear 28 on the shaft of said roll 26, the splined shaft 67, miter gear 68, crank having pin 70, oscillating sleeve 74, and bar 71, with severing blade 72, substantially as described and for the purpose set forth. 20th. In a paper bag machine, the shaft 15, having roll 16, and gear 17, secured thereto, the internal gear 20 revolving loose on said shaft, and having a changeable gear 22 secured to its hub, the intermediate pinion 21, between said gears 17 and 20, said pinion being carried on a radius bar 34, about the centre of shaft 15, and having its end attached to the end of a lever 38, fulcrumed to the frame 14, and having a roller 39, in contact with a cam on the rim of gear 20, in combination with the roll 26, bottom tucking blade 47, bar 48, and severing blade 72, in combination with the feed rolls 5 and 6, substantially as and for the purpose set forth. 21st. A fountain roll provided with a spindle the face of which cuts that of the roll, and to the inner side of which ink is supplied, substantially as set forth. 22nd. The revolving roll provided with a receptacle for a radially moving type, and means for shifting the latter, substantially as described. 23rd. In a printing device, the combination of an ink fountain roll with a sliding type block, said type being raised and depressed by a fork fulcrumed to said roll and revolving around an eccentric which is secured to a fixed bearing, substantially as described and for the purpose set forth. 24th. In a printing device for paper bag machines, a fountain roll having a depressed surface for the distribution of ink, a device to feed ink from the interior of said fountain roll to the distributing surface, consisting of an oscillating spindle inserted in said roll, with its surface tangent with said distributing surface, and by its oscillations supplying ink through openings in the fountain roll, in combination with an ink distributing roll and type sliding in said fountain roll, the face of said type being pushed out even with the outer surface of the fountain roll and then depressed even with the said distributing surface as it passes the ink roll, substantially as described and for the purpose set forth. 25th. In a printing attachment for paper bag machines, comprising the fountain roll 61, the inking roll 15, the sliding type 18, the spindle valve and ink feeder 5, the said spindle oscillating as the fountain revolves, thereby supplying ink to the roll 15, which distributes it over the depressed surface 4 of said fountain and the face of the type 18, the type 18 being pushed out once in each revolution of the fountain even with its outer surface, substantially as described and for the purpose set forth. 26th. A printing device for paper bag machines, having an ink fountain roll with a depressed surface, and having openings communicating with the interior of said roll and the outside, said openings being closed by an oscillating spindle valve and feeder which is actuated by means of a fixed eccentric and a fork on the end of said spindle, a sliding type block which is alternately pushed out even with the outer surface of the roll and withdrawn even with the depressed surface for the purpose of receiving ink from the ink roll and printing the same against the paper, and an ink distributing roll, substantially as described. 27th. In a printing device for paper bag machines, the combination of a fountain roll having an ink feeding spindle and distributing roll, as described, with a sliding type block actuated by means of a fork fulcrumed to said fountain roll, and an eccentric fixed to one of the bearings of said roll. 28th. In a printing device for paper bag machines, the roll 61, having a depressed ink distributing surface, such as 4, and an ink feeding spindle 5, actuated by means of the fixed eccentric 16, said roll being provided with a sliding type block 18, which is raised and lowered by means of the yoke 23 and the adjustable eccentric 20, in combination with

an ink distributing roll in contact with said depressed surface 4 and having a lateral motion imparted to it as it revolves, substantially as described. 29th. In a printing attachment for paper bag machines, having a fountain roll, such as 61, with depressed ink distributing surface 4 and ink feeding device, such as described, the combination of a sliding type block 18, with the fork 23, which is connected to said type by the sliding pin 26, the adjustable eccentric 20, and the distributing roll 15, all substantially as described and for the purpose set forth. 30th. In a printing attachment for paper bag machines, the roll 61, having a depressed surface at 4, upon which ink is distributed by the roll 15, in combination with the type block 18, the yoke 23, having a pin 26 projecting into a slot in said type block, and the yoke actuating eccentric 20, on the end of the sliding block 18, said sliding block 18 being fitted to the end of one of the bearings for the said roll 61, and capable of adjustment by means of the thumb screw 21, thereby increasing or diminishing the eccentricity of said eccentric 20, substantially as described and for the purpose specified. 31st. A printing attachment for paper bag machines, comprising the fountain roll, having an oscillating spindle 5 to feed the ink, the sliding type 18, actuated by the yoke or fork 23, and adjustable eccentric 20, said eccentric being on a sliding piece fitted to the end of one of the bearings, said yoke being provided with the pin 26, and spring 27, for the purpose specified, and the ink distributing roll 15, substantially as described. 32nd. In a printing attachment for paper bag machines, the combination of the fountain roll 61, and type 18 with the ink roll having a worm 36 on its splined spindle 32, the said worm engaging with the worm wheel 37, which actuates the bell crank 40 by means of the eccentric 39, thereby vibrating the spindle and roll laterally as it revolves in contact with said fountain roll, substantially as described. 33rd. A printing attachment for paper bag machines, comprising the fountain roll 61, having the sliding type 18, and fork 23, actuated by the eccentric 20, for the purpose specified, said fork being connected with said type by the pin 26, and the ink feeding spindle 5, actuated by the fork 17, and eccentric 16, in combination with the ink distributing roll 15, having on its spindle a worm 36, engaging with the worm wheel 37, the eccentric 39 being secured to said wheel, and actuating the bell crank 40, which is connected with the spindle 32, thereby vibrating said roll 15 laterally as it revolves in contact with said fountain roll.

No. 39,985. Machine for Making Paper Boxes.

(Machine à faire des sacs en papier.)

Patrick H. Knight, Gray and Willie A. Knight, Lewiston, both of Maine, U.S.A., 23rd August, 1892; 6 years.

Claim. 1st. In a paper box machine, having a suitable supporting frame, the combination, with a reciprocating presser plunger, a reciprocating feeding plunger, end blank holder, paste pan and pasters and mold for the body blank, of a rotary drum adapted to receive the end blanks as they are driven out from the holder and give them a vertical position and mechanism for operating these several parts, substantially as described, and for the purposes set forth. 2nd. In a paper box machine, having a suitable supporting frame, the combination, with a reciprocating presser plunger, a reciprocating feeding plunger, end blank holder, paste pan and pasters and mold for the body blank, of a rotary drum adapted to receive the end blank after it is pasted as it is driven out from the holder and a chute leading from said drum to the end of said mold, and means substantially as described for operating these several parts, as and for the purposes set forth. 3rd. In a paper box machine, a mold block for the body blank having a groove in its ends at the place where the edge of the flange of the blank comes to take up waste paste, substantially as and for the purposes set forth. 4th. In a paper box machine, the combination, with beams placed between the sides of the machine frame and adjustable laterally by a screw bolt passing through them, of guides for the end blanks having sleeves adapted to slide on said beams, and springs which constantly hold said guides against the face of the presser plunger, substantially as and for the purposes set forth. 5th. In a paper box machine, a paster formed by bending a thin sheet of metal around a suitable base, thence extending the sides upwardly and separating the upper edges to form a cup to take up a quantity of paste, as and for the purposes set forth. 6th. In a paper box machine having a suitable supporting frame, in combination with carriages mounted so as to slide in said frame and bearing the pasting mechanism, and having threaded lugs extending downwardly, of shafts having threads thereon adapted to work in the said lugs, said shafts being journaled in the frame and having cogs at one end which mesh with a driving cog, substantially as and for the purposes set forth.

No. 39,986. Canning Machine.

(Appareil pour la mise en boîtes des conserves.)

Gains Lewis Merrell, Oscar F. Soule, and Frank Channing Soule, all of Syracuse, New York, U.S.A., 23rd August, 1892; 6 years.

Claim. 1st. A canning machine comprising a receiving chamber A for the corn and the syrup or liquid to be mixed therewith, an agitator B for forcibly mixing together the corn and liquid, a cooking chamber D for cooking said material, a conveyer E for feeding the material from the chamber A to the chamber D, a filling apparatus H for inserting the cooked material into the cans, a cooling

receptacle G between the cooking chamber and the filling apparatus, and connections between the foregoing parts whereby they operate conjointly, substantially as and for the purpose described. 2nd. A canning machine comprising a receiving chamber A for the corn and the syrup or liquid to be mixed therewith, a cooking chamber D for cooking said material, a cooling receptacle in proximity to the cooking chamber, a filling apparatus for inserting the cooked material into the cans, and connections between the foregoing parts whereby they operate conjointly, substantially as and for the purpose specified. 3rd. A canning machine comprising a receiving chamber A for the corn and the syrup or liquid to be mixed therewith, an agitator B for forcibly mixing together the corn and liquid, a cooking chamber D for cooking said material, a conveyer E¹ for feeding the material from the chamber A to the chamber D, a conveyer F for feeding the material through the cooking chamber, a cooling receptacle G in proximity to the cooking chamber, an agitator G¹ within the cooling chamber, a filling apparatus for inserting the cooked material into the cans, and connections between the foregoing parts whereby they operate conjointly, substantially as and for the purpose described. 4th. A canning machine comprising a receiving chamber A for the corn and the syrup or liquid to be mixed therewith, an agitator B for forcibly mixing together the corn and liquid, a cooking chamber D for cooking said material, a receiving chamber H¹ for the cooked material, a filler I for feeding the material from the chamber H¹ into the cans, a feed for feeding the cans forward as the same are being filled, and connections between the foregoing parts whereby they operate conjointly, substantially as and for the purpose specified. 5th. A canning machine comprising a receiving chamber A for the corn and the syrup or liquid to be mixed therewith, an agitator B for forcibly mixing together the corn and liquid, a cooking chamber D for cooking said material, a cooling receptacle G in proximity to the cooking chamber, an agitator G¹ within the cooling receptacle, one or more fillers I having a combined capacity substantially equal to that of the foregoing parts, and connections between the foregoing parts whereby they operate conjointly, substantially as and for the purpose specified. 6th. A canning machine comprising a chamber D for the corn or other material, a conveyer F for feeding the material through the cooking chamber, a cooling receptacle G in proximity to the cooking chamber, a filling apparatus for feeding the cooked material into the cans, a feed for feeding the cans forwards as the same are being filled, and connections between the foregoing parts, whereby they operate conjointly, substantially as and for the purpose set forth. 7th. A canning machine comprising a chamber D for the corn or other material, a conveyer F for feeding the material through the cooking chamber, a cooling receptacle G in proximity to the cooking chamber, an agitator G¹ within the cooling chamber, a movable can feed or support M, a filling apparatus for feeding the cooked material to the cans during the movement of the can feed or support M, and connections between the foregoing parts, whereby they operate conjointly, substantially as and for the purpose specified. 8th. In a machine for filling cans, the combination of a receiving chamber H¹ for the material to be filled, a revolving measuring chamber J provided with an outlet passage P¹, a cut-off k between the chambers H¹ and J, and a plunger J¹ movably mounted in the measuring chamber J for forcing the material from the outlet passage P¹, substantially as set forth. 9th. In a machine for filling cans, the combination of a receiving chamber H¹ for the material to be filled, two or more measuring chambers J provided with outlet passages P¹, a cut-off k between the chambers H¹ and J, plungers J¹ movably mounted in the measuring chambers J for forcing the material from the outlet passage P¹, and an actuator for successively operating said plungers, substantially as and for the purpose set forth. 10th. In a machine for filling cans, the combination of a receiving chamber H¹ for the material to be filled, a revolving measuring chamber J provided with an outlet passage P¹, a cut-off k between the chambers H¹ and J, a plunger J¹ movably mounted in the measuring chamber J for forcing the material from the outlet passage P¹, and a can seat movable towards the end of said outlet passage, substantially as and for the purpose described. 11th. In a machine for filling cans, the combination of a receiving chamber H¹ for the material to be filled, a measuring chamber J provided with an outlet passage P¹, a cut-off k between the chambers H¹ and J, a plunger J¹ movably mounted in the measuring chamber J for forcing the material from the outlet passage P¹, and a second plunger I² movable in an outlet passage I¹ and formed with its lower end of substantially the same diameter as that of the outlet end of said outlet passage, substantially as set forth. 12th. In a machine for filling cans, the combination of a receiving chamber H¹ for the material to be filled, a revolving measuring chamber J provided with an outlet passage P¹, a cut-off k between the chambers H¹ and J, a plunger J¹ movably mounted in the measuring chamber J for forcing the material from the outlet passage P¹, and a second plunger I² movable in the outlet passage I¹, substantially as and for the purpose described. 13th. In a machine for filling cans, the combination of a receiving chamber H¹ for the material to be filled, revolving measuring chambers J, provided with outlet passages P¹, a cut-off k between the chambers H¹ and J, a revolving can feed, plunger J¹ for forcing the measured material from the measuring chambers, plunger rods J¹ on the plungers, and a revolving frame M, substantially as and for the purpose set forth. 14th. In a machine for filling cans, the combination of a receiving chamber H¹ for the material to be filled, a revolving measuring chamber J, a cut-off k,

between the chambers H¹ and J, a filler chamber I, a passage j¹, j², between said measuring and filler chambers for conducting the material from the former to the latter, a plunger J¹ for forcing the measured material from the measuring chamber, a second plunger movably mounted in the chamber I¹, substantially as set forth. 15th. In a machine for filling cans, the combination of a receiving chamber H¹ for the material to be filled, a revolving measuring chamber J, a cut-off k between the chambers H¹ and J, a filler chamber I, a passage j¹, j² between said measuring and filler chambers for conducting the material from the former to the latter, a plunger J¹ for forcing the measured material from the measuring chamber, a second plunger movably mounted in the chamber I¹, and a can seat movable towards the outer end of the filler chamber, substantially as and for the purpose set forth. 16th. In a machine for filling cans, the combination of a chamber H¹ for the material to be filled, two or more revolving measuring chambers J, J, a cut-off k between said receiving and measuring chambers, discharge plungers J¹ movable within the chamber J, two or more revolving filling chambers I¹, I¹, opening from the chambers J¹, J¹, and plungers I², I² movable in the filling chambers, substantially as and for the purpose specified. 17th. In a machine for filling cans, the combination of a chamber H¹ for the material to be filled, two or more revolving measuring chambers J, J, a cut-off k between said receiving and measuring chambers, discharge plungers J¹ movable within the chamber J, two or more revolving filling chambers I¹, I¹, opening from the chambers J¹, J¹, plungers I², I² movable in the filling chambers, and a can feed movable with the filling chambers, substantially as described. 18th. In a machine for filling cans, the combination of a chamber H¹ for receiving the material to be filled, a measuring chamber J, a cut-off k between the receiving and measuring chambers having an outlet passage, and a discharge plunger J¹, movable in the measuring chamber and formed at its upper face with a groove j¹, substantially as set forth. 19th. In a machine for feeding cans, the combination of a can filling apparatus H, a can feed, a movable can seat N for the cans, and a cam O for actuating the can seat, having a portion o² of its face removable at will, substantially as and for the purpose described. 20th. In a machine for feeding cans, the combination of a movable can support N, a can feeding tube P, having a cut-out P¹, and a stationary plate P², extending above the can support, substantially as and for the purpose described. 21st. In a canning machine, the combination of a movable can support M, a can feeding tube P, having a cut-out P¹, a stationary plate P² extending above the can support, and a revolving can feed having arms M¹, substantially as and for the purpose specified. 22nd. In a canning machine, the combination of a can feed, a can feeding tube P, and a pivoted stop P⁵, having one end movable into and out of said tube, substantially as and for the purpose set forth. 23rd. In a machine for filling cans, the combination of a support M, feeding arms M¹, a filler I, and a discharge plate R¹, having one extremity disposed in a plane at one side of the plane of the projection M¹, substantially as and for the purpose specified.

No. 39,987. Grate Bar. (*Barreau de grille.*)

Charles Richardson, assignee of George B. Norgrave, both of Philadelphia, Pennsylvania, U.S.A., 23rd August, 1892; 6 years.

Claim. 1st. In a grate bar, the combination, with transverse rests at the opposite end of the grate, of angle plates resting thereon, removable grate bars carried by the said angle pieces outside of the centre of support of the latter, and fixed grate bars secured to the said angle pieces, and holding them apart and upon the said rests, substantially as described. 2nd. In a grate, the combination, with bearings, of a rocking bar having a plurality of upwardly extending projections thereon, the said projections having vertical slots therein through which the said bearings pass, and having their upper ends rounded, the said rocking bar having rounded edges upon its upper edge but below the upper end of the said slots, and grate bars engaging with the rounded upper end of the said projections, and with the rounded upper edges of the rocking bar, substantially as described. 3rd. In a grate, the combination, with transverse rests at each end thereof, of angle pieces mounted on each of the said rests, one of the angle pieces having inwardly projecting bearings thereon, grate bars resting on the said angle pieces, and a rocking bar provided with a plurality of upward slotted projections, through the slots in which the said bearings pass, the upper end of the said projections and the upper edge of the body of the bar below the upper end of the said slots being rounded and engaging the grate bars placed above them, substantially as described. 4th. In a grate, the combination, with transverse rests at each end thereof, an angle piece mounted on each of the said rests, and having inwardly projecting ears, one of the said angle pieces having inwardly projecting bearings thereon, grate bars rigidly connecting the said angle pieces, discs resting on the said ears, movable grate bars carried by the said discs, and a rocking bar provided with a plurality of upwardly extending slotted projections, through the slots in which the said bearings pass, the upper ends of the said projections and the upper edge of the body of the rocking bar below the upper end of the said slots, being rounded and engaging the movable grate bars placed above them, substantially as described. 5th. In a grate, the combination, with bearings, of a rocking bar having a plurality of projections thereon, two of the said projections having vertical slots therein through which the said bearings pass, the upper end of all of the projections, and the upper end of the body of the bar below

the upper ends of the said slots, being rounded, and grate bars engaging the rounded edges of the portions of the rocking bar above which they may be superimposed, substantially as described. 6th. In a grate, the combination, with rests at each end thereof, of an angle piece mounted on each of the said rests, of the said angle pieces having inwardly projecting bearings thereon, of a rocking bar having a plurality of upward projections thereon, two of the said projections having vertical slots therein, through which the said bearings pass, the upper end of all of the said projections and the upper edges of the body of the bar below the upper end of the said slot being rounded, and grate bars mounted upon the said angle pieces, and engaging with the rounded edges of that portion of the bar above which they may be superimposed, whereby the alternate bars of the grate bars will be given opposite motions upon the movement of the rocking bar, substantially as described.

No. 39,988. Car Seat. (Banquette de chars.)

The E. L. Bushnell Spring Company, assignee of Edwin Lapham Bushnell and George Worden Dryer, all of Poughkeepsie, New York, U.S.A., 23rd August, 1892; 6 years.

Claim. 1st. In combination, striker arms pivoted on a suitable support, a seat back pivoted to the striker arms, and a supplemental arm pivoted so as to have slight longitudinal movement on one of said striker arms and to the back, the lower end of the supplemental arm being pivotally connected to the seat arm frame below the pivot of the striker arm, substantially as described. 2nd. In combination, striker arms pivoted on suitable supports, a seat back pivoted on the striker arms, a supplemental arm pivoted so as to have slight longitudinal movement on one of said striker arms, a curved slot in the lower end of said striker arms, a projecting *a* on the frame, extending through said slot, and a pivoted connection between the upper end of said supplemental arm and the back, the lower end of the arm being pivoted on the projecting *a*, substantially as described.

No. 39,989. Brick. (Brique.)

Ambrose S. Baker, Lacona, and Thomas M. Costello, Sand Bank, both of New York State, U.S.A., 23rd August, 1892; 6 years.

Claim.—A composition of matter for bricks, composed of gravel and sand, Portland cement, pulverized from ore, salt and graphite, combined in substantially the proportions specified.

No. 39,990. Mould for Ingots. (Lingotière.)

Charles Hodgson and John Hill, both Middlesbrough, York, England, 23rd August, 1892; 6 years.

Claim. 1st. An ingot mould composed of flanged parts held together by means of bolts such as 7, 7^a, and eccentrics or cams 9, 9^a, carried by said bolts, each half of said mould being constructed with two flanges 3 and 4, one of which is made with a strip 3^a and the other with a strip 4^a, and these parts being so arranged that when the halves of the moulds are fastened together by the means referred to, spaces are formed at 5 and 6 that allow the outer portions of adjacent flanges to approach each other, and the two parts of the mould can move laterally in relation to each other so as to allow of expansion of the mould whilst in use, as set forth. 2nd. An ingot mould composed of two main parts united at each of two opposite sides by two flanges, one of which is formed with a longitudinal strip such as 3^a, and the other with a longitudinal bevel edge strip such as 4^a, arranged to leave a space between the flanges at their outer parts and between said strip 4^a and the opposite flange, and clamping devices for said pairs of flanges, each of said devices comprising bolts carried by one of the flanges of the pair, and extending through slots in the second flange, and rotary cams arranged to act against said second flange and carried by said bolts, substantially as herein described. 3rd. An ingot mould composed of two main parts connected at two of each opposite sides by a joint consisting of two flanges, one of which is formed with a longitudinal bevel edge strip 3^a, that enters a recess in the opposite flange, and the other of which is formed with a bevel edge strip 4^a, arranged outside of said strip 3^a, so as to leave a space between it and the flange opposite to it, and between the outer portions of the flanges, bolts each secured at one end to one of said flanges, and extending through a slot in the second flange, a rotary shaft supported by the other ends of said bolts, and cams fixed to said shaft arranged to bear against said second flange, the strips 3^a and 4^a at one side of the said mould being arranged in the reverse position to those at the other side of the mould, substantially as herein described for the purpose specified.

No. 39,991. Tool for Joining Wire Fence Strands.

(Outil pour joindre les brins de fil de fer pour clôtures.)

The Jones National Fence Company, Columbus, assignee of Aldarilla C. Jewett, Cleveland, executrix of the will of James D. Jones, Columbiana, of Ohio, U. S. A., 23rd August, 1892; 6 years.

Claim.—1st. A crimper for wire fences consisting of a body having a head with jaws or seats, and a slot between said jaws in combination with a movable bar having a projection for crimping the wire, and suitable means for operating the bar, substantially as described. 2nd. A crimper for wire fences consisting of a body having a head with jaws or seats, and a slot between said jaws, a slot in the body

and a bar having a projection and laterally extending arms at its front end in combination with a lever having a toothed sector to engage a rack on said bar, substantially as described. 3rd. A crimper for wire fences consisting of a body having a head with jaws or seats and a slot in the body, and a bar having a projection and laterally extending arms at its front end in combination with a lever fulcrumed to the body and having a toothed sector to engage a rack on said bar, substantially as described.

No. 39,992. Spark Extinguisher and Smoke Consumer. (Éteincteur d'étincelle et fourneau fumivore.)

David Anderson and John Naylor, both of Stawell, Victoria, Australia, 24th August, 1892; 6 years.

Claim. 1st. The combination and arrangement in the smoke box of a locomotive engine or other boiler of a horizontal grating formed of perforated tubes fed with steam from the nozzle of exhaust or blast pipe, all substantially as described and as illustrated in our drawings. 2nd. Exhaust nozzle B having within it lip *b* and annular channel *b'*, in combination with perforated tubes C screwed into and radiating from it and preferably with blower pipe D, all substantially as and for the purposes set forth and arranged as illustrated in our drawings. 3rd. Branch exhaust pipe E furnished with valve E', in combination with the exhaust or blast pipe of a locomotive engine, substantially as and for the purposes set forth and arranged as illustrated in figs. 1 and 2 of our drawings.

No. 39,993. Tube. (Tube.)

Edwin Walker, Heckmondwike, and Joseph Shaw, Huddersfield, both in York, England, 24th August, 1892; 6 years.

Claim. The insertion of a lining of tin or other non-corrosive metal, within an iron or steel tube, substantially as and for the purpose herein shown and described.

No. 39,994. Device for Feeding Fluid Fuel.

(Appareil alimentateur de fluide combustible.)

Walter B. Wright, Chicago, Illinois, U. S. A., 24th August, 1892; 6 years.

Claim. 1st. In a device for feeding fluid fuel, the combination of an oil tank, a fluid reservoir, a pipe and pump to pass the oil from such tank to such reservoir, two pipes leading from such reservoir, one to the points of discharge and the other back to the tank, the latter opening into the reservoir at a higher point than the former, and a lower point than the first mentioned pipe, a pipe leading from the discharge pipe back to the tank, a valve in the steam supply pipe which leads to the pump, a second valve in the pipe which leads from the discharge pipe to the tank, and a handle and connecting bar whereby the two said valves are simultaneously operated in opposite directions, so that when the steam is turned on the valve in the pipe leading from the discharge pipe to the tank is closed, and when the steam is turned off it is open to drain the reservoir. 2nd. The combination of a fluid fuel furnace, with an oil tank and an oil reservoir, the latter situated higher than the tank and the discharge into the furnace, a discharge pipe from such reservoir to the furnace, a supply pump, and a pipe from the tank to the reservoir connecting with such pump, and an overflow pipe from the tank to the reservoir, a pipe leading from the discharge pipe back to the tank, a valve in the steam supply pipe which leads to the pump, a second valve in the pipe which leads from the discharge pipe to the tank, and a handle and connecting bar whereby the two said valves are simultaneously operated in opposite directions, so that when the steam is turned on the valve in the pipe leading from the discharge pipe to the tank is closed, and when the steam is turned off it is open to drain the reservoir. 3rd. In a device for feeding fluid fuel, the combination of a fluid tank with a reservoir, two pipes, one a supply, the other an overflow connecting the same, a fluid pump in the supply pipe and a discharge pipe leading from such reservoir to the points of consumption of the fluid, the supply pipe opening into the reservoir above the overflow pipe, so that the fluid is circulated through the reservoir, but maintains a constant pressure therein, a pipe leading from the discharge pipe back to the tank, a valve in the steam supply pipe which leads to the pump, a second valve in the pipe which leads from the discharge pipe to the tank and a handle and connecting bar whereby the two said valves are simultaneously operated in opposite directions, so that when the steam is turned on, the valve in the pipe leading from the discharge pipe to the tank is closed, and when the steam is turned off, it is open to drain the reservoir. 4th. In a device for feeding fluid fuel, the combination of a reservoir from which the fluid is fed, to the point where it is consumed with a pipe leading therefrom to such a point, a tank, a vent pipe, leading from such reservoir to the supply tank and opening into the reservoir at a different height from the first mentioned pipe, and a connection between said two pipes controlled by a valve, so that communication between the reservoir and tank may be made from points of different height upon such reservoir, and a pump and supply pipes connecting the same with the tank and reservoir.

No. 39,995. Car Coupler. (Attelage de chars.)

David Stark, San Francisco, California, U. S. A., 24th August, 1892; 6 years.

Claim. 1st. In a car coupling, a draw head composed of two hinged jaws united at the inner ends by a hinge joint, having in the outer end a recess or cavity suitably formed to take a coupling bolt with an enlarged head, and separable longitudinally on a medium line through said cavity, in combination, with springs applied against the said jaws to hold them together, and a wedge piece adapted to enter between said jaws and spread them apart, as a means of releasing the coupling bolt therefrom, substantially as described. 2nd. In a car coupling, a two part draw head having a recess or cavity to take a coupling bolt with an enlarged head, and separable on a medium line through said recess, in combination, with a draw head to which said parts are united by a hinge joint as described, and on which joint as a centre the draw head has horizontal movement to either side, when closed on the coupling bolt, and the two parts of the cross head are separable at the outer end, substantially as described. 3rd. In a coupling bolt, having two shanks crossing each other at right angles, enlarged heads on the opposite end of the shank, a head or corresponding shape on the end of the cross shank and an eye or link on the opposite end of the same shank, substantially as described. 4th. A car coupling, comprising a draw head formed of jaws inclosing a recess or cavity adapted to take a coupling bolt with an enlarged head separable longitudinally through said cavity, and united to a draw bar by a hinge joint which is also the centre of movement of the jaws, elliptic springs by which said jaws are held together around the coupling bolt and the opening wedge, arm, rock shaft and locking lever, combined for operation as set forth.

No. 39,996. Hosiery. (Bonneterie.)

Thomas West, Philadelphia, Pennsylvania, U. S. A., 24th August, 1892; 6 years.

Claim. 1st. The method hereinbefore described of manufacturing a stocking having a longitudinal pattern or figure different from and in contrast with the remainder of the stocking, and extending longitudinally through it, which consists in forming a web of knit material of one colour or pattern, and a second web of knit material of another colour or pattern, and sewing the two together, said first and second webs being of such relative shape that the second upon being sewed to the first completes the contour of the stocking, substantially as set forth. 2nd. As an article of manufacture, a stocking, the body portion of which is of a given pattern or colour, into the body of the web of which stocking is inserted and secured a longitudinal strip or piece of figured material which thereupon becomes an integral portion of the stocking, substantially as set forth. 3rd. As an article of manufacture, a stocking, formed of a longitudinal web of knit material of a given colour or pattern, the breadth of which web is insufficient to give the stocking the required diameter, to the longitudinal edges of which web is sewed a longitudinal web of a different colour or pattern of sufficient breadth to complete the contour of the stocking. 4th. The herein described method of making stockings, which consists in securing together the meeting edges of two longitudinal webs of suitable material which are throughout their common length of substantially equal dimensions, and each of which in width approximates half the circumference of the stocking, which webs are as to their margins suitably edged off or shaped to impart the required form to the completed stocking, substantially as set forth. 5th. The herein described method of making stockings, which consists in forming two longitudinal webs of suitable material and of substantially equal dimensions, forming a heel or elbow in one of said webs by drawing together or taking up and securing in such condition by sewing a portion of the material of each margin of said web, cutting off the surplus material of the heel either before or after such taking up, trimming the edges of said webs to impart the proper dimensions and contour to the stocking, and sewing together the meeting edges of said webs, as specified. 6th. The herein described method of making stockings, which consists in forming two longitudinal webs of suitable material and of substantially equal dimensions, forming notches in the opposite edges of the heel portion of one of said webs, and sewing together either before or after the notches are cut, the marginal material about the said notches, cutting off such portions of the margins of said webs as may be necessary to give to the completed stocking the required contour, and sewing together the meeting edges of said pair of webs, as specified. 7th. The herein described method of making stockings which consists in securing together the meeting edges of two longitudinal webs of suitable material of substantially equal dimensions but of different colour or appearance, each of which in width approximates half of the circumference of the stocking, which webs are as to their margins suitably edged off or shaped to impart the required form to the completed stocking, substantially as set forth. 8th. The herein described method of making stockings which consists in forming two longitudinal webs of suitable material, of substantially equal dimensions, but of different colour or appearance, forming notches in the opposite edges of the heel portions of one of said webs and sewing together the edges of said respective notches, cutting off such portions of the margins of said webs as may be necessary to give to the completed stocking the required contour or diameter, and sewing together the meeting edges of said pair of webs, as specified. 9th.

As an article of manufacture, a stocking formed of two longitudinal webs of suitable material and of substantially equal dimensions, one of which webs embodies a heel formed by cutting notches in its substance and sewing together the edges of said notches, the meeting edges of which two webs are sewn together, substantially as set forth. 10th. As an article of manufacture, a stocking formed of two longitudinal webs of suitable material and of substantially equal dimensions but of dissimilar patterns or colour, one of which webs embodies a heel formed by cutting notches in its substance and sewing together the edges of said notches, the meeting edges of which two webs are sewn together, substantially as set forth.

No. 39,997. Vacuum Pump. (Pompe à vide.)

Adolph Berrenberg, Somerville, Massachusetts, U. S. A., 24th August, 1892; 6 years.

Claim. 1st. In an air pump, the combination of the valve disc E^2 , outlet valve P^1 , stem P^2 , spring P^{12} , collar P^7 , lever P^3 , cam wheel L^1 and pinion P^3 , with the segment gear lever P^4 and cam wheel L^1 , all operating together substantially as described, and for the purpose set forth. 2nd. In an air pump, the combination of the valve disc E^2 , inlet valve N^1 , stem N^2 , collar P^7 , lever P^3 , cam wheel L^1 , pinion N^3 , with the segment gear lever N^4 and the cam wheel L^1 , all operating together substantially as described, and for the purpose set forth. 3rd. In an air pump, the combination of the piston F , cylinders E and E^1 , valve disc E^2 , and lower disc E^3 , forming chambers S and S^1 adapted to receive a liquid under pressure, the said valve disc E^2 , having a valve N^1 , and raised valve seat N , with the valve N^1 , valve seat N , and valve M , adapted to admit at each stroke of the piston a quantity of fluid from the chamber S^1 , substantially as and for the purpose set forth. 4th. In an air pump having cylinders E and E^1 and discs E^2 and E^3 said cylinders and discs forming chambers S and S^1 adapted to receive a liquid under pressure, the combination of the inlet valve N^1 and its seat N in the disc E^2 with the outlet valve P , having an opening through both discs E^2 and E^3 and the valve M , all operating together substantially as described, and for the purpose set forth.

No. 39,998. Radiator. (Colorifere.)

William George Cannon, Southwark, County of Surrey, England, 24th August, 1892; 6 years.

Claim. 1st. The combination in a radiator, of a hollow base having an upwardly projecting extension forming a longitudinal channel, with a series of vertical pipes independently connected to the vertical face of the upwardly projecting extension, substantially as described. 2nd. The combination in a radiator, of a base composed of a hollow casting having an upwardly projecting extension forming a longitudinal channel, and provided in its vertical face with lateral sockets, with the independent vertical pipes each having at its lower end a lateral collar detachably secured to a lateral socket in the base, substantially as described. 3rd. The combination in a radiator, of a base composed of a hollow casting having an upwardly projecting extension forming a longitudinal channel, and provided in its vertical face with lateral sockets, with the independent vertical pipes each having at its lower end a lateral collar detachably secured to a socket, and a hollow casting extending along the inner sides of the pipes at their upper end portions, and detachably connected to and communicating with the said pipes, substantially as described. 4th. The combination in a radiator, of the hollow closed base formed integral with an upwardly projecting extension constituting a longitudinal channel, and having a vertical face provided with horizontal sockets, a series of independent vertical pipes each having on the inner side of its lower end a horizontal collar connected to one of the sockets, a screw passing horizontally through the collar of each pipe, and engaging the upward extension of the base, and hollow casting located along the sides of the pipes at their upper ends, and communicating therewith by horizontal passages, substantially as described.

No. 39,999. Casing for Injectors.(*Enveloppe pour injecteurs.*)

Western Smoke Preventer Company, assignees of Robert D. Smith, all of Chicago, Illinois, U. S. A., 24th August, 1892; 6 years.

Claim. A casing for furnace air injectors of a substantially cylindrical form, one end of said casing open and fitted to communicate with the combustion chamber of a furnace, the other end of said casing closed and fitted with a steam jet capable of projecting a jet of steam longitudinally through said casing toward the open end thereof, a passage for supplying air to the interior of said casing, the longitudinal axis of said passage converging in a vertical plane with the longitudinal axis of said casing, the point of said convergence toward the open end of said casing, the described combination of parts serving to introduce air into the combustion chamber of a furnace in the manner substantially as described.

No. 40,000. Steam Trap. (Purge de tuyau à vapeur.)

John Morehead, Detroit, Michigan, U. S. A., 24th August, 1892; 6 years.

Claim. 1st. In a steam trap, the combination with a tilting chamber, an inlet pipe communicating therewith, an outlet pipe having its passage separated from the passage of the inlet pipe, a

pipe C² arranged beneath the chamber and having one end engaged therewith, and its other end engaged with the outlet pipe, substantially as set forth. 2nd. In a steam trap, the combination with a tilting receiving chamber, of a plate pivoted in proximity thereto and provided with a weight, substantially as set forth. 3rd. In a steam trap, the combination, with a tilting receiving chamber, of an inlet pipe communicating therewith, an outlet pipe, a valve to control the communication through said outlet pipe, and a pivoted weighted plate located beneath the lower end of the tilted chamber to regulate the opening of said valve, substantially as set forth. 4th. In a steam trap, the combination of a tilting receiving chamber, rigidly mounted on rocking pipes B and C, an inlet pipe communicating with the interior of the chamber, and an exit pipe leading from the lower end of the tilted chamber and communicating with the pipe C, the pipes B and C provided with a solid wall to close communication between them, substantially as set forth. 5th. The combination in a steam trap, of a tilting chamber rigidly mounted on rocking pipes B, C, and supported thereupon by a pipe B², a steam pipe communicating with the interior of said chamber, an exit pipe leading from the lower end of the tilted chamber and communicating with the pipe C, said pipes B, C, cut off from communication the one with the other, substantially as set forth. 6th. In a steam trap, the combination of a tilting receiving chamber mounted upon pipes B, C, an inlet and an exit pipe communicating with said chamber at opposite sides of the centre of gravity of said chamber, and a relief valve arranged to close when the weight of water tilts the chamber, and to open when the chamber returns to its normal position, substantially as set forth. 7th. In a steam trap, the combination with a tilting receiving chamber supported at one side the centre of gravity upon a pipe B², engaging with the rocking pipes B, C, a steam pipe B¹ communicating with the interior of the chamber through the pipe B², and an exit pipe C² communicating with the pipe C, substantially as set forth. 8th. In a steam trap, the combination with a tilting receiving chamber supported at one side the centre of gravity, upon a pipe B², and pipes B, C, a steam pipe B¹ axially connected with the pipe B, a discharge pipe C¹ axially connected with the pipe C, a steam pipe E communicating with the pipes B, B², an exit pipe communicating with the said discharge pipe, and a valve in the steam pipe E, said pipe B² provided with a pipe extending above the water in said chamber, substantially as set forth.

No. 40,001. Method of Making Ships, &c.

(Méthode de construire les navires, etc.)

Sinclair Stuart, Plainfield, New Jersey, U.S.A., 24th August, 1892; 6 years.

Claim.—1st. In a ship or other vessel, a compound frame constituting both a main frame and a reverse frame and constructed of channel iron, the channel of which is undivided in the part of the frames at the sides of the vessel, but is slit from a point at or near the turn of the bilge of the vessel to form two angle irons, one of which constitutes the lower part of the main frame and the other of which constitutes the lower part of the reverse frame opposite said lower part of the main frame, substantially as herein described. 2nd. The combination, in a ship or other vessel, of a compound main and reverse frame, the upper part of which is of channel iron and the lower part of which is divided in the form of two opposite angle irons, and a floor plate riveted to both of said angle irons on opposite sides thereof, and also riveted to the channel iron above the division of the angle iron, substantially as herein described. 3rd. The combination, in the frame of a ship or other vessel, of a channel iron which runs through the bottom, the bilge and the sides of the vessel, and constitutes a main and a reverse frame at the sides but a main frame only at the bottom, a floor plate which runs through the bottom and up into the bilge and is riveted to said channel iron, and an angle iron which is riveted both to the upper edge of the floor plate and to the inner part of the channel iron to form a reverse frame in the bilge and bottom of the vessel, substantially as herein described. 4th. The combination, in the frame of a ship or other vessel, of a channel iron which runs through the bottom, the bilge and the sides of the vessel, and constitutes both a main and reverse frame at the sides, but a main frame only at the bottom, a floor plate which runs through the bottom and up into the bilge, and is riveted to said channel iron, and two angle irons arranged on opposite sides of said floor plate and along the upper and inner edges thereof to form reverse frames in the bottom of the vessel and riveted to said plate, substantially as herein described. 5th. The combination, in the frame of a ship or other vessel, of united broader and narrower channel irons, the broader channel iron being arranged in the floor of the vessel and therein constituting main and reverse frames and floor plates, and the narrower channel iron being arranged in the sides and bilge of the vessel and therein constituting main and reverse frames and being continued through the bilge and connected with the broader channel iron, substantially as herein set forth. 6th. The combination, in the frame of a ship or other vessel, of united broader and narrower channel irons, the broader channel iron being arranged in the floor of the vessel and therein constituting main and reverse frames and floor plates, and the narrower channel iron being arranged in the sides and bilge of the vessel and therein constituting main and reverse frames and being divided and bifurcated in the bilge and having its lower ends spread to make their flanges conform to the flanges of the broader channel iron at the

point of meeting of said flanges, substantially as and for the purpose herein set forth. 7th. The combination, of the broader channel iron *a*¹, the narrower channel iron *a*², divided, bifurcated and spread to conform to the said broader channel iron, the margin plate *g*, riveted to the said narrower channel iron, and the abutting angle irons *r*, *r*¹, riveted to said broader and narrower channel irons to said margin plate and to each other, substantially as herein set forth. 8th. The combination, in the frame of a ship or other vessel, of a channel iron constituting a main and reverse frame and a floor plate, and an angle iron riveted along the upper edge of said channel iron to make a double reverse frame, substantially as and for the purpose herein set forth. 9th. The combination, with the frame of a vessel, of flanged keelsons, angle iron butt straps *j*, riveted both to the frames and keelsons, and angle iron clips *m*, arranged transversely to the butt straps and riveted to the frames and the butt straps and to the flanges of the keelsons, substantially as herein set forth.

No. 40,002. Artificial Teeth. (*Dent artificielle.*)

David Buren McHenry, Grenada, Mississippi, U.S.A., 24th August, 1892; 6 years.

Claim.—A partial dental plate, formed of a strip of rubber or analogous material, conforming to the general contour of the jaw, having ends adapted to spring inwardly, and fastening studs inserted in the natural teeth, substantially as specified.

No. 40,003. Motor for Vehicles and Boats.

(*Moteur pour voitures et vaisseaux.*)

William Hanson Minnix, Washington, Columbia, U.S.A., 24th August, 1892; 6 years.

Claim.—1st. In combination with either a land or marine, or a combined land and marine wheeled vehicle, or other wheeled transport apparatus, the within described mechanical movement, comprising the supporting plates or bars, sliding rack plates or bars, toothed wheels or sectors and connecting rods, substantially as described. 2nd. In a mechanical movement, the combination of the supporting plate or bar, sliding toothed rack plate or bar, means, as described, for connecting the rack to its support and keeping it from having undue lateral movement inward or outward, toothed wheel or sector, connecting rod, and a wheel or axle to which the rod is connected, substantially as described. 3rd. The combination of the supporting plate or bar, provided with grooves and anti-friction balls or rollers, the wheel or sector, and the connecting rod, substantially as described. 4th. In a mechanical movement, the combination of the supporting plate or bar, provided with separated grooves on one line and a single groove intermediate of and lateral to the separated grooves, balls or rollers in the grooves, sliding rack plate or bar having two grooves, the toothed wheel or sector, and the connecting rod, substantially as described.

No. 40,004. Concentrator for Ores.

(*Concentrateur de minerais.*)

Walter John Hammond and John Gordon, Rio de Janeiro, Brazil, 24th August, 1892; 6 years.

Claim.—1st. In an ore concentrator, the vessel L, made conical in form and set horizontal and adapted to rotate on its axis, which is supported on and revolves around a second and vertical axis, as shown and described, whereby the lighter ore particles are thrown out and the larger particles are held in the centre of the vessel by the action of gravity thus effecting the desired separation, as specified. 2nd. In an ore concentrator, the combination, with a vertical shaft having a transverse arm or bar at its upper end, of a horizontal vessel having a vertical axis on said arm or bar adjustable toward and from the said vertical shaft and means for rotating the vessel in a horizontal plane on its own axis, while it is revolved around the said shaft, substantially as set forth. 3rd. In an ore concentrator, the combination of the vessel L, having a central vertical socket on its bottom, and two semi-circular flanges Q, Q¹, arranged at opposite sides thereof and in different horizontal planes, with a suitable support on which said vessel rotates, a friction roller for alternately engaging such flanges, and a support for said roller, as shown and described. 4th. In an ore concentrator, the combination, with a vessel mounted to turn, of a sleeve bearing the said vessel on its axis, a bar carrying the said sleeve, which is adjustable therein, and a shaft carrying the said bar, substantially as shown and described. 5th. In an ore concentrator, the combination, with a vessel mounted to turn, of a sleeve bearing the said vessel on its axis, a bar carrying the said sleeve, a shaft carrying the said bar, and a weighted rope passing over a pulley and connected at one end with the said vessel, substantially as shown and described. 6th. In an ore concentrator, the combination, with a vessel mounted to turn and provided with two semi-circular flanges arranged parallel with each other and extending in opposite directions around the axis of the vessel, of means for revolving the said vessel, and a friction roller adapted to be engaged by the said flanges, substantially as shown and described. 7th. In an ore concentrator, the combination, with a shaft mounted to turn, of a carrier held on the said shaft, a counter balanced bar supported on the said carrier, a sleeve held adjustably on the said bar and provided with a bell, and a vessel provided in its axis with a ball socket, adapted to engage the said ball, substantially as shown and described. 8th.

In an ore concentrator, the combination, with a shaft mounted to turn, of a carrier held on the said shaft, a counterbalanced bar supported on the said carrier, a sleeve held adjustably on the said bar and provided with a ball, a vessel provided in its axis with a ball and socket adapted to engage the said ball, and a weighted rope connected with the said vessel and passing over a pulley, substantially as shown and described. 9th. In an ore concentrator, the combination, with a shaft mounted to turn, of a carrier held on the said shaft, a counterbalanced bar supported on the said carrier, a sleeve held adjustably on the said bar and provided with a ball, a vessel provided in its axis with a ball socket adapted to engage the said ball, a weighted rope connected with the said vessel and passing over a pulley, semi-circular flanges extending parallel with each other and in opposite directions on the ball joint, and a friction roller held on the said carrier and adapted to be engaged by the said flanges, substantially as shown and described.

No. 40,005. Blanket for Horse. (*Couverture de cheval.*)
Harry Wilnot Sisson, Monmouth, Illinois, U. S. A., 24th August, 1892; 6 years.

Claim.—1st. A horse blanket provided with means for fastening it to the animal, consisting of elastic straps held to the blanket wholly by confining strips stitched to the blanket along their edges, whereby the straps will move bodily between the blanket and strips, substantially as and for the purpose set forth. 2nd. In a horse blanket elastic straps held to the blanket wholly by confining strips stitched to said blanket along their edges, in combination with non-elastic check straps connected to the elastic straps at their ends, substantially as and for the purpose set forth. 3rd. In a horse blanket provided with re-enforce pieces, as shown and described, the combination of elastic fastening straps held to the blanket wholly by confining strips which are stitched to said blanket along their edges, whereby the straps will move bodily between the blanket and strips, buckles and tongues upon the ends of the fastening straps and non-elastic check straps connected to said elastic straps, substantially as and for the purpose described. 4th. A blanket provided with means for securing it on the animal consisting of a crupper strap, elastic straps extending crosswise of the blanket and around the neck portion thereof, said straps having non-elastic check straps connected to the elastic straps and of greater length than the latter, confining strips for holding the straps on the blanket and admitting of their moving bodily, and buckles and straps connected to the ends of the straps, respectively, substantially as and for the purpose described.

No. 40,006. Machine for Cleaning Vehicles.
(*Machine pour nettoyer les voitures.*)

John Henry Cook, Washington, District of Columbia, U. S. A., 24th August, 1892; 6 years.

Claim.—1st. In a device for cleaning vehicle wheels, the combination, with a water box adapted to rest upon the periphery of a wheel and provided with perforations, of a cleaning device extending downward from the side of the box in position to clean the side face of the felly, all substantially as shown. 2nd. In a device for cleaning wheels, the combination, with a perforated box, of cleaning devices applied to the sides of the box and adjustable one in relation to the other, substantially as shown, whereby the space between the cleaning devices may be varied to suit different sized wheels. 3rd. In a device for cleaning wheels, the combination, with a perforated box provided with laterally extending arms, of cleaning devices carried by the arms, and means, substantially such as shown, for varying the space between the cleaning devices. 4th. In a device for cleaning wheels, the combination, with the box A, provided with perforations in its lower face, of a cleaning device applied to the side of and adapted to act in conjunction with the box, and rollers secured to the under side of the box, substantially as shown. 5th. In combination with a box A, provided with separated chambers *b, c*, the latter closed at one end, a valve C, adapted to direct the water into either of the chambers at will, and a cleaning device applied to the side of the box, as and for the purpose set forth. 6th. The box A, provided with threaded nipples *e* and *f*, and the separated chambers *b, c*, perforations in the bottom wall of chamber *c*, a valve C, adapted to direct water into either of the chambers *b, c*, at will, and a cleaning device applied to the side of the box.

No. 40,007. Muffle Furnace. (*Etouffoir de fournaise.*)

Charles H. Land, Detroit, Michigan, U. S. A., 24th August, 1892; 6 years.

Claim.—1st. In an apparatus for controlling chemical effects, the combination, with the furnace, of an outer receptacle located therein and spaced therefrom, an inner receptacle located within the outer receptacle and spaced therefrom to form an air or gas space, said air or gas space having an inlet and outlet, means for conveying to said space air, gas or vapour, and a burner or heating means communicating with the space formed between the furnace and outer receptacle. 2nd. In an apparatus for controlling chemical effects, the combination, with the furnace, of an outer receptacle located therein and spaced therefrom, an inner receptacle located within the outer receptacle and spaced therefrom to form an air or gas space communicating with the inner receptacle and provided

with an inlet, means for conveying to said space, air, gas or vapour, and a burner or heating means communicating with the space formed between the furnace and the outer receptacle. 3rd. The herein described process of controlling chemical effects upon various substances, consisting of placing the substance to be acted upon within the combustion chamber of a furnace enclosed in an inner receptacle located within an outer receptacle forming an intermediate space between them, subjecting the said substance to the required degree of temperature, and introducing into said space between the receptacles a desired gas, atmosphere or vapour, independent and distinct from said substance and from the products of combustion in the said furnace, substantially as set forth. 4th. The herein described process of controlling chemical effects on various substances, consisting of placing the substance to be acted upon within the combustion chamber of a furnace enclosed in an inner receptacle located within an outer receptacle forming an intermediate space between them, subjecting said substance to the required degree of heat and introducing into said space and into the inner receptacle a desired gas, atmosphere or vapour, independent and distinct from the said substance and from the products of combustion in said chamber, substantially as set forth.

No. 40,008. Cattle Guard for Railways.

(*Garde-bétail de chemin de fer.*)

Benjamin Wolhaupter, Oak Park, Illinois, U. S. A., 24th August, 1892; 6 years.

Claim.—1st. A cattle guard for railways made up of slats or bars arranged parallel with each other, each bar placed on its longitudinal edge and in an inclined position whereby the upper edge of one bar is substantially above the lower edge of the adjacent bar, substantially as described. 2nd. A cattle guard for railways composed of slats or bars made of angle iron, said bars arranged parallel with each other, each bar placed on its longitudinal edge and in an inclined position, whereby the angle edge of one bar is substantially above the lower edge of the adjacent bar, substantially as described. 3rd. A cattle guard for railways consisting of slats or bars arranged in an inclined position in the form of a grating said bars held together by rods which extend at right angles to the slats or bars, substantially as described. 4th. A cattle guard for railways consisting of longitudinal bars arranged adjacent to and parallel with each other spacing blocks having recesses in opposite directions to constitute a run way for a tie bolt, and the tie bolt passed through the longitudinal bars and spacing blocks to bind the whole together, substantially as described. 5th. A cattle guard for railways consisting of longitudinal bars C, having flanged or angled edge, spacing blocks E, having the recess *e*¹, depressions *e*², *e*³, and a tie bolt to bind the parts together, substantially as described. 6th. A cattle guard for railways composed of slats or bars C, one or more of said bars having an extension *e*, adapted to be spiked to the ties, substantially as described. 7th. A cattle guard for railways consisting of the slats or bars held together by suitable tie rods, said slats or bars supported clear of the ties by the intermediate spacing blocks, substantially as described.

No. 40,009. Regulator for Turbines.

(*Régulateur de turbines.*)

Johann Laurenz Furiakovics, Baden, Lower Austria, 24th August, 1892; 6 years.

Claim.—Apparatus for regulating the power and speed of turbines, consisting of one or more pivoted flap valves B, within the channel or conduit of the water supply, the axis of rotation C, of which valve is displaced relatively to the centre of pressure D, thereof, such valve or valves being adjustable in position by means of a governor in such manner that a difference of the water pressures before and behind the valve or valves can be produced which shall correspond to the desired power or speed of the turbine, substantially as described.

No. 40,010. Rotary Engine. (*Machine rotative.*)

The Ward Motor Company, assignee of Charles Ward, all of Toronto, Ontario, Canada, 24th August, 1892; 6 years.

Claim.—1st. In a rotary engine, the combination, with the shaft of a piston drum mounted thereon, pistons consisting of a head and two arms projecting therefrom, a pivot pin passing through said arms pivotally connecting said piston to said drum, a slot extending across the piston drum to receive the piston head, a pin projecting from said piston head, a cam engaging with said pin, said piston opened and closed by means of the engagement of said pin with said cam, substantially as described. 2nd. In a rotary engine, the combination, with the shaft of a drum mounted thereon, a piston hinged to said drum adapted to be opened and closed, a cam secured to the cylinder side to open and close said piston, substantially as described. 3rd. In a rotary engine, in combination, with a shaft of a piston drum mounted thereon, a recess formed in either end of said piston drum, a piston pivotally connected to the ends of said piston drum in said recess, a slot extending longitudinally across said piston drum to receive the piston when in its closed position, metallic packing located within said slot arranged to form a perfect contact with said piston and prevent the motive fluid entering said slot, substantially as described. 4th. In a rotary engine, in combination, with the piston drum and pistons, of a head block located medially

between the inlet and exhaust ports, a recess formed in said head block, metallic packing located in said recess adapted to form a perfect contact with said pistons and prevent the motive fluid passing from the inlet to the exhaust ports across said head block, substantially as described. 5th. In a rotary engine, in combination, with the shaft of a piston drum mounted thereon, a piston pivotally connected to said piston drum adapted to be closed and opened, a slot extending longitudinally across said piston drum to receive the piston when in its closed position, a head block located medially between the inlet and exhaust ports, a recess formed in said head block, metallic packing located in said recess adapted to bear on and form a perfect contact with said piston and piston drum, substantially as described. 6th. In a rotary engine, in combination, with the shaft of a piston drum mounted thereon, a piston consisting of a head and two arms projecting from said head, a pivot pin passing through said arms projecting from said piston to said piston rod, a slot extending longitudinally across said piston drum to receive said piston head when in its closed position, metallic packing located within said slot to bear on said piston head and form a perfect contact therewith, a pin projecting from said piston travelling in the cam groove formed in the cylinder side, the travel of said pin in said groove opening and closing said piston, a head block located medially between the inlet and exhaust ports, a recess formed in said head block, metallic packing located within said recess bearing upon said piston drum, substantially as described.

No. 40,011. **Wooden Screw.** (*Vis à bois.*)

The Russell and Erwin Manufacturing Company, New Britain, Assignee of Horace R. Jones, Hartford, both in Connecticut, U. S. A., 24th August, 1892; 6 years.

Claim.—1st. A wood screw having a head adapted to be engaged by a driver for turning said screw axially, a series of elevations and depressions on its shank raised up from the normal diameter of the stock by rolling, a threaded body of a diameter approximately the same as that of the raised portion of said shank, and a threaded point, substantially as described and for the purpose specified. 2nd. The method of rolling gimlet pointed wood screws, which consists of simultaneously rolling the thread on the tapering point and elevations and depressions on the unthreaded shank whereby the action of the dies in rolling said shank and point insures the rotation of the blank within the dies and also tends to hold the blank up to the work of threading the point, as described.

No. 40,012. **Steam Pump.** (*Pompe à vapeur.*)

Lingi d'Auria, Philadelphia, Pennsylvania, and Henry Martyn Robert, Washington, District of Columbia, both in the U. S. A., 24th August, 1892; 6 years.

Claim.—1st. The within described art or method of regulating the mean piston speed in a direct acting non-rotative steam expanding pumping engine, which consists in adding to the requisite reciprocating parts a supplemental reciprocating weight which, with the weight of the requisite reciprocating parts is so proportioned in relation to the accelerative work as herein defined, as so to control the accelerated and retarded motion of the engine that concussion and spasmodic action shall be avoided. 2nd. A direct acting non-rotative steam expanding pumping engine adapted to work under steam expansion sufficient to produce an accelerative work, as herein defined exceeding four per cent of the total work absorbed by the pump in a single stroke, and provided with an additional reciprocating weight, which, when in motion, with the requisite working parts, will produce an accelerated mean weight in pounds, as herein defined, greater than the quotient obtained by dividing the total work in foot pounds absorbed by the pump in a single stroke by the square of the mean piston speed in feet per second. 3rd. In combination with a direct acting non-rotative steam expanding pumping engine, an additional reciprocating weight or weights connected to and oscillating with the reciprocating parts of the pumping engine and adapted to control the accelerated and retarded motion of the engine, thereby preventing concussion and spasmodic action substantially as and for the purpose set forth. 4th. In combination with a direct acting non-rotative steam expanding pumping engine, an additional reciprocating weight or weights, as, W, W', fixed or adjustable upon the arms L, and L' oscillating with and connected to the valve operating arms, l and l', as shown and for the purpose specified.

No. 40,013. **Machine for Ironing and Polishing.**

(*Machine à repasser et polir.*)

Clarence Otis White and Marshall B. Lloyd, both of Minneapolis, Minnesota, U. S. A., 25th August, 1892; 6 years.

Claim.—1st. In an ironing and polishing machine, two padded rotating rollers, in combination with a roller located between said padded rollers and movable into and out of working contact with each of said padded rollers separately, substantially as and for the purposes described. 2nd. In a machine of the class described, the combination, with a pair of rollers, of an iron arranged between them and a treadle mechanism for separately effecting a co-operative contact between the iron and either one of the two rollers. 3rd. In a machine of the class described, the combination, with a pair of rollers, of a roller arranged between them, and a treadle mechanism for separately effecting a co-operative contact between the middle

roller and either one of the other rollers. 4th. In an ironing and polishing machine, the padded roll consisting of a shaft B', discs C', C'', secured upon said shaft, metal collars C''' upon said shaft between said discs, suitable flexible collar C' upon said metal collar, and the padding c, surrounding said flexible collar and with its edges folded over the ends of said flexible collar, and held between said discs and flexible and metal collars, substantially as and for the purposes set forth.

No. 40,014. **Boomerang.** (*Catapulte.*)

Charles Harris Emerson, Yonkers, New York, U. S. A., 25th August, 1892; 18 years.

Claim.—1st. A boomerang longitudinally curved in cycloidal lines, substantially as and for the purposes specified. 2nd. A boomerang chamfered at its inner edge near one end, and correspondingly chamfered at its outer edge near its other end, substantially as described. 3rd. A boomerang cycloidal in outline substantially flat on both of its sides, uniform in thickness throughout its length, and free from warp or twist. 4th. A boomerang cycloidal in its outline, and provided with spurs at its end, substantially as described. 5th. A boomerang, provided at its interior edge with a longitudinal groove, substantially as described. 6th. A boomerang, provided with adjusting gage works near its ends, substantially as described, whereby it may be accurately adjusted in the holder of a gun or projector. 7th. A boomerang cycloidal in outline, and constructed of layers of thin material firmly united, substantially as described. 8th. A boomerang having a cycloidal outline, and pointed ends or spurs. 9th. A boomerang, uniform in thickness, and having flat sides a cycloidal outline, and pointed ends or spurs. 10th. A boomerang, uniform in thickness, flat on both sides, and having a cycloidal outline and a longitudinal groove at its inner edge, substantially as described.

No. 40,015. **Boomerang Gun.** (*Fusil catapulte.*)

Charles Harris Emerson, Yonkers, New York, U. S. A., 25th August, 1892; 18 years.

Claim.—1st. In a boomerang gun or projector, the combination, substantially as hereinbefore described, of a gun stock, a holding jaw provided with coincident engaging surfaces adapted to frictionally grasp and maintain a boomerang in proper position for making a flight, and means for projecting the boomerang from the holder in a right line and with a gyratory movement. 2nd. In a boomerang gun, the combination, substantially as hereinbefore described, of two boomerang holders, and a spring actuated swinging arm carrying at its outer end one of said holders, and operating as a striker in connection with the second holder. 3rd. In a boomerang gun, the combination, substantially as hereinbefore described, of a pair of swinging spring arms, each having at its outer end a boomerang holder, and both swinging in the same plane but in opposite directions for securing a practically simultaneous flight of two boomerangs in parallel lines, but with opposite gyratory movements. 4th. In a boomerang gun, the combination, substantially as hereinbefore described, of a suitable gun stock, several holders for variably maintaining an equal number of boomerangs in position for flight, spring arms and a plunger carried with said holders on said stock, and adapted to simultaneously project all of the boomerangs from said holders in parallel lines, but causing some of them to gyrate in one direction and others in an opposite direction. 5th. In a boomerang gun, the combination, substantially as hereinbefore described, of a holder having coincident straight parallel holding faces for receiving and accurately maintaining a boomerang in position for flight, and a forcibly actuated plunger for projecting a boomerang from said holder in a right line movement and with rapid gyrations, said plunger being restricted in its forward movement to the rear portion of said holder, and the coincident faces at the front portion of the holder serving to maintain the boomerang in a fixed plane after leaving the plunger and until it leaves the gun. 6th. In a boomerang gun, the combination, with a suitable boomerang holder, of a striker for projecting a boomerang from said holder, and means for varying or limiting the movement of the striker toward the holder, substantially as described. 7th. In a boomerang gun, the combination of a swinging spring arm, having a boomerang holder at its outer end, and an adjustable abutment or stop for said arm, substantially as described. 8th. In a boomerang gun, the combination, with a suitable holder for a boomerang, of an arm or striker, a tensionally adjustable spring, substantially as described, whereby the projecting power of the gun may be varied, as well as the gyratory motion of a boomerang. 9th. In a boomerang gun, the combination, with a suitable boomerang holder, of a projector or striker for discharging a boomerang from said holder, a spring for actuating said striker, a trigger, and means for variably coupling the striker therewith for correspondingly varying the force of the striker against the boomerang. 10th. In a boomerang gun, a holder having jaws provided with parallel contact faces for receiving and grasping a boomerang flatwise, and provided with a transverse clamp for varying the grip of said jaws, substantially as described. 11th. In a boomerang gun, a holder having jaws for receiving a boomerang, and provided with an abutment against which a boomerang will strike when swung in said holder for effecting its release therefrom, substantially as described. 12th. In a boomerang gun, a holder having jaws for receiving a boomerang, and an adjustable abutment for varying the point at which a boomerang will strike said abutment just prior to

making a flight, substantially as described. 13th. In a boomerang gun, a holder having jaws for receiving a boomerang, a cam lever for varying the relations of the jaws, and also serving as an abutment for a boomerang when swinging in the holder and enabling the boomerang to swing said lever in one direction, and thereby secure an automatic release from the jaws, substantially as described. 14th. In a boomerang gun, a jaw-shaped holder for receiving a boomerang, and having on the inner faces of the jaws coincident convex or inwardly projecting surfaces for affording a pivotal grip upon a boomerang when held therein, substantially as described. 15th. In a boomerang gun, a swinging spring arm, in combination with a jaw-shaped boomerang holder, adjustably hinged to said arm by means of a clamping pivot bolt, which is parallel with the plane in which the arm swings, substantially as described.

No. 40,016. Syringe. (*Seringue.*)

Joseph Lalonde, Winnipeg, Manitoba, Canada, 25th August, 1892; 6 years.

Claim. 1st. A syringe in which the weight of the user supplies the force for the injection, substantially as and for the purpose herebefore set forth. 2nd. A syringe having the waterproof bag or cushion *a*, with aperture at *g*, the collar *b*, with double rim on outside and screw thread on interior surface, and injection pipe *c* threaded to fit collar *b*, with aperture at *d*, substantially as and for the purpose above set forth.

No. 40,017. Apparatus for Dispensing Liquids.

(*Appareil de distribution des liquides.*)

William Miles Fowler, Milford, Connecticut, U.S.A., 25th August, 1892; 6 years.

Claim. 1st. The combination with a suitable supply vessel and means for regulating the discharge therefrom, of a receiver or measure located in position to receive the discharge from said supply vessel, a complete inclosure surrounding the discharge vessel to prevent handling, and means for discharging said receiver or measure from a point without the inclosure, substantially as set forth. 2nd. The combination with a suitable supply vessel and means independent of the receiver support for controlling the discharge therefrom, of a receiver or measure located in position to receive the discharge from said vessel, a recording device and operating mechanism common to both the recording device and the receiver or measure, substantially as set forth. 3rd. The combination with a suitable supply vessel and means for controlling the discharge therefrom, of a receiver or measure mounted in tilting adjustment in position to receive the discharge from the supply vessel, a recording device and a rocking shaft connected with the recording device and the receiver or measure, the said recording device having a movement in advance of the tilting of the receiver or measure, substantially as set forth. 4th. The combination with a suitable supply vessel and means for controlling the discharge therefrom, of a receiver or measure, a rock shaft upon which the receiver or measure is mounted, the said shaft having a partial movement independent of the said measure, a printing cylinder loosely mounted upon the rock shaft, a pawl connecting the rock shaft with the printing cylinder, and means for disengaging the pawl from the printing cylinder, the connection between the rocking shaft and the printing cylinder, and measure being such that the rotation of the rock shaft at first rotates the printing cylinders and subsequently tilts the measure, substantially as set forth. 5th. The combination with a suitable supply vessel and means for controlling the discharge from said vessel, of a rock shaft, a receiver or measure in position to receive the discharge from the vessel and mounted upon the rock shaft, means for counterbalancing the receiver or measure, a connection between the rock shaft and measure for tilting it, and an inclosure around the measure, means for actuating the rock shaft from a point without the inclosure, and a discharge spout leading from beneath the measure to a point without the inclosure, substantially as set forth. 6th. The combination with a suitable supply vessel and means for controlling the supply, of a receptacle or measure in position to receive the discharge from the supply, duplicate printing cylinders, means for feeding strips of material to be printed to the cylinders, means for severing the printed portions of the strips, an inclosure surrounding the measure and printing mechanism, a passageway for one of the printed strips through the inclosure, a passage for the other of the printed strips into a suitable enclosed receptacle, and actuating mechanism common to the recording mechanism and the receiver or measure, substantially as set forth. 7th. The combination with the receiver or measure and means for controlling the discharge thereinto, of a rocking shaft, the said measure having a limited rocking movement on the shaft, a printing cylinder connected to rotate with said shaft, a feed and impression roller located in yielding bearings below said printing roller and means for operating said rock shaft and thereby operating the printing cylinder and receiver or measure, substantially as set forth. 8th. The combination with the receiver or measure and means for controlling the discharge thereinto, of a rock shaft upon which said receiver or measure is mounted, a printing cylinder connected to rotate with said rock shaft, an impression roller mounted in proximity to the printing cylinder, shears located in proximity to the printing cylinder, a lever for operating the shears, an arm on the rock shaft for operating said lever and means for actuating the rock shaft and thereby the shears, the printing cylinder and the measure, substantially as set forth. 9th.

The combination with the receiver or measure and means for controlling the discharge thereto, of a rock shaft upon which said receiver or measure is mounted, means for rocking the said shaft and thereby tilting the said receiver or measure, a stop to engage the measure and hold it in tilting adjustment and a cam on said rock shaft in position to engage the stop and release the receiver or measure, substantially as set forth. 10th. The combination with a series of supply vessels and means for bringing them consecutively over a fixed point, of a receiver or measure located in position to receive the discharge from said supply vessels when in position over said fixed point, an enclosure surrounding said receiver or measure, valve operating mechanism outside of said enclosure for controlling the discharge from said supply vessel and means for tilting the said receiver or measure from a point without said enclosure, substantially as set forth. 11th. The combination with the series of supply vessels and the rotary support in which they are mounted, of an enclosed chamber provided with an opening over which the discharge ends of the vessels may be adjusted, means for controlling the discharge from the vessels, a tilting receiver or measure located within the inclosed chamber in position to receive the discharge from the vessels, a discharge spout leading from within the enclosed chamber to the outside thereof, means for tilting the receiver or measure, and a bell adapted to be sounded by the measure, substantially as set forth. 12th. The combination with a series of supply vessels, the support through which their nozzles project, and means for rotating the vessels together with their support, of an inclosure surrounding the nozzles of the vessels to prevent access thereto, a receiver or measure over which the nozzles of the vessels pass as they rotate, means for regulating the flow of the contents from the vessels to the receiver or measure, and means for discharging the contents from the receiver or measure, substantially as set forth.

No. 40,018. Hand Dating Stamp.

(*Tinbre à main pour dater.*)

Henry Thomas Pritchard, Ottawa, Ontario, Canada, 25th August, 1892; 6 years.

Claim. 1st. The combination of the cylindrical shell or body *A*, having a cavity *A*¹, at one end for the reception of type wheels, and at the other end a socket *B*, provided with a screw thread inside and outside, a handle *D*, having a stem *E*, and ferule *C*, the former having a screw thread on the outside and the latter having a screw thread on the inside, both simultaneously screwing into and on said socket, a locking bar *L*, bridging the cavity *A*¹ at the bottom, and bearing on springs *M*, whereby the stem, when the handle is turned, screws against the locking bar and causes said bar to engage the type wheels and hold them fixedly at an adjusted position, and the springs *M*, release said bar from the wheels when the handle is partly unscrewed, as set forth. 2nd. The body *A*, connected to a suitable handle, and having a cavity *A*¹, containing type wheels sleeved on an axle secured in notched bearings on opposite sides of said cavity, the stamp head or cap *P*, having a central aperture to expose the face of the type wheels, said cap having lugs coinciding with notches in the body *A*, and fastened by parallel screws *x*, passing through the sides of said notches, and the lug whereby the cap is secured to the body, as set forth.

No. 40,019. Apparatus for Drying and Steaming Dyed Cotton Yarns. (*Appareil pour sécher et vaporiser le fil de coton teint.*)

Carl Schurich, Altschennitz, Saxony, German Empire, 25th August, 1892; 6 years.

Claim. 1st. The process of drying and steaming yarns in the form of cops, bobbins, pirns, swifts, &c., which are to be dyed genuine aniline black, (diamond black) consisting in securing the yarn bodies upon carriers formed of frames, rods, aprons or chains by means of spindle, pegs or clamps, at such a distance apart as to avoid contact of said bodies with each other or with foreign substances, and passing said carriers into and allowing them to remain a sufficient period of time successively within a drying chamber and steaming chamber, substantially as set forth. 2nd. An apparatus for continuously carrying on the process of drying and steaming cotton yarn in cops, bobbins, pirns, swifts, &c., to be dyed genuine aniline black, (diamond black) consisting of a drying chamber and steaming chamber provided with means of passing circuitously an endless carrier, apron or chain, said carrier having spindles, pegs or pins adapted to hold the yarn bodies without touching each other, or other foreign substances and said carriers presenting a surface adapted to be charged with yarn bodies before passing into the drying chamber, and again for removing them after passing out of the steaming chamber, substantially as set forth. 3rd. The combination of a drying chamber *t*, provided with means of passing circuitously an endless carrier or chain charged with yarn bodies held without touching each other, warm air supply to said chamber injected by means of a fan, and moist air extractor by means of an exhauster, substantially as set forth. 4th. The combination, with a drying chamber *t*, of chain wheels adapted to pass circuitously an endless chain or apron, and means for adjusting the tension of said chain on its return course, substantially as set forth. 5th. The combination in a steaming chamber *d*, of chain wheels for passing circuitously an endless chain or apron, steam heated covers *p*, escape *a*, evaporating basin *b*, and water heating coils *l*, substantially as set forth.

No. 40,020. Fishway. (*Echelle de montée pour les poissons.*)

John Bower, Shelburne, Nova Scotia, Canada, 25th August, 1892; 6 years.

Claim.—1st. A fish way having side walls B, B, provided with passage ways D, step by step floors E, above said passage ways and inclining downwardly towards the inflow, partitions H, subdividing the fishway at the break of the floors, and gates G, at the aperture between the lower and an upper floor, said floors producing a series of short water falls when an upper gate is raised and the lower gates closed, said fishway fitting into an opening in the dam, whereby the fish leap successive falls and escape through the open gateway and side passages D, into the mill pond, as set forth. 2nd. The combination in a fish way of a series of floors E, at different heights, partitions H, subdividing the fish way at the ends of the floors, a gate G, and aperture between a lower and a higher floor, and side walls B, B, having passage ways D, below the floors for the escape of fish into the mill pond after ascending the falls and passing through the inflow, whereby the fishway can be regulated by opening the proper gate and closing the lower ones, to suit different heights of water, and by closing all the gates prevent waste of water when fish are not running, as set forth.

No. 40,021. Apparatus for Raising Sunken Vessels.

(*Appareil pour soulever les vaisseaux coulés.*)

Charles Henry Brown, Port Huron, Michigan, U. S. A., 25th August, 1892; 6 years.

Claim.—1st. In a camel, the combination of the hull, a series of vertical wells in one side thereof, a deckhouse having corresponding wells of larger diameter, chains in said wells, and adjustable blocks on the chains in the upper wells of a diameter greater than the lower well, substantially as described. 2nd. In a camel, the hull formed of two independent sections each having water tight compartments, a conduit connecting the lower part of the end compartments, and a connection between the conduit and the central compartment, a suction well leading from the conduit, suitable suction means, ingress and egress valves for the compartment, a deck house, pockets in the inner portion of the hull, and wells between the pockets, substantially as described. 3rd. In a camel, the combination of the hull divided centrally, having a series of adjacent pockets in its inner portion, a counter balance water compartment in the outer portion of the parts, and intervening water tight compartments, and a deck house on each section formed with water tight compartments, substantially as described. 4th. In a camel, the combination of the hull, a series of vertical wells in one side thereof, a deck house having corresponding wells, stanchions above said well, pulleys upon said stanchions, a winding drum, and a rope on said drum adapted to connect to the chain in any well, substantially as described. 5th. In a camel, the combination of the hull, a series of vertical wells in one side thereof, a deck house having corresponding wells, a bearing at the top of each well of both series, the blocks N¹, chains O, passing through the wells in which the blocks are placed, rope Q, connected to the chains, pulleys P¹, P², over which the rope passes, and winding drum Q, for winding up the rope substantially as described. 6th. In a camel, the combination of the hull, a series of vertical wells in the hull on one side, pockets in the inner part, and a counterbalancing water compartment at the other side, and an intervening water tight compartment, substantially as described.

No. 40,022. Imitation Glass. (*Imitation de verre.*)

Friedrich Eckstein, Vienna, Lower Austria, 25th August, 1892; 6 years.

Claim.—1st. The herein described new compound consisting of collodion wool or collodion paper, of non-resinous oil, and balsam or soft resin, in or about in the proportions stated, substantially as herein set forth for the purposes specified.

No. 40,023. Apparatus for Laying Tracks.

(*Appareil pour le posage des rails.*)

Robert E. Hurley, Scranton, Pennsylvania, U. S. A., 25th August, 1892; 6 years.

Claim.—1st. The improved method of operating track laying devices wherein a train of track material bearing cars is employed, which consists in connecting the rails together, end to end, and drawing them forward along the train with the ties superposed thereon, substantially as described. 2nd. In a track laying apparatus, the combination of cars for supporting the track materials, said cars having rollers journaled thereon over which the rails are forwarded, and friction rollers for drawing the rails forward when connected together end to end, the cars being adapted for moving the rails therealong with the ties laid thereon, substantially as described. 3rd. In a track laying apparatus, the combination with cars for supporting the track materials, said cars having journaled on their surfaces two lines of rollers adapted to receive the rails, of supports on the cars bearing beams to sustain the ties above the level of the moving rails, and means for moving the rails with the ties superposed thereon, substantially as described. 4th. In a track laying apparatus, the combination with the cars to carry the ties, provided with rollers thereon to receive and support the rails above the surface of the car floor, of rail cars in the rear of tie cars, and means for drawing the rails with the ties superposed thereon

along the train, substantially as described. 5th. In a track laying apparatus, the combination with the track material cars having ways on which the rails may be forwarded when coupled together, and means for supporting the ties above the moving rails, of a derrick structure having endless cables, whereon the said ties are received and whereby they are forwarded over the road bed in advance of the train, and means for separately forwarding the rails and depositing them in their position upon the ties, substantially as described. 6th. The combination in a track laying apparatus, of the track material cars along which the ties and rails are forwarded, the rails coupled together and the ties superposed thereon, substantially as described, a derrick structure having an endless cable to move the ties, an intermediate cable section to receive the ties from the rails and forward them to the derrick cable, and friction rolls for advancing the rails and depositing them in position, substantially as described. 7th. In a track laying apparatus, the combination with cars whereon the track material is carried and forwarded, substantially as described, of a wheel supporting derrick structure having a single cable driven from the car axles and carried upon friction rollers journaled at opposite ends of the derrick, and said cable doubled thereon to provide two forwardly moving loops to receive and forward the ties, and means for forwarding and depositing the rails, substantially as described. 8th. In a track laying apparatus, the combination with means for supporting and forwarding the track material to a derrick, of a derrick, pivotally mounted on a wheel supported frame whereby said derrick may be swung laterally to compensate curvature of the track, substantially as described. 9th. In a track laying apparatus, the combination with means for supporting and forwarding the track materials, of a derrick mounted on a wheel supported frame having fixed standards and a cross timber to which the derrick frame is connected by a king bolt, and anti-friction rollers between the derrick frame and said stationary frame, substantially as described. 10th. In a track laying apparatus, the combination with the cars whereon the track materials are forwarded, of a derrick mounted upon cars in front of the material cars and projecting forwardly over the road bed, of a frame movable on a way on said derrick and having rail carrying tongs, and a second frame supported by a cable and having tongs to grasp the rail, said frames being adapted to be lowered to deposit the rail, substantially as described. 11th. In a track laying apparatus, the combination with cars for supporting the track material, and said cars having anti-friction rolls whereon the rails may be forwarded when connected together end to end, of friction rolls journaled adjacent to the ways and adapted to rotatably engage the rails, whereby to move them along the ways, substantially as described. 12th. In a track laying apparatus, the combination with cars for supporting the track material, said cars having anti-friction rolls whereon the rails may be forwarded when connected together end to end, of friction rolls journaled adjacent to the ways and driven from the car axles by suitable gearing and adapted to rotatably engage the rails whereby to forward them along the train, substantially as described.

No. 40,024. Roof. (*Toiture.*)

Edward Wilkes Rathbun, Deseronto, Ontario, Canada, 25th August, 1892; 6 years.

Claim.—In a roof, the combination of a layer of porous terra cotta slabs supported upon framework with or without intervening sheeting, and a covering of water shedding material, substantially as set forth.

No. 40,025. Underground Conduit for Electric Wires or Cables. (*Conduit souterrain pour fils ou câbles électriques.*)

Charles Carroll Gilman, Eldora, Iowa, U. S. A., 25th August, 1892; 6 years.

Claim.—1st. An underground electric conduit pipe consisting of an inner metallic pipe inclosing the wires, an outer tube of porous earthenware and an intermediate layer of asphaltum, substantially as described. 2nd. An electric conduit pipe, consisting of an inner metallic pipe inclosing the wires, an outer tube of porous earthenware treated with asphaltum, and an intermediate layer of asphaltum, substantially as described. 3rd. An underground electric conduit, consisting of a number of pipes laid together, each pipe consisting of an inner metal pipe inclosing the wires, an outer porous earthenware tube treated with asphaltum, and an intermediate layer of asphaltum, and the junctions of all being insulated, substantially as described.

No. 40,026. Electric Arc Lamp.

(*Lampe électrique à arc.*)

Samuel Pleasants Parnly, Chicago, Illinois, U. S. A., 25th August, 1892; 6 years.

Claim.—1st. A multiple carbon lamp, one of whose electrodes is composed of a single strip or sheet, and the other of two or more distinct carbon pencils having a greater or less resistance between them. 2nd. A multiple carbon lamp, whose electrodes are composed, one of a single strip or sheet, and the other of two or more distinct and separate carbon pencils. 3rd. A multiple carbon lamp, whose electrodes are composed, one of a single sheet or strip, and the other of two distinct and separated carbon pencils. 4th. A mul-

multiple carbon lamp having two or more electrodes composed each of a single sheet or strip and two or more opposed electrodes composed each of two or more pencils. 5th. A multiple carbon lamp, whose negative electrode is composed of a thin strip or sheet, and whose positive electrode is composed of two or more pencils, the strip having one diameter substantially equal to the diameter of each of the pencils, and another diameter substantially equal to the distance between the outside edges of the outer carbon pencils.

No. 40,027. Method of Treating Soap Lye.

(*Traitement des lessives de savon.*)

James S. Kirk & Company, assignee of Ebenezer Kenward Mitting, all of Chicago, Illinois, U.S.A., 24th August, 1892; 6 years.

Claim.—1st. The treatment of precipitates formed in the recovery of glycerine from spent soap lye, and containing metals or metallic salts, which consists in adding thereto acid to dissolve the metallic portion and separate the fatty portion, and then adding to the metallic solution an alkali to precipitate hydrated oxides, as described. 2nd. The treatment of precipitates formed in the recovery of glycerine from spent soap lye, and containing metals or metallic salts, which consists in adding thereto acid to dissolve the metallic portion and separate the fatty portion, and then adding to the metallic solution an alkali to precipitate hydrated oxides, and introducing the emulsion thus formed into a fresh portion of spent lye to be purified, as described.

No. 40,028. Method of Treating Soap Lye.

(*Traitement des lessives de savon.*)

James S. Kirk & Company, assignee of Ebenezer Kenward Mitting, all of Chicago, Illinois, U.S.A., 25th August, 1892; 6 years.

Claim.—1st. In the process of recovering salt and glycerine from spent soap lye, the herein described improvement which consists, first, in adding lime to the lye and removing therefrom the precipitate thus formed, then boiling down without further treatment to the finishing point of about 300 degrees Fahrenheit, and then neutralizing with acid and removing the precipitate, substantially as specified. 2nd. The herein described improvement in the process of recovering salt and glycerine from spent soap lye, which consists in first adding lime to the lye and removing therefrom the precipitate thus formed, then concentrating or boiling down the lye until it is saturated or nearly saturated with salt, then again treating with lime and removing the precipitate, then boiling down without further treatment to the finishing point of about 300 degrees Fahrenheit, and then neutralizing with acid and removing the precipitate, substantially as described. 3rd. In the process of recovering salt and glycerine from spent soap lye, the herein described improvement, which consists in adding lime to the liquor, removing the precipitate thus formed, boiling down the liquor without further treatment to the finishing point, removing the salt thus produced either during or at the end of the operation, and finally purifying the salt by washing with a solution of common salt rendered alkaline by the addition of a small percentage of caustic or carbonated alkali, substantially as specified. 4th. The herein described improvement in the process of recovering salt and glycerine from spent soap lye, which consists in adding lime to the lye, removing the precipitate thus formed, concentrating or boiling down the lye until it is saturated or nearly saturated with salt, then again treating with lime and removing the precipitate, then boiling down the lye without further treatment to the finishing point, removing the salt thus produced either during or at the end of the operation, and finally purifying the salt by washing with a solution of common salt which has been rendered alkaline by the addition of a small percentage of caustic or carbonated alkali, substantially as described.

No. 40,029. Lifting Jack. (Cric.)

Charles Albert Hooker and Willis Hatch, both of Bath, Maine, U.S.A., 25th August, 1892; 6 years.

Claim.—1st. In a lifting jack, the combination, with the bed plate and lifting head and a right and left handed screws shaft, of four toggle levers connected in pairs and operated by nuts carried by said screw shaft, each of said toggle levers being provided at the end opposite to the knuckle joint with two separate bearing edges adapted to successively engage corresponding transverse grooves in the bed or lifting head, the inner bearing edge being located at a greater distance from the centre or knuckle joint than the outer bearing edge, whereby the said two bearing edges are caused to take the weight of the load in succession, and thereby increase the upward movement of the lifting head as the toggle levers are straightened and reduce the acuteness of the angle at the knuckle joints when the toggles are at the lowest point, substantially as set forth. 2nd. In a lifting jack, the combination, with the bed plate A, lifting head B, and the left and right handed screw shaft D, of the toggle levers connected in pairs and operated by nuts carried by said screw shaft, said levers being provided with bearing edges engaging with transverse grooves in the bed plate and lifting head, and pivoted straps *m*, for securing the ends of the levers to the said bed plate and lifting head, substantially as set forth. 3rd. In a lifting jack, the combination, with the bed plate A, lifting head B, and the right and left handed screw shaft D, of the toggle levers C, connected in pairs and operated by nuts carried by said screw

shaft, said levers being provided with bearing edges *g, h*, adapted to engage with transverse grooves *k, l*, in the bed plate and lifting head, and being connected with said bed plate and lifting head by pivoted straps *m*, and the vertical guides C, *r*, arranged between the two pairs of toggle levers, all constructed and arranged to operate substantially in the manner and for the purpose described. 4th. In a lifting jack, the combination, with the bed plate A, lifting head B, and the right and left handed screw shaft D, of the nuts E, E', provided with trunnions *a*, the toggle levers C, grooved at their joints to fit upon opposite sides of the trunnions *a*, and having apertures *e* for the nuts, said levers being connected together by pivoted straps *b, b'*, having apertures *e*, and fitting over studs *d*, projecting from the ends of the trunnions *a*, and the pivoted straps *m*, connecting the toggle levers with the bed plate A, and lifting head B, all constructed to operate substantially in the manner and for the purpose set forth.

No. 40,030. Sash Balance. (Contrepoids de croisée.)

Byron Henry Rose, Rochester, New York, U.S.A., 25th August, 1892; 6 years.

Claim. In a sash balance, the combination of the case A, provided with the side plates *b, b'*, the spring drum B, turning on a rivet therein and provided with the projecting rim *d*, the cover E, fitted loosely between the side plates inclosing the drum and resting against its rim *d*, and the spring G, interposed between the cover and the side plate of the case for forcing the cover against the rim of the drum, as herein shown and described.

No. 40,031. Cock for Gas. (Robinet à gaz.)

Joseph Clark, San Francisco, California, U.S.A., 25th August, 1892; 6 years.

Claim.—1st. The combination with the body and plug of a cock, of a catch carried by and moving at an angle to the thumb piece of the plug and constructed and arranged to engage the inner wall of the opening in the body in which the plug works, as set forth. 2nd. The combination with the body and plug of a cock, of a catch seated in a radial slot in the plug and yieldingly pressed outwardly from the plug, to automatically engage a groove in the inner wall of the opening in the body in which the plug works, as set forth. 3rd. The combination with the body and plug of a cock, of a catch mounted for diametrical movement in the plug and yieldingly pressed outward at an angle to the thumb piece thereof to engage with a groove in the inner wall of the opening in the body in which the plug works, as set forth. 4th. The combination with the body and plug of a cock, of a catch seated in the plug and having integral spring portion held at one end in the plug and with the bend providing for radial movement of the catch, as set forth. 5th. The combination with the body and plug of a cock, of a catch and of a spring having a bend at its inner end and provided for an automatic radial movement of the catcher, substantially as specified.

No. 40,032. Injector for Steam and Air.

(*Injecteur à air et à vapeur.*)

Frederick Leadbeater, Detroit, Michigan, U.S.A., 25th August, 1892; 6 years.

Claim.—1st. In a steam and air injector for locomotives, the combination with the wall of the ash-pit of the locomotive having an inlet passage therethrough, of a steam pipe to deliver steam to the ash-pit and drive an air supply thereto through said passage, said steam pipe communicating with the steam space of the boiler and steam space of the injector, substantially as described. 2nd. In a steam and air injector for locomotives, the combination with the wall of the ash-pit of the locomotive having an inlet passage therethrough, of a steam pipe set outward and spaced from said wall to deliver steam to the ash-pit and drive an air supply thereto through said passage, said steam pipe communicating with the steam space of the boiler and provided with a controlling valve, substantially as described. 3rd. In a steam and air injector for locomotives, the combination with the wall of the ash-pit of the locomotive having an inlet passage therein, and a steam pipe communicating through said passage into the ash-pit, and with the steam space of the boiler, and a controlling valve in the steam pipe, said steam pipe delivering steam through the side wall of the ash-pit and forcing therewith an air supply laterally into the ash-pit and crosswise of the grate, substantially as described. 4th. In a steam and air injector for locomotives, the combination with the side wall of the ash-pit of the locomotive having an inlet passage therein, of a box shaped to correspond to said orifice having its sides projecting through the wall of the ash-pit, and a steam pipe communicating through the box into the ash-pit, and with the steam space of the boiler, and a controlling valve in the steam pipe, said steam pipe delivering steam through the side wall of the ash-pit and forcing therewith an air supply laterally into the ash-pit and crosswise of the grate, substantially as described. 5th. In a steam and air injector for locomotives, the combination with the wall of the ash-pit of the locomotive having an inlet passage therein, of a box shaped to correspond to said orifice, brackets located at the ends of the box, a steam pipe engaged with said brackets communicating through the box into the ash-pit and with the steam space of the boiler, and a controlling valve located in said steam pipe in proximity to the cab of the locomotive, said steam pipe extending longitudinally of the

box exterior thereto, and spaced from its outer edge, substantially as described. 6th. In a steam and air injector for locomotives, the combination with one of the walls of the ash-pit of the locomotive, having one or more orifices therethrough, of a steam pipe located adjacent to the orifice to deliver steam therethrough to the ash-pit and carry an air supply through said orifices to the ash-pit, said steam pipe set outward and spaced from the wall of the ash-pit and made adjustable to and from said wall, substantially as described. 7th. In a steam and air injector for locomotives, the combination with the wall of the ash-pit of the locomotive having an inlet passage therein, of a box shaped to correspond to said orifice, brackets located at the ends of the box, a steam pipe engaged with said brackets communicating through the box into the ash-pit and with the steam space of the boiler, and a controlling valve located in said steam pipe in proximity to the cab of the locomotive, said steam pipe extending longitudinally of the box and spaced from its outer edge, the extremities of the pipe adjustable in said brackets nearer to and further from the wall of the ash-pit, substantially as described.

No. 40.003. Electric Controller.

(*Contrôleur électrique.*)

Henry A. Voelkner, Detroit, Michigan, U.S.A., 25th August, 1892; 6 years.

Claim. 1st. An ampere-volt potential controller having in combination with the main electrical circuit a resistance coil A divided in sections, a switch board B with which said sections are connected, a lamp in said circuit, a terminal leading from the switch board to lead the current therefrom to the patient, and an additional terminal of opposite polarity closing the circuit when the transformer is in use, substantially as described. 2nd. An ampere-volt potential controller having in combination with a main electrical circuit, a series of lamps, a switch to cut certain of said lamps in or out of the circuit, a resistance coil A divided in sections, a switch board B with which said sections are connected, a terminal leading from the switch board B to lead the current therefrom to the patient, and an additional terminal of opposite polarity closing the circuit when the transformer is in use substantially as described. 3rd. An ampere-volt potential controller having in combination with a main electrical circuit, a lamp in said circuit, a resistance coil A divided in sections, a switch board with which the sections of the coil connected, a terminal to lead the current from said switch board to the patient, an additional terminal conductor of opposite polarity closing the circuit when the transformer is in use, and a meter and switch interposed in said later terminal conductor, substantially as described. 4th. In an ampere-volt potential controller the combination with a main electrical circuit of a resistance coil divided in sections and a switch board with which each of said sections is connected, substantially as described. 5th. In an ampere-volt potential controller the combination with a main electrical circuit of a resistance coil, and a lamp always in circuit with said main electrical circuit, substantially as described.

No. 40.034. Bicycle. (*Bicycle.*)

Siegmund Orbach, Königshof, Bohemia, Empire of Austria, Hungary, 25th August, 1892; 6 years.

Claim. 1st. A bicycle with high front wheel in which the pedal cranks are mounted on axle journals *i*, located behind the axle of the front wheel and coupled with the latter by an endless chain, the bearings *l* of said journals *i*, being fitted so as to be adjustable on a frame *b, c, d*, surrounding the rear part of the front wheel and capable of rotation about the axle of the wheel, said frame being adjustably connected with the fork of the front wheel by means of the lateral rods *g*, in such a manner, that the said frame can be raised or lowered toward the saddle arranged in the rear of the front wheel, substantially as described and shown. 2nd. In bicycles having the construction specified in the foregoing claim, the arrangement of the steering bar (*a*) upon a pin *u*, fixed on the backbone *t*, of the bicycle, the transmission of the motion of the steering bar to the front wheel being effected either by means of the parallel rods *e*, and *e'*, of which one is fastened to the pin *u*, and the other to the fork head *g*, and which are connected with each other by wires or chains, or by means of chain wheel segments *e*, and *e'*, connected by a chain *x* directly upon the fork head *g*, in which case the arms of the steering bar are either bent rearwards to the front of the saddle, or are provided with handle *h*, attached to them and suitably bent rearward; (*v*) upon an arm *s'*, all substantially as described and shown.

No. 40.035. Electrical Medical Apparatus.

(*Appareil médical électrique.*)

Josephus C. Chambers, Detroit, Michigan, U.S.A., 25th August, 1892; 6 years.

Claim.—1st. In an apparatus of the kind described, the combination, with a standard, of the curved arm I, adjustably connected to the standard, cross arms on the end of the arm, a spring joint connecting the same, contact cushions on the cross arms, and a brace *l* below the arm, substantially as described. 2nd. In an apparatus of the kind described, the combination, with a vertical standard, of an arm J, adjustably secured thereon, a cup on the arm, formed of insulated material, a terminal *j* 2 in the bottom thereof, a button on the terminal, and means for supplying a current to the terminal,

substantially as described. 3rd. In an apparatus of the kind described, a standard, the horizontal arms H 2, H 3, adjustably secured thereon, contact cushions adjustably secured on the arms, the curved arm I, having cross arms yieldingly connected therewith, the arm J, having cross arms, an electric light on one and an insulated cup on the other cross arm, and means for supplying an electric current to the several points, substantially as described. 4th. In an apparatus of the kind described, the combination, with a battery and induction coil, of a motor to regulate the impulses, consisting of magnets, a revolving armature, a worm gear, a gear wheel having laterally projecting pins on its sides of varying length, and contact springs for engaging the projections, substantially as described. 5th. In an apparatus of the kind described, the combination, with the standard and arms, of insulated split rings surrounding the standard and supporting the arms, and set screws for drawing the split ends of the rings together, substantially as described. 6th. In an electrical medical apparatus, the combination, with the terminals for local application, of an induction coil consisting of a primary coil in circuit with a battery, and a series of secondary coils receiving induced currents from the primary coil, means for regulating the impulses, and switches between the connections of the terminals and respective coils, whereby currents of different strengths may be utilized, substantially as described. 7th. In an apparatus of the kind described, the combination, with the terminals for local application, of a primary coil, a battery, one or more secondary coils receiving induced currents from the primary coil, a motor for regulating the impulses, and suitable switches, substantially as described. 8th. In an electric medical apparatus, the combination, with the terminals for local application, of an induction coil, consisting of a primary coil in circuit with a battery, and a series of secondary coils receiving induced currents from the primary coil, connections between the primary and secondary coils, and switches between the respective coils and the terminal connections, substantially as described. 9th. In an apparatus of the kind described, the combination, with a standard, of a movable arm I, provided with adjustable contact cushions, substantially as set forth. 10th. In an apparatus of the kind described, the combination, with a supporting standard, of an arm J, provided with an insulated cup, said cup provided with a terminal, substantially as described. 11th. In an apparatus of the kind described, the combination, with a supporting standard of arms H 2, H 3, provided with contact cushions, substantially as described. 12th. In an apparatus of the kind described, the combination, of a battery, a switch board having contact posts Q, q, R, r, S, S', T, t, motor 7, and posts T¹, T 2, T 3, and contact springs *t*, *t'*, *t* 2, electrically connected with said posts, substantially as described. 13th. In an apparatus of the nature described, the combination, with a supporting standard of foot rests *h, h*, constructed and arranged to furnish electrical contact to the bottom of the feet, substantially as described. 14th. In an apparatus of the nature described, the combination, of a cabinet, a switch board, arms H 2, H 3, provided with contact cushions, an arm I, provided with contact cushions, said cushions provided with means of electrical connection therewith, substantially as described.

No. 40.036. Combined Penholder and Blotter.

(*Porte-plume et bavoir combinés.*)

Ferdinand Von Eulenfeld, Breslau, Silesia, Germany, 25th August, 1892; 6 years.

Claim. A penholder having a cylindrical bearing *b*¹, screw threaded at its end, in combination, with a blotting cylinder *a*, mounted to revolve on said bearing and a retaining device, such as a nut *c*, screwed to the end of the bearing, substantially as described and shown.

No. 40.037. Stagings. (*Echafaudages.*)

Charles Albert Dodge, Boston, Massachusetts, U.S.A., 25th August, 1892; 6 years.

Claim. 1st. The combination, of the standards A, B, as described, with the put log D, posts *e, f*, and cross bar *g*, and with the pins *k, k'*, substantially as and for the purpose described. 2nd. The combination, of the standards A, B, with the put log D, and jack beam J, inserted between the parts *a*, of the standards, said jack beam being adapted to be moved vertically upwards beneath the put log and reprimed in a new place as desired, and with the jacks *j*, all operating together, substantially as and for the purpose described. 3rd. The combination, of the standards A, B, with the put log D, placed between them and carrying the bench supports *e, f, g*, the edge of the post *e*, of which rests against the edge of standard *a*, and with the pins *k, k'*, arranged and operating, in combination, with said standard A, substantially as and for the purpose described.

No. 40.038. Stopper for Bottles.

(*Bouchon pour bouteilles.*)

George French Atwood, Malden, Massachusetts, U.S.A., 25th August, 1892; 6 years.

Claim.—1st. A bottle stopper formed of cork or other suitable material, and provided with a button C, and lifting cord or wire B, substantially as specified. 2nd. A bottle stopper of cork or other suitable material, provided with a button C, and lifting cord or wire B, constructed, arranged and attached together, substantially as specified.

No. 40,039. Automatic Vending Apparatus.*(Appareil automatique de vente.)*

Thomas Curran Kirkham, Highland Creek, Ontario, Canada, 25th August, 1892; 6 years.

Claim.—1st. An automatic vending apparatus consisting of a suitable casing having a hopper near the rear thereof, a weight or spring operated slide passing beneath said hopper having an aperture through which the articles in the hopper may pass, a raised portion at the rear of said hopper and a stop to limit its action, a clutch holding the said slide adapted to be raised by a coin held in a slot in said slide, slides or chutes to receive the coin and deliver the articles, substantially as set forth. 2nd. In an automatic vending apparatus, the combination, with a suitable casing having a hopper near its rear, of the slide C passing beneath said hopper, a handle D, raised portion E, stop c, cord F, pulley f, weight G, the aperture d, the recesses L having a square shoulder l, the clutch K journaled in said casing, having fingers k, the upturned central portion M, the spring catch N, substantially as set forth. 3rd. In an automatic vending apparatus, the combination, with a slide for pulling the articles into a chute for delivery, of the slot j placed vertically under a similar slot in the casing, the shelf J, the chute O, and the chamber or receptacle P, substantially as set forth. 4th. An automatic vending apparatus, the combination, with a casing having a slide and mechanism for operating said slide, and chute for delivery, of the hopper B formed near the rear of said casing, ledges b formed at the bottom of said hopper, and front G, stops g, substantially as set forth.

No. 40,040. Gate. (Barrière.)

William Chambers, St. Clairsville, Ohio, U.S.A., 25th August, 1892; 6 years.

Claim.—1st. In a gate, a latch post, having a pillow, a hinge post, and a folding gate hinged thereto, combined with a truss rod linked to the upper end of the hinge post and connected to the free end of the gate and means for deflecting this truss rod from a straight line, as and for the purpose set forth. 2nd. In a gate, a latch post having a pillow, a hinge post having a lower plain eye and an upper slotted eye, and a gate having pins on its inner batten pivotally mounted in said eyes, combined with a truss rod linked to the upper end of the hinge post, a clevis on said rod, and pins on the gate with which said clevis adjustably engages, as and for the purpose set forth. 3rd. In a gate, a latch post having a pillow, a hinge post, a gate hinged thereto, and a bevel faced latch on the gate engaging said latch post combined with a truss rod linked to the upper end of the hinge post and connected to the free end of the gate, connections between said latch and truss rod for locking the latch, a clevis on the truss rod and pins on the gate with which said clevis adjustably engages, substantially as described. 4th. In a gate, a latch post, a hinge post, a folding gate hinged thereto, and a truss rod linked to the upper end of the hinge post and connected to the free end of the gate, combined with a latch on the gate adapted to engage the latch post, and connections between said latch and truss rod, substantially as described. 5th. In a gate, a double membered latch post, a hinged post, a folding gate hinged thereto, a truss rod in two members connected to the lower outer corner of the gate, passing up alongside its panels, and engaging an eye at the upper end of the hinge post, and means for adjusting the distance between the ends of this truss rod, combined with a latch having a double bevelled face adapted to engage between said members of the latch post, and connections between the truss rod and latch whereby the tension of former normally shoots the latter, as and for the purpose set forth. 6th. In a gate, a double latch post, a hinge post, and a gate comprising double inner battens hinged to the hinge post, double outer battens, and panels pivotally connecting said battens, combined with a latch sliding between the outer battens and adapted to pass between the members of the latch post, a rock shaft journaled through the gate, operating levers on the ends of said shaft, a tongue also on said shaft engaging a notch in the latch, and means for throwing the latch forward by the weight of the gate, substantially as described. 7th. In a gate, a double latch post, a hinge post, a folding gate hinged thereto, and a truss rod supporting the outer end of the gate, combined with a latch moving through the outer batten of the gate, a rock shaft journaled through said batten and having operating levers, a tongue on said shaft engaging a notch in the latch, an arm on said shaft, and a link connecting the arm with the truss rod whereby the latch is normally thrown forward by the weight of the gate, substantially as described. 8th. In a gate, a latch post, a hinge post, a folding gate hinged thereto, a truss rod supporting the outer end of the gate, a pillow on the latch post on which said outer end rests, and means for shortening the distance between the ends of the said truss rod, combined with a latch moving through the outer batten, a rock shaft for operating said latch, an arm on said shaft, and a link connecting the arm with the truss rod, as and for the purpose set forth. 9th. In a gate, a latch post having a pillow whose ends are bevelled, a hinge post, and a folding gate hinged thereto, combined with a truss rod linked to the upper end of the hinge post in rear of the hinge line and connected to the free end of the gate, and means for deflecting this truss rod from a straight line, as and for the purpose set forth. 10th. In a gate, a latch post, a folding gate hinged thereto, and a truss rod linked to the upper end of the hinge post and connected with a latch on the

gate adapted to engage the latch post, connections between truss rod and latch for automatically shooting the latter, and means for deflecting the truss rod independently of said connections, substantially as described.

No. 40,041. Thill Coupler. (Armon de limonière.)

Lewis A. Batty, Palmerston, Ontario, Canada, 25th August, 1892; 6 years.

Claim.—1st. The combination, with a thill coupling, of a spring, one end being inserted between the end of the thill iron and trip, the other end to the thill or shafts, substantially as and for the purpose specified. 2nd. A spring E, having one end inserted between the thill iron and clip, and its other end connected to the shaft F by a loop H, ring G, and eye A, substantially as and for the purpose specified.

No. 40,042. Catch Basin for Sewers.*(Bassin d'attrape pour égouts.)*

Joseph Watson Hersherberger, Plymouth, Pennsylvania, U.S.A., 25th August, 1892; 6 years.

Claim.—1st. A catch basin for sewers, having a gutter in its wall at its upper end, provided with an inclined floor, and a discharge pipe leading from the lowest point of the floor of said gutter. 2nd. A catch basin for sewers, having a gutter in its wall near the upper end of the same, and a ring on the under side of its top arranged concentrically within the said gutter. 3rd. A catch basin for sewers, having a discharge pipe leading from its side near the top thereof and provided with a siphon having one member normally held on the under side of its top, and its other members passing through the side of the basin and connecting with the discharge pipe, and a hinge joint connecting the members of the siphon.

No. 40,043. Hand Winch for Ship Masts.*(Treuil à main pour mâts de navires.)*

Franz Uhlig, Topkowitz, Bodenbach, Bohemia, Austria, 25th August, 1892; 6 years.

Claim.—1st. A device for raising and lowering shipmasts, consisting of a shaft carrying a worm operated by a hand crank or hand wheel, said worm gearing in a worm wheel which is fast upon the axle of a chain drum, chains secured to the lower end of the mast and to said chain drums, and a double lever journaled upon the chain drum axle and bearing with one end on the lower end of the mast and having the other end weighted, substantially as set forth. 2nd. The combination of a vertical shaft i journaled to one side of the mast stocks and provided with a worm s, and bevel pinion c¹, a cross shaft z adapted to be operated by crank or wheel and carrying a bevel pinion c gearing in the pinion c¹, an axle w journaled at the foot of the mast stocks and provided with chain drums k, and worm wheel d gearing in said worm, chain k¹ connecting the lower end of the mast and the chain drums, and the double lever h journaled upon the axle w, and carrying a weight at one end and having its other end bearing against the lower end of the mast, substantially as set forth. 3rd. The combination of the mast m, provided with trunnions a, mast stocks l, l¹, provided with bearings g receiving said trunnions, brackets c secured to said stocks, an axle w journaled in said brackets and carrying chain drums k and worm wheel d, brackets o and o¹ secured to said stocks, a vertical shaft i journaled in said brackets and carrying a worm s, and means of operating said shaft, substantially as set forth. 4th. The combination of the mast m pivoted to mast stocks, the mast stocks l, l¹, carrying said mast pivotally, brackets c secured to the lower end of the mast stocks, an axle w journaled in said brackets, chain drums k secured upon said shaft, chains k¹ connecting the lower end of the mast and the chain drums, and the lever h journaled upon said shaft and having one end weighted and the other bearing against the lower end of the mast, substantially as set forth.

No. 40,044. Sheet Metal Can. (Boîte métallique.)

Thomas Burns Hidden, Short Hills, New Jersey, U. S. A., 25th August, 1892; 6 years.

Claim.—The combination, with the body A, and cover B, of the soldered sealing strip C, having a corrugated or roughened part e, to facilitate the removal of said strip from said body and cover, substantially as and for the purpose herein set forth.

No. 40,045. Stove. (Poêle.)

Lewis T. Wilcox, Jackson, Michigan, U. S. A., 25th August, 1892; 6 years.

Claim.—1st. In a stove, comprising a base and top hinged thereto, of an oil tank in said base, an oil supply aperture for said tank located immediately in front of the hinge, whereby the tank cannot be filled while the fire is lit, substantially as described. 2nd. In a stove, the combination, with the oil tank of a screw threaded supply nozzle, an aperture at the base thereof, a flange q around said nozzle forming a well r, and a cap t, substantially as described. 3rd. In a stove, the combination, with an oil tank and its supply nozzle, of the downwardly projecting inclined flange r¹ within the nozzle, substantially as and for the purpose described. 4th. In a stove, a

wick tube having an auxiliary oil well formed by an enlargement at the base, substantially as described. 5th. In a stove, a wick tube, having a series of enlargements *i*, formed around the base thereof arranged below the oil tank, substantially as described. 6th. In a stove, the combination, with the wick tube, of the sleeve *j*, and the clamping spring *o*, substantially as described. 7th. In a stove, the combination, with the wick tube, of the sleeve *j*, provided with lip *j'*, the clamping spring *o*, and wick *o'*, substantially as described. 8th. In a stove, the combination, with the wick tube, having the off-set *n*, the sleeve *j*, having rack bar *k* adapted to move in said off-set, the clamping spring *o*, and wick *o'*, substantially as described. 9th. In a stove, the combination, with the base and burner, of the top having a combustion chamber, a central air flue within said combustion chamber, and an outer air flue in contact with the walls of the combustion chamber, substantially as described. 10th. In a stove, the combination, with a circular combustion chamber, of a central air flue within said combustion chamber, and an outer annular air flue in contact with the walls of the combustion chamber, substantially as described. 11th. In a stove, the combination, with the base, having a wick tube, air passages beside said wick tube, and the central flue, of the top having a combustion chamber, a central flue and an outer flue above in contact with the walls of the combustion chamber, substantially as described. 12th. In a stove, the combination, with the base, having a wick tube, a central air tube, and the chamber *d*, of the top having the combustion chamber, and the air flues *P*¹, and *R*² in contact with said combustion chamber, substantially as described. 13th. In a stove, the combination, with the annular combustion chamber, and the air flues *R*² and *P*¹ in contact with said combustion chamber, of a gas burner within said combustion chamber near the base, and the partitions *U*³ above the burner, substantially as and for the purpose described. 14th. In a stove, the combination, with the combustion chamber *R*¹, of the annular partitions *U*³, substantially as described. 15th. In a stove, the combination, with the annular combustion chamber *R*¹, of the annular partitions *U*³ held in place by means of grooves formed in the side walls of said combustion chamber, substantially as described. 16th. In a stove, the combination with the combustion chamber, communicating with the top and with the pipe *T*, of the plate *S*, having apertures *S*¹ and damper *S*², operating substantially as described. 17th. In a stove, the combination with the annular combustion chamber, of the perforated top *u* therefor, the correspondingly perforated damper, the exit pipe *T* communicating with said combustion chamber, and a damper *T*¹ having the shaft *U* and the crank *U*¹ connected with and operated by the handle *S*² of the damper *S*², substantially as and for the purpose described. 18th. In a stove, the top *R*, consisting of the perforated top casting *u* having the inwardly projecting arms *u*², and the perforated top cover *u*¹, the parts constructed substantially as and for the purpose described. 19th. In a stove, the combination of the following elements: a base casting *B*¹, the casing *B*², the annular top rim *B*³, the downwardly projecting brackets *C*, and the oil tank supported thereon, substantially as and for the purpose described. 20th. In a stove, an oil tank provided with a circular wick tube, the outer section of the wick tube extending upwardly from the top of said oil tank, and the inner section of the wick tube connected with the bottom of said oil tank, and forming the inner side wall of said oil tank, with air passages on either side of the wick tube and tank, substantially as described.

No. 40,046. Hub Boring Machine.

(*Machine à percer les moyeux.*)

Alfred Bonner and Thomas Jefferson Champion, both of Paulding, Ohio, U.S.A., 25th August, 1892; 6 years.

Claim.—1st. In a hub boring machine, the combination of a face plate a series of friction rollers, a threaded shaft engaging the face plate, a friction pulley carried by the said shaft, a cutter, and mechanism for throwing the friction rollers into and out of contact with the pulley on the threaded shaft, whereby the face plate will be caused to move to and from the cutter. 2nd. In a hub boring machine, a face plate having vertically adjustable wheel supports, means for clamping the wheel to the said plate, and a rest, in combination with a threaded shaft engaging the face plate, a series of friction rollers, a friction pulley carried by the shaft, a cutter, and mechanism for throwing the friction rollers into and out of contact with the said pulley to move the face plate to and from the said cutter. 3rd. In a hub boring machine, the combination of a revolvable cutter, a face plate, a threaded shaft engaging the same, one portion of which is free from threads and carries a spring, and mechanism for revolving the shaft to cause the face plate to move and from the said cutter.

No. 40,047. Machinery for Elevating and Transporting Freight. (*Machine pour élever et transporter les marchandises.*)

Joseph Ambrose Russell, assignee of William Henderson Russell, both of Vancouver, British Columbia, Canada, 25th August, 1892; 6 years.

Claim.—1st. In a freight elevating and transporting apparatus, the combination of an elevator, consisting of a frame having journaled near its ends sprocket wheel drums and a series of friction rollers between said drums, endless pitch chains running over said

drums and friction rollers, skeleton tables or brackets pivoted on said chains and a conveyor constructed in sections hinged together and to said elevator, each consisting of a frame having journaled near each end a drum and a series of friction rollers at intervals between said drums, an endless apron running over said drums and friction rollers, removable guard rails forming the sides of a channel of which the apron is the bottom, an extra friction roller at the end of the intermediate sections, and of special transmitting mechanism at the receiving end of the first section, and driving gear connecting the moving parts, substantially as set forth. 2nd. In an elevator, comprised in a freight elevating and transporting apparatus, the combination of the frame *A*, *A*¹, bearings *b* held in said frame, one pair being adjustable by means of rods *b*¹, and clamps *b*¹¹, drums *B*, with sprocket teeth journaled in said bearings and one of them provided with driving pulleys, friction rollers *a* journaled in said frame, endless chains *C*, having eyelets *C*¹, running over said drums and rollers, skeleton tables *D* pintled into said eyelets, substantially as set forth. 3rd. The combination of the rails *A*, and cross pieces *A*¹, forming a frame adapted to support journal bearings, the bearings *b* held between the rails on each side, the rods *b*¹ secured to the lower bearings and the clamps *b*¹¹ securing said rods, the cross bars *a*¹¹ secured to the frame sides *A*, and the guard rails *A*¹¹ secured to said cross bars, substantially as set forth. 4th. The combination of the elevator frame *A*, *A*¹, adapted to have journaled in it drums driving an endless chain with lifting appliances, a hinge plate *A*¹¹ in the upper end of said frame, and a conveyor frame having a hinged plate *A*⁴, pivotally connected to the hinge plate *A*¹¹, substantially as set forth. 5th. In a conveyor, comprised in a freight elevating and transporting apparatus, the combination of a frame consisting of two pairs of parallel side rails *A*, secured to cross pieces *A*¹, bearings *b* held in the sides of said frames, and one pair at least adjustably, drums *B*¹ journaled in said bearings and one of them carrying driving pulleys, friction rollers *a* journaled on said frame, an endless apron *E* running over said drums and friction rollers, guard rails *F*, *f* removably secured to the upper rail of the frame, and a friction roller *E*¹, journaled in brackets *e*¹ at the rear end of each frame, substantially as set forth. 6th. In a conveyor, comprised in a freight elevating and transporting apparatus, the combination of a frame consisting of two pairs of parallel rails *A* secured to cross pieces *A*¹, hinge plates *A*⁴ at the ends of the frame, three pairs of journal bearings *b*, two of which at least are adjustable, and one pair being at the rear end and two pairs some distance from the front end, two drums *B*¹ journaled in the rear bearings, friction rollers *a* journaled between said drums, an endless apron *E* running over said drums and friction rollers, an axle *g* journaled in the front pair of bearings near the front apron drum and having secured upon it at intervals chain pulleys *G*, parallel bars *g*¹, forming parts of brackets *g*¹¹ secured below, and small chain pulleys (*G*¹) journaled in said bars, and connected to the pulleys *G*, by chains (*G*¹¹), substantially as set forth. 7th. In a lifting bracket or skeleton table, the combination of arms or prongs *D*, on a cross bar *d*, and shorter arms *D*¹ on a cross bar *d*¹, placed some distance below, the short arms pivotally connected with the upper ones and forming an angle therewith, and both cross bars having pintles *d*¹¹ adapted to engage eyelets on a chain, substantially as set forth.

No. 40,048. Heating System. (*Système de chauffage.*)

Joseph H. Griffith and James T. Espy, both of Camonsburg, Pennsylvania, U.S.A., 25th August, 1892; 6 years.

Claim.—1st. The heating system comprising the radiator or heater on a floor having a series of heat radiating tubes closed at their inner ends and open at their outer ends, and having pipe connections with a flue leading from the lower floor and a damper or slide arranged in said flue at a point above the lower one of said pipe connections, substantially as set forth. 2nd. The heating system comprising the radiator or heater having a series of heat radiating tubes closed at their inner ends and open at their outer or forward ends and extending through and just beyond its front plate, said radiator or heater having pipe connections with the upper room flue, which leads from the flue of the fire place below, and the damper or slide arranged at a point above the lower pipe connections, substantially as described.

No. 40,049. Electro Medical Apparatus.

(*Appareil électro-médical.*)

Thomas C. Hodgkinson and Henry Thomas Tompsitt, both of Melbourne, Victoria, Australia, 25th August, 1892; 6 years.

Claim.—1st. A combined electro medical apparatus consisting of contact plates, contact plates holder, coil adjustable commutator and battery, substantially as described and shown for the purpose set forth. 2nd. In an electro medical apparatus, the combination of fixed smooth contact plates with the intensity coil commutator for the adjustment of strengths and battery, substantially as described and shown for the purpose set forth. 3rd. In an electro medical apparatus, the smooth contact plates as distinguished from any form of metallic bristles, substantially as described and shown for the purpose set forth. 4th. In an electro medical apparatus, the combination with an intensity coil adjustable commutator and smooth contact plates of a battery either primary or secondary forming the handle of the apparatus having a non-conducting outer casing and screwed plug and cap so arranged as to be replaceable or inter-

radially movable revolving live spindles F¹, and dead spindles I¹, a guide-rail for directing the movement of the spindles, and controlling the positions of the blanks with relation to the cutter, and an automatic feed for the blanks, the combination with the dead spindles, and the automatic feed of an extensible spring wing on each spindle, comprising a wing T, having an opening *x*, and secured thereat upon the spindle toward its outer end, a socket *f*, in one end of the wing, and a spring T², inserted at one end into the socket and fastened toward its opposite end, and a cam T¹, in the path of the wings T, substantially as and for the purpose set forth.

No. 40,055. Heating Apparatus for Street Cars.

(*Appareil de chauffage pour chars de rue.*)

Consolidated Car Heating Co., Wheeling, West Virginia, assignees of James Finney McElroy, Albany, New York, U.S.A., 25th August, 1892; 6 years.

Claim.—1st. In a car heating system, storage radiators forming a loop, of exit and inlet pipes connecting to the ends of said loop, and cross connecting pipes joining these pipes, substantially as described. 2nd. In a car heating system, storage radiators on each side of the car, each consisting of an upper tank, and two lower tanks connected at their outer ends to the upper tank, of exit and inlet pipes at the inner ends of the lower tanks respectively, cross connections between the exit and inlet pipes on opposite sides of the car and valves controlling the inlet and exit pipes outside the cross connections, substantially as described.

No. 40,056. Fire Extinguisher. (Extincteur d'incendie.)

Henry Augustus Mansfield, Bridgeport, Connecticut, U.S.A., 25th August, 1892; 6 years.

Claim.—1st. The combination with the outer liquid holding cylinder and a discharge pipe leading therefrom, of the screw-threaded cap adapted to fit the top of said cylinder, a valve stem extending downward through said cap, an air holding cylinder supported in the outer cylinder and provided with a valve and valve stem, and a removable connection between the upper and lower valve stems, substantially as set forth. 2nd. The combination with the outer cylinder and the cap at the top thereof, of the upper valve stem, the bracket depending from the cap, the inside cylinder engaged by and supported upon said bracket, an outlet valve at the top of the inner cylinder, and means, as a sleeve, for connecting the outer valve stem with the stem of the valve of the inside cylinder, substantially as specified. 3rd. The combination with the outer liquid holding cylinder having a valve stem at the top thereof, of an air holding cylinder, supported in said outer cylinder, a valve and valve stem for the control of the contents of the air holding cylinder, and a removable connection as a sleeve, engaging the ends of both valve stems and whereby the inner valve may be operated from without the outer cylinder, substantially as set forth. 4th. The combination with the outer liquid holding cylinder of a cap secured thereon, and a valve stem extending through said cap, a bracket open as to one side thereof depending from the said cap, and air holding cylinder having a valve and stem and a flanged upper end adapted to engage the bracket, and a coupling embracing the ends of the two valve stems, and whereby the lower stem may be rotated by the upper stem and the lower cylinder retained as against displacement on the bracket, substantially as set forth. 5th. In a fire extinguisher, the combination with the outer cylinder adapted to contain an extinguishing fluid, and provided with an outlet pipe, of the inner cylinder adapted to contain air or gas under pressure and provided with a valve leading to the outer cylinder, the handle and outer valve stem and connection, whereby the inner and outer valve stems are joined, substantially as set forth.

No. 40,057. Manufacture of Waterproof Paper.

(*Fabrication de papier impermeable a l'eau.*)

Walter Lockhart Jamieson and Frederick Carlyle Jamieson, both of Montreal, Quebec, Canada, 26th August, 1892; 6 years.

Claim.—1st. The composition for waterproofing paper consisting of gum asphaltum, bone pitch and rosin; boiled oil; driers; turpentine and benzine and rubber solution, substantially in the proportion herein set forth. 2nd. The herein described process of manufacturing waterproofing composition for paper by melting together gum asphaltum, bone pitch and rosin, adding thereto boiled oil and driers, cooling the mixture down to 250 degrees Fahr. introducing therein turpentine and benzine and finally adding thereto rubber solution, all as herein set forth.

No. 40,058. Dehoring Instruments.

(*Instrument pour decerner.*)

Stephen Smith Kimball, Montreal, Quebec, Canada, assignee of Harry Wesley Leavitt, of Hammond, Illinois, U.S.A., 26th August, 1892; 6 years.

Claim.—The combination of the U-shaped body A, formed with the longitudinal recesses B and recessed at its outer end to form the seat *a*, the removal blade C, curved to conform to the curved outer end of the body A and having the curved cutting edge, the frame pieces E, secured to the inner ends of the body A, the blade D, sliding in the recesses B, the pivoted hand levers and the straight

connecting links, G, pivotally connecting the inner end of the hand levers with the lower end of the sliding blade D, substantially as set forth.

No. 40,059. Toy Gun. (Fusil-jouet.)

William Mitchellmore Bunsen, Galesville, and Joseph W. Skinner, La Crosse, both of Wisconsin, U.S.A., 26th August, 1892; 6 years.

Claim.—1st. In a toy gun of the class described, the combination with the stock comprising the grip, the fore-arm, and the block having an inclined front face formed at the rear end of the fore-arm, the barrel hinged at its under side to the fore-arm and at its rear end adapted to close snugly against the block, the block and grip being provided with an air passage communicating with the barrel, and a tube connected at the rear end of the air passage and terminating in a mouth piece, of a spring wire loosely connected to the barrel, rearwardly extended under the grip, and terminating in a coil, and at its end forwardly disposed and secured to the grip of the gun, substantially as specified. 2nd. In a toy gun of the class described, the combination with the stock comprising the grip, the fore-arm, and the block having an inclined front face formed at the rear end of the fore-arm, the barrel hinged at its under side to the fore-arm and at its rear end adapted to close snugly against the block, the block and grip being provided with an air passage communicating with the barrel, and a tube connected at the rear end of the air passage and terminating in a mouth piece, of a yoke loosely embracing and pivoted to the rear end of the barrel, a spring wire loosely connected to the extended end of the yoke, rearwardly extended and terminating in a coil, and inwardly disposed and secured to the grip of the gun, substantially as specified. 3rd. In a toy gun of the class described, the combination with the stock comprising the butt, grip, fore-arm, and at its rear end the block 4, having a front inclined face, said block and stock being bored, as at 11, and at its rear end provided with a flexible tube 12, terminating in a mouth piece 13, of the barrel inclined at its rear end to fit the face of the block and having its bore communicating with that of the block and grip and provided upon its under side with an extension of the fore-arm, the hinge connecting the extension with the fore-arm, the elongated yoke 14, embracing the barrel and fore-arm and pivoted at 15 to diametrically opposite sides of the barrel, and the spring wire bent to form the grip extending parallel with the grip of the gun, having its front end terminating in an eye pivoted to the yoke and at its rear end coiled to form spring coils and beyond the same terminating in a point driven in the under side of the grip of the gun, substantially as specified. 4th. In a toy gun, the combination with the stock comprising the fore-arm and the block, of a barrel hinged to the fore-arm and adapted to close against the block, a pneumatic tube leading to the barrel, a yoke embracing the barrel and depending below the fore-arm, and a bowed spring having one end connected to the stock and the other to the yoke, substantially as specified.

No. 40,060. Cleaner for Boilers.

(*Nettoyeur de chaudières.*)

William Polley, Cortland, New York, U.S.A., 26th August, 1892; 6 years.

Claim.—1st. In a boiler cleaner, the combination, with the boiler and feed water pipe, of a series of pans comprising one or more retarder pans and a precipitate pan continuously connected together, one or more of said retarder pans provided with oppositely extending wings, and the precipitate pan provided with a blow off pipe and having located in its bottom an overflow, substantially as specified. 2nd. In a boiler cleaner, the combination, with the boiler and feed water pipe, of a series of pans comprising one or more retarder pans and a precipitate pan continuously connected together, one or more of said retarder pans provided with oppositely extending wings, and the precipitate pan provided with a blow off pipe and having a walled opening in the bottom thereof, which serves as an overflow for the water, substantially as specified. 3rd. In a boiler cleaner, the combination, with the boiler and feed water pipe, of a series of pans comprising one or more retarder pans and a precipitate pan continuously connected together, one or more of said retarder pans provided with oppositely extending wings, and the precipitate pan provided with a blow off pipe and having a walled opening in the bottom thereof, the wall being provided with an inwardly extending cap piece, whereby the overflow of water is prevented from flowing down the sides of said wall, substantially as specified. 4th. In a boiler cleaner, the combination, with a feed water pipe and a blow off pipe, of a series of pans continuously connected together, one or more of said pans provided with oppositely extending wings, and one of said pans with a walled opening in the bottom thereof, the wall being provided with an inwardly extending corrugated cap piece, whereby the water will be caused to flow through the channel portions of said cap and into the water space of the boiler without coming in contact with the sides of the wall, substantially as specified.

No. 40,061. Treatment of Plants.

(*Traitement des plantes.*)

Ivar Axel Ferdinand Bang and Marie Charles Alfred Ruffin, both of Paris, France, 26th August, 1892; 6 years.

Claim.—1st. The within described improvement for the protection

of plants from and curing them of diseases, consisting in diffusing naphthol upon them, substantially as herein set forth. 2nd. The within described improvement for the protection of plants from and curing them of diseases, consisting in diffusing naphthol upon them in the form of a naphtholate of an alkali, substantially as herein set forth.

No. 40,062. Construction of Boots and Shoes.

(*Fabrication de chaussures.*)

George Bryant, San Francisco, California, U. S. A., 26th August, 1892; 6 years.

Claim.—1st. A shoe having an inner sole and an outer sole, separated from each other except at the edges and having their top surfaces transversely grooved in parallel lines, substantially as herein described. 2nd. A shoe having an inner sole transversely grooved on its upper surface forward of its centre, and an outer sole separated from the inner sole except at the edges at which points the soles are united, said outer sole having its upper surface transversely grooved forward of the centre, and parallel with the grooves of the inner sole, substantially as herein described. 3rd. An improved shoe consisting of a plurality of soles lying one above the other and having their upper surfaces transversely grooved forward of the centre so as to give increased flexibility to the soles, substantially as herein described.

No. 40,063. Washing Machine. (*Machine à blanchir.*)

Hercule Fauteux, St. Cunegonde, Montreal, Quebec, Canada, 26th August, 1892; 6 years.

Claim.—In a washing machine, the combination of the tub A, having the corrugated bottom C, and corrugated sides D, with the pieces F, shaft H, connecting rods I and J, wheels K and L, pulleys O and P, pinion M, and crank N, substantially as described, and for the purposes set forth.

No. 40,064. Spark Arrester. (*Arrête-étincelle.*)

Henry C. Smith, Roanoke, Virginia, U. S. A., 26th August, 1892; 6 years.

Claim.—1st. In a spark arrester, the combination, with the stack A, of a receptacle F, open at its upper end and located within the stack, a screen D, extending across the top of the stack immediately above the mouth of the receptacle, so as to direct the sparks thereinto, and a deflecting screen E, surrounding that portion of the screen D above the annular space, between the parts A and F, all substantially as shown and described. 2nd. In a spark arrester, the combination with a stack A, of a receptacle mounted therein, but set away from the sides thereof, so as to form an annular draft space, a conical screen D, extending across the outlet of the stack and projecting down toward the mouth of the receptacle F, and a second screen E, made in the form of a ring or band and adapted to receive the initial impact of the draft, &c. 3rd. In combination, with the stack A, having curved upper wall or casting B, receptacle F, mounted therein and having its upper end of the same size as the opening in the top of the stack, the conical screen D, filling the opening in the stack opening and extending down toward the mouth of the receptacle, and a second screen E, made in the form of a band and surrounding the screen D near its junction with the stack.

No. 40,065. Regulator for Furnace Dampers.

(*Régulateur de registre de fournaise.*)

Levi F. Smith, Philadelphia, Pennsylvania, U.S.A., 26th August, 1892; 6 years.

Claim.—1st. The combination in a hot water circulating system having in the discharge end of the return pipe, a section tube or rod of highly expansible material, of the lever having a fixed fulcrum and suitably connected to the upper end of said section tube or rod and a damper for the furnace of the heater also connected to said lever, substantially as described. 2nd. The combination in a hot water circulating system having in the discharge end of the return pipe a section or tube of highly expansible material joined to the main portion of the return pipe by a flexible coupling device, of a lever having a fixed fulcrum and suitably connected to the upper end of said section or tube, and a damper for the furnace of the heater also connected to said lever, substantially as and for the purpose set forth. 3rd. The combination in a furnace of its flue, the damper in said flue, the door in said flue above the damper but connected therewith so as to open the damper when the door closes, and *vice versa*; with a tube or rod of expansible metal subjected to the action of hot water, the oscillating lever connected thereto, and the connections between said lever and door, substantially as and for the purpose specified.

No. 40,066. Machine for Attaching Buttons to Garments. (*Machine à poser les boutons.*)

Ewald Noelle, of 47 Kolnerstrasse, Ludenscheid, Westphalia, German Empire, 26th August, 1892; 6 years.

Claim.—1st. In machines in the kind described for attaching buttons to garments or the like a recess or recesses formed as described so that the ends of the staple are turned inwards after they

have been turned over or passed through the loop or shank of the button, substantially as hereinbefore described. 2nd. In or for machines of the kind and for the purpose described, a holder for the buttons, the said holder being constructed substantially as hereinbefore described. 3rd. In or for machines of the kind and for the purpose described, a holder for the buttons, the said holder being constructed, substantially as hereinbefore described. 4th. For the purpose described the arrangement and combination of parts constituting a machine substantially as hereinbefore described and consisting of a lever press, a button holder such as E, having recesses c, and a holder as F for the fastening disc and staple.

No. 40,067. Machine for Scouring and Dying Yarn, Etc. (*Machine pour dégraisser et teindre le fil, etc.*)

William Blackburn, Ralph England Bray and Lemuel Clayton, all of Halifax, Yorkshire, England, 26th August, 1892; 6 years.

Claim.—1st. In the machine for scouring and dying hanks of yarn, sections of warp and fabrics, the combination with a cistern or vessel containing the scouring or dying liquor, of a vertically reciprocating framework and means for imparting the reciprocating motion thereto: guides for same, and a series of horizontal rollers or rods carried thereby on which the hanks of yarn, suitably weighted, are hung, as shown and described. 2nd. In a machine for scouring and dying hanks of yarn, sections of warp, and fabrics, the combination with a cistern or vessel containing the scouring or dying liquor, a vertically reciprocating framework and means for imparting the reciprocating motion thereto, guides for same, and a series of horizontal rollers or rods carried thereby and carrying the hanks of yarn suitably weighted,—of a series of intermeshing pinion wheels on the ends of said rollers, and means for imparting a rotary motion to said wheels as set forth.

No. 40,068. Heating and Welding by the Electric Arc. (*Chauffage et soudage par l'arc électrique.*)

Henry Howard, Halesowen, England, 26th August, 1892; 6 years.

Claim.—1st. In heating and welding by the electric arc where the work forms one pole and a pencil the other pole, interposing in the conductor leading to the work or to the support on which the work rests, a resistance which becomes heated by the passage of current, and thus heats one side of the work by radiation, whilst the other side of the work is heated by the electric arc. 2nd. The means of holding the resistance consisting of clips A, A¹, in combination with ductor A, D, substantially as described and shown in the drawings. 3rd. The pencil holder consisting of a tube, one end of which receives a clip holding the pencil, whilst the other end receives the conductor, substantially as described. 4th. The means of holding the conductor in the end of the tube, consisting of a cap screwing on to the end of the tube, and having within it a cone forcing the conductor into close contact with the tube, substantially as described. 5th. Interposing between the workman and the pencil, a bar moving with the pencil and allowing him to see the heated work on each side of it, but obscuring the arc, substantially as described. 6th. The methods and apparatus for heating and welding by the electric arc, substantially as described and shown in the drawings.

No. 40,069. Spring Motor for Screw Propellers.

(*Moteur à ressort pour hélices de propulsion.*)

Abel Grove Heath and William Merric Sanford, Peterborough, Ontario, Canada, 26th August, 1892; 6 years.

Claim.—A screw propeller spring motor, consisting of a train of multiplying gear giving motion to a pair of opposite face wheels H¹, H¹¹, set so close together that one clears a pinion I between them when in gear with the other, but said pinion engaging both when set midway between them, and said pinion being fast on the propeller shaft i, journaled near said pinion, in a lever J, adapted to put said pinion into gear with one or other of said face wheels, a brake consisting of a pulley H², on said face wheel shaft, and a lever K adapted to press on said pulley, said train of gear driven by worm wheel E, receiving motion from the worm B, on a spindle actuated by a spiral spring D, adapted to be wound up, substantially as set forth.

No. 40,070. Crushing Mill. (*Moulin à broyer.*)

James Noah Paxman and William Paxman, Colchester, Essex, England, 26th August, 1892; 6 years.

Claim.—1st. The improvements in crushing mills having rollers turning loosely on vertical shafts suspended from a disc driven by a central shaft, so that they are free to oscillate or swing inwards and outwards as a pendulum, and be caused to travel round in contact with the sides of the pan by centrifugal action, as and for the purpose set forth. 2nd. In a crushing or grinding mill having rollers turning loosely on the lower ends of vertical shafts suspended from a disc driven by a central shaft, so that they may oscillate or swing inwards and outwards, and be caused to travel round in contact with the sides of the pan or die by centrifugal action, the improved means of mounting the rollers on their shafts, whereby a solid bottom is obtained for the roller head, as set forth. 3rd. In a crushing or grinding mill having rollers suspended from a driving disc, so that they are free to oscillate or swing inwards and outwards and travel

round in contact with the sides of the pan or die by centrifugal action, lining the interior of the pan above the die, in the manner and for the purpose set forth.

No. 40,071. Cover or Lid for Pots.

(*Couvre-c de pot.*)

Elizabeth Guthrie Copelin, Washington, Columbia, U.S.A., 26th August, 1892; 6 years.

Claim.—As a new article of manufacture, the pot lid or cover made of glass and having the rim edge or flange 2, and the metallic rim band 3, bent around the said rim flange, the said rim band being split and having its ends overlapped, as at 4, and being thereby adapted to conform to the expansion and contraction of the glass cover or lid, substantially as described.

No. 40,072. Stove. (Poêle.)

Charles Howard Foote, Chicago, Illinois, U.S.A., 26th August, 1892; 6 years.

Claim.—1st. A hot blast stove or like structure having lattice brickwork, and having a main wall or walls for sustaining said lattice brickwork, said main wall or walls being constructed with bricks much broader than the lattice bricks, and having cut-away corners to form seats to receive the ends of the lattice bricks, substantially as described. 2nd. A hot blast stove or like structure having lattice brickwork, and having a main wall or walls for sustaining said lattice brickwork, said main wall or walls being constructed with bricks much broader than the lattice bricks, and having grooves intermediate their ends to form vertical seats to receive the ends of the lattice bricks, substantially as described. 3rd. A hot blast stove or like structure having lattice brickwork, and a main wall or walls for sustaining said lattice brickwork, said main wall or walls being formed of broad bricks, the corners and edges of which are cut away to form vertical seats to receive the ends of the narrower lattice bricks, and the abutting ends of the bricks having substantially parallel faces, substantially as described. 4th. A hot blast stove or like structure having lattice brickwork, and a main wall or walls for sustaining said lattice brickwork, said main wall or walls being formed of broad bricks, the corners and edges of which are cut away to form vertical seats to receive the ends of the narrower lattice bricks, and the abutting ends of the bricks having substantially parallel faces, substantially as described. 5th. A hot blast stove or like structure having lattice brickwork, and a main wall or walls for sustaining said lattice brickwork, said main wall or walls being formed of broad bricks, the corners and edges of which are cut away to form vertical seats to receive the ends of the narrower lattice bricks, the bricks of said main wall or walls being laid with their courses breaking joint, substantially as described. 6th. A hot blast stove or like structure having lattice brickwork, and a main wall or walls for sustaining said lattice brickwork, said main wall or walls being formed of broad bricks, the corners and edges of which are cut away to form vertical seats to receive the ends of the narrower lattice bricks, the bricks of said main wall or walls being laid with their courses breaking joint, and the alternate rows of said bricks having their central cut-away spaces at the centre of the wall, substantially as described.

No. 40,073. Treatment of Liquid Hydrocarbon.

(*Traitement des liquides hydro-carburés.*)

John Henry Williams Stringfellow, of London, England, 26th August, 1892; 6 years.

Claim.—1st. The process of gelatinizing or solidifying liquid hydrocarbons as described, and consisting in the intimate combination with liquid hydrocarbon, of a saponifier, such as quillaia saponaria in a pulverized state, and the after addition thereto of water, for setting up the action of the saponifier throughout the body of the hydrocarbon. 2nd. A gelatinized or solidified compound of liquid hydrocarbon and water, obtained by the use and action of a saponifier, such as aquillaia saponaria in a powdered state, substantially as described.

No. 40,074. Machinery for Pressing Sand Faced Brick. (Machine pour presser la brique à face de sable.)

William Johnson, Leeds, York, England, 26th August, 1892; 6 years.

Claim.—1st. The arrangement on a circular table of moulds *a*, with hinged sides and ends *i*, and the mechanism also consisting of links *j*, rollers *k*, and inclined race *l*, substantially as and for the purposes herein set forth. 2nd. The mechanism consisting of the connecting rod *d*, pawl *e*, ratchet wheel *f*, and bevel gear *h*, substantially as and for the purpose herein set forth. 3rd. The mechanism, consisting of a connecting rod *L*, lever, horizontal pawl rod, and a ratchet disc mounted on the axis of the mould table, substantially as and for the purpose herein set forth. 4th. The arrangement of spring bolt *o*, with lever *r*, and cam *s* for controlling the same, substantially as and for the purpose herein set forth. 5th. The rollers *n*, attached to the plunger *m*, for pressing against the upper (perfectly bevelled) edges or sides of the hinged sides, and ends *i*, of the moulds *a*, substantially as and for the purpose herein set forth. 6th. An intermittent spring brake, controlled by lever and cam, for

obviating the shock caused by the locking of the table, substantially as herein set forth. 7th. The employment of a spring at the upper part of the plunger connecting rod, substantially as and for the purpose herein set forth. 8th. The general arrangement and combination of mechanism referred to in the foregoing claims forming my improved machine for pressing sand faced bricks, substantially as herein set forth, and shown in the accompanying drawings.

No. 40,075. Tools for Manufacturing Cocks, Bibbs, Valves. (Outil pour fabriquer les robinets, soupapes, etc.)

Frederick Taylor, Montreal, Quebec, Canada, 26th August, 1892; 6 years.

Claim.—1st. The method of finishing or sizing brass or other metal castings or forgings, consisting in removing part of the inside or outside surface of same, by forcing the casting or forging through or partly through a broacher or die, made the required shape or size, substantially as described. 2nd. The method of finishing, sizing or broaching castings or forgings, consisting in forcing a die or broacher, over or into or partially over and into the casting or forging, and thereby remove or partly remove the surface or part of the surface, so as to make the casting or forging a given size or form, substantially as described. 3rd. A device for finishing, broaching or sizing castings or forgings, consisting of a pair of movable jaws having their inner surfaces shaped to be adapted to the articles to be operated upon, and means for simultaneously closing said jaws just before the operation of the broacher, as set forth. 4th. A device for finishing, sizing, or broaching castings or forgings as follows: A vertical shaft having broacher *D*, and carrying arms or wedges *A, A*, made to press the jaws *C* inward just before the broacher begins to operate, said arms or wedges being prevented from spreading outward by the lugs *E, E*, fixed to the base plate, substantially as described.

No. 40,076. Machine for Breaking, Scutching and Dressing Flax, Etc. (Machine à broyer, teiller et préparer le lin, etc.)

Rena A. Fraser and Arthur Pack, assignees of Alexander Morison, all of Alpena, Michigan, U.S.A., 26th August, 1892; 6 years.

Claim.—1st. A machine for dressing flax or similar material, consisting of a carrier arranged to grasp the straw and carry it forward sidewise between break jaws arranged to break the straw as it advances gradually between the holding point and the end of the straw and in front of scutching knives, having their axis of movement parallel with the moving carrier and adapted to whip the carried straw from the holding point outward to the end thereof, substantially as and for the purpose described. 2nd. In a machine for cleaning flax or other vegetable fibre, in combination with a carrier adapted to move the fibre forward, a vertically acting movable jaw and a fixed jaw, arranged diagonally across the path of the moving fibre, substantially as and for the purpose described. 3rd. In a machine for cleaning flax or other vegetable fibre, in combination with a carrier adapted to grasp the fibre at a central point, a pair of break jaws, each consisting of a fixed and movable member lying diagonally across the path of the moving fibre and thereby breaking the same without straining it endwise against the pull of the opposing pair of jaws, substantially as and for the purpose described. 4th. In a machine for cleaning flax or other vegetable fibre, the combination of a carrier and break bars lying diagonal to said carrier, the said carrier being adapted to grasp the stems at a central point and carry them forward sidewise between the said jaws, and the said jaws being located diagonally across the line of feed, substantially as and for the purpose described. 5th. In a machine for cleaning flax or other vegetable fibre, the combination of a carrier, break jaws arranged diagonally to the path of said carrier, and a grated table, substantially as and for the purpose described. 6th. In a machine for cleaning flax or other vegetable fibre, a carrier chain, a supporting carrier bar, arranged to support and guide said carrier chain; a grooved pressure bar arranged to rest over points extending upward from said carrier chain and to be held in position by pressure springs, and means for moving forward said carrier chain, substantially as and for the purpose described. 7th. In a machine for cleansing flax or other vegetable fibre, the combination of a carrier chain, a guiding grooved carrier bar, a pressure bar resting over projections extending upward from said carrying chain and revolving scutch knives adapted to scutch and comb outward from the holding part of the carrier chain and pressure bar the broken stems and thereby separate the same from the fibre, substantially as and for the purpose described. 8th. The combination of a ratchet wheel, ratchet pawls mounted on said arms radial to said wheel, links adjustable radially on said arms, and connected to a common vibrating driver, whereby continuous rotary wheel motion is produced on said ratchet wheel from the vibrating motion of said driver and whereby also the speed of the continuous rotary motion of said ratchet wheel may be regulated, substantially as and for the purpose described. 9th. In a machine for cleansing flax or other vegetable fibre, a thin carrying chain having depression on its upper surface to receive the stems of material to be treated; a pressure bar resting above such carrying chain and arranged to press upon said stems and hold the same firmly in the depressions and thereby hold said stems as the same move forward under the operating break jaws and scutching knives, substantially as and for the purpose described.

10th. In a machine for cleaning flax or other vegetable fibre, the arrangement of two carrying chains, arranged the one after the other, the first of said chains being adapted to deliver to the second of said carrying chains, partially treated straw, and the second of said chains being adapted to receive and carry forward before an auxiliary set of scutching knives the straw received by it from the first mentioned chain, substantially as and for the purpose described.

No. 40,077. Machine for Decorticating Ramie and Other Textile Plants. (*Machine pour decortiquer la ramie et autres plantes textiles.*)

Pierre Faure, Limoges, France, 26th August, 1892; 18 years.

Claim.—1st. In a machine for decorticating ramie and other textile plants, the combination, with a fixed concave or breast and an endless carrier band or cord, of a beater drum provided with rigid solid blades or beaters acting continuously upon the stalks as described. 2nd. In a machine for decorticating ramie and other textile plants, the combination with a fixed concave or breast and an endless band or cord, of a beater drum provided with rigid solid blades or beaters acting continuously upon the stalks, the exit end of said concave or breast being located below such beater and terminating at about a vertical line through the axis of same for the purpose set forth. 3rd. The improved machine for decorticating ramie and other fibrous plants, constructed of carriage frame B, beater X provided with rigid solid beaters mounted on a shaft located at the upper part of the machine feed rollers C C'; concave or breast *u*; feed table T; endless carrier cord or belt *k* and its pulleys running in a direction transversely to the rotation of the beater X and situated below same; and driving gear for operating the whole as set forth.

No. 40,078. Knitting Machine. (*Machine à tricoler.*)

Robert William King, Montreal, Quebec, Canada, 26th August 1892; 6 years.

Claim.—1st. In a knitting machine, a conical needle bed having an annular projection or rim extended around the surface near its smaller end to support a sinker actuating ring, substantially as and for the purpose specified. 2nd. In a knitting machine, a conical needle bed having an annular projection or rim upon its surface to support, a sinker actuating ring, and provided with an annular recess or groove above said rim and outside the bed to receive a wire upon which the sinkers may be fulcrumed, substantially as and for the purpose specified. 3rd. In a knitting machine, a conical needle bed having an annular projection or rim, and an annular recess or groove for the support of the sinker fulcrum, and a sinker fulcrum combined with a series of sinkers, and a sinker actuating ring mounted on the same rim, to operate substantially as described. 4th. In a knitting machine, a conical needle bed having a series of needle grooves, and a series of grooves between them to receive sinkers, combined with a fulcrum wire supported by the said bed near its outer side, and with a series of sinkers made as levers, of the first order and mounted on the said fulcrum wire, substantially as described. 5th. In a knitting machine, a conically shaped needle bed, having at its inner side at a distance from its lower end a cylindrical neck, connecting said needle bed to the bed plate of the and acting as a bearing or support for other portions of the mechanism, substantially as described. 6th. A conical needle bed having a rim erected thereon between its ends and shaped to constitute a guide for the sinker actuating cam ring, said bed being grooved and as described for the reception of needles and sinkers; a sinker actuating cam ring mounted and made movable and rotatable upon the said rim about said needle bed, and a fulcrum wire A⁹, supported outer the side of said bed in said annular groove; combined with a series of sinkers having each a slot or projection at one edge between its ends to slip over or embrace said fulcrum wire, and having at one end a hook or point below it abreast, and having its other end located at a point below said fulcrum wire and shaped to be acted upon by said sinker actuating cam ring to operate, substantially as described. 7th. A needle bed having a rim erected thereon between its ends and grooved and slotted, as described, for the reception of needles and sinkers; a fulcrum wire supported upon the outer side of the said bed near said rim; and a series of sinkers having a slot or projection at one edge between its ends to slip over or embrace the said fulcrum wire, and having hooks or points, combined with a sinker actuating ring mounted and made movable upon the said rim, and provided with a removable portion, whereby any sinker may be readily withdrawn from its fulcrum when desired substantially as described. 8th. A sinker, having at one end a breast curved, as described and a hook, and at one edge between its ends an open slot to co-operate with a fulcrum, and shaped at its other end to be engaged and vibrated about its fulcrum by a cam, substantially as described. 9th. A stationary conical needle bed having a cylindrical neck connected therewith between its upper and lower end, and projecting at some distance below the lower end of the bed, combined with a ring surrounding the said shank to rotate thereon, and a cam ring connected to the said ring, and gearing to engage and move the said ring and cam ring, substantially as described. 10th. A conical needle bed, having a projecting rim slotted for the reception of the needles, the said bed being also slotted for the reception of a series of sinkers, combined with a fulcrum wire, and a series of

sinkers having slots to embrace the said fulcrum wire, and with a sinker actuating ring to act upon the outer ends of the sinkers to vibrate them, and at the same time to keep the sinkers seated upon the fulcrum wire, substantially as described. 11th. In a knitting machine, a needle bed having projections to serve as a rim or support for a sinker, actuating cam, said needle bed being grooved for the reception of a series of needles, and slotted through at its upper end, as at A⁴, between adjacent needle grooves for the reception and guidance of a series of sinkers, substantially as described. 12th. In a reversible knitting machine, a cam ring having knitting and non-knitting grooves, and right and left hand guiding gates located in proximity to the junction of the said grooves, combined with an oscillating directing cam pivoted between the points of the said guiding gates, and devices to actuate said gates automatically, to operate, substantially as described. 13th. In a reversible knitting machine, a cam ring having knitting and non-knitting grooves and its guiding gates, combined with an angular oscillating directing cam movable with said ring, and a friction device to steady the movement of the said directing cam, substantially as described. 14th. In a reversible knitting machine, a cam ring having knitting and non-knitting grooves and needle guiding gates, combined with an oscillating directing cam fixed to a stem suitably journaled with relation to the cam ring, and provided with a stop by which the oscillating movement of the directing cam is restricted, substantially as described. 15th. In a knitting machine, the combination, with a cam ring and its main drawing down cam, and of a co-operating yielding false face located near the acting edge of said cam to operate, substantially as described. 16th. A knitting machine, containing the following instrumentalities, viz., a conical needle bed, a conical cam ring, having knitting and non-knitting grooves and needle elevating and depressing cams suitable for roundabout or circular and reciprocating knitting, and a directing cam and guiding gates, and actuating devices to automatically operate the said gates during reciprocating knitting for narrowing and widening, substantially as described. 17th. The cam ring having knitting and non-knitting grooves and its attached right and left hand guiding gates, and lever for moving said gates combined with a cam controlled device to move said lever, substantially as described. 18th. The cam ring having knitting and non-knitting grooves and attached right and left hand guiding gates, combined with a cam, and means between it and the said gates to actuate the latter, and means to automatically actuate said cam, substantially as described. 19th. A knitting machine containing the following instrumentalities, viz., a needle bed to contain a series of needles, a cam ring having knitting and non-knitting grooves and adapted to actuate the said needles, the said cam ring carrying right and left hand guiding gates, and having a directing cam pivoted between them, a gate moving cam located outside the said bed, tripping pins to actuate automatically the said cam, and means between the gate moving cam and gate to actuate the latter, substantially as described. 20th. In a reversible knitting machine, a cam ring having knitting and non-knitting cam grooves, right and left hand guiding gates located in proximity to the junction of the said grooves, a lever connected to the said gates, a cam wheel having a locking block and adapted to move the said gate, combined with a spring to act against the block and hold the cam in position, substantially as described. 21st. In a knitting machine, the combination, with a cam ring having knitting and non-knitting grooves and right and left hand guiding gates, and a lever for moving the same, of a cam wheel, substantially as described, having two radial grooves and cam projections for positively moving the said lever, substantially as described. 22nd. A knitting machine containing the following instrumentalities, viz., a needle bed containing a series of needles, a surrounding cam ring having knitting and non-knitting grooves and guiding gates at its inner side, and drawing down and elevating cams, a gate controlling cam located outside the cam ring, means to reciprocate the cam ring, connections between the gate controlling cam and gates, tripping pins, stop rings or racks, and means to automatically move them to move the said tripping pins and put them into proper positions to operate the gate controlling cam at the proper time to actuate the gates, as and for the purpose set forth, during reciprocating knitting. 23rd. A knitting machine, containing the following instrumentalities, viz., a conical needle bed having a projecting rim, a series of needles, and a series of sinkers supported upon the outer side of the said conical bed, a sinker actuating ring mounted upon the said rim, and adapted to actuate the sinkers, a cam ring having knitting and non-knitting grooves and right and left hand guiding gates, and a director and drawing down and elevating cams, a gate controlling cam located outside the cam ring, means to operate the sinker actuating ring from the cam ring, as described, means to reciprocate the cam ring, connections between the gate controlling cam and gate, tripping pins, stop rings or racks, and means to automatically move them to move the said tripping pins and put them into proper positions to operate the gate controlling cam at the proper time to actuate the gates, as and for the purpose set forth, during reciprocating knitting. 24th. A knitting machine, containing the following instrumentalities, viz., a stationary needle bed to contain a series of needles, a rotating cam ring having a movable drawing down cam, an annular raceway presenting a level track and entirely surrounding the said cam ring, means to move the raceway vertically, and connections between the said raceway and the said drawing down cam whereby the change in vertical position of the raceway effects the shortening and lengthening of the stitches,

substantially as described. 25th. A knitting machine, containing the following instrumentalities, viz., a stationary conical needle bed to receive a series of needles, a rotating cam ring containing a movable drawing down cam, an annular vertically movable raceway entirely surrounding the said cam ring and presenting a level surface to constitute a track, a lever carried by the cam ring and having one end connected with the drawing down cam, and its other end adapted to ride upon the said raceway, substantially as described. 26th. A sinker made as a lever of the first order and having a hook with a curved breast below and slotted at its underside and having a curved rear and notched, as described. 27th. A knitting machine, containing the following instrumentalities, viz., a stationary needle bed adapted to receive a series of needles, a rotating cam ring provided with a movable drawing down cam, an annular raceway entirely surrounding said cam ring and having a smooth level top, means between the said raceway and drawing down cam to actuate the latter according to the changing positions of the raceway, a pattern surface, and intermediate connections between it and the said raceway to automatically move the same and thereby effect the regulation of the length of the stitches substantially as described. 28th. In a knitting machine, a raceway made as a smooth topped ring having supports whereby the raceway may be moved vertically as it is partially rotated, as described, combined with a pattern surface, a monitor lever, and adjustable connections between it and the said raceway to operate, substantially as described. 29th. A knitting machine, containing the following instrumentalities, viz., a needle bed grooved for the reception of needles, a surrounding cam ring having knitting and non-knitting grooves and right and left hand guiding gates, a directing cam located between said guiding gates, a gate controlling cam located outside the said cam ring and made movable with it in its reciprocations and rotations, devices intermediate the said cam ring and the said guiding gates, a yoke connected with the hub of the said cam, two rings having each a tripping pin, a controller, and means to automatically move it to put the said controller into position to enable the said cam to be put into operative position or to be put out of operative position with relation to the said tripping pins, substantially as described. 30th. In a knitting machine, the combination with a conically shaped needle bed having grooves for the reception of series of needles, of a thread support and latch guard located above the smaller end of the said bed in proximity to the hooks of the needles, the said combined support and latch guard receiving the thread upon its outer surface and delivering it to the needles, substantially as described. 31st. In a knitting machine, a conically shaped needle bed in combination with a latch guard suspended over the needles, and a thread guide adapted to direct the thread on the outside of the latch guard, the latter having a suitable projection to prevent the thread slipping above it, substantially as described. 32nd. In a knitting machine, a conical needle bed and a latch guard suspended above it to surround the upper ends of the needles, the said guard having a suitable support, combined with an independent thread guide adjustably connected to the cam ring, substantially as described. 33rd. The combination in a knitting machine with a conical needle bed, a cam ring, and a series of needles projecting above the said needle bed, of a thread guide, and means interposed between the said thread guide and the said needles to prevent the contact of the thread between the knitting point of the tread guide with the needles when rotating the machine and the needles are not knitting, substantially as described. 34. In a knitting machine, a needle bed having projections to serve as a rim or support for the sinker actuating cam, said needle bed being grooved for the reception of a series of needles, and slotted through at its upper end as at A⁴, between adjacent needle grooves for the reception and guidance of a series of sinkers, said needle bed being also provided with an annular groove A³, located between said rim or support and the upper end of said cylinder, and intersecting the said sinker slots, combined with a series of sinkers and a pivoted wire A⁵, placed in said annular groove to constitute fulera for the series of sinkers, substantially as described. 35th. In a knitting machine, a cam cylinder, two freely movable rings having tripping pins supported by the said cylinder, and two stop rings or racks mounted on the bed plate of the machine, each ring or rack having gear-teeth and being provided with adjustable stops between which are received the said tripping pins, combined with pinions to move the said rings or racks, to operate substantially as described. 36th. In a machine, a cam cylinder, two freely movable rings having tripping pins supported by the said cylinder and two stop rings or racks mounted on the bed plate of the machine, each ring or rack having gear teeth and being provided with adjustable stops between which are received the said tripping pins, combined with pinions to move the said rings or racks, and with means substantially as described to intermittently operate the said rings or racks, to operate substantially as described. 37th. In a knitting machine, a cam cylinder, two freely movable rings *b*, *b*¹, having tripping pins supported by the said cylinder, and two stop rings or racks mounted on the bed plate of the machine outside the said rings *b*, *b*¹, each ring or rack having gear teeth and being provided with adjustable stops between which are received the said tripping pins, combined with pinions to move the said rings or racks, means substantially as described to intermittently operate the said pinions and locking devices for the said pinions, to operate substantially as described. 38th. In a knitting machine, a stop ring or rack

having teeth a movable ring as *b*¹, having a tripping pin as *b*², and a pinion to actuate the same, and a change wheel carried by the said pinion, combined with a reciprocating frame having two pawls, and with means to reciprocate the said frame, to operate substantially as described. 39th. In a knitting machine, a stop ring or rack having teeth, and a pinion to actuate the same, and a change wheel carried by the said pinion, combined with a reciprocating frame having two pawls, means to reciprocate the said frame, and devices to control the position of the said frame to enable one or the other of its pawls to engage the change wheel, to operate substantially as described. 40th. In a knitting machine, a stop ring or rack having teeth, and a pinion to actuate the same, and a change wheel carried by the said pinion, combined with a reciprocating frame having two pawls, means to reciprocate the said frame, and means to change the position of the said frame to enable one or the other of its pawls to actuate the change wheel, substantially as described. 41st. In a knitting machine, a stop ring or rack having teeth, a pinion to actuate the same, a movable ring as *b*¹, having a tripping pin as *b*², and a change wheel carried by the said pinion, combined with a reciprocating frame having two pawls, means to reciprocate the said frame, and a locking rod or bar to engage and lock the change wheel, substantially as described. 42nd. In a knitting machine, the shaft *k*¹², having a pinion *k*⁷, means to both reciprocate and rotate the said shaft, gears *k*⁸, *k*⁹, in engagement with the gear *k*⁷, and cams *k*¹⁰, *k*¹¹, combined with the pawl carrying frames actuated by the said cams, and pinions, stop rings or racks, and change gears, to operate substantially as described. 43rd. In a knitting machine, the combination with a pair of reciprocating frames having pawls and slotted as described, of the eccentrics, their attached gears, a double quadrant, a pattern surface, and intermediate connections whereby the said quadrant may be moved to rotate the said gears and eccentrics and move the pawl carrying frames, so that one or the other of their pawls may be in operative position, substantially as described. 44th. In a knitting machine, the reciprocating pawl frame, its actuating cam, and the leg depending from the pawl frame and provided with a projection, combined with a stilt to keep the pawl frame elevated at desired times, substantially as described. 45th. The shaft *k*¹², its gear *d* and pinion, and gear wheel *p*, provided with a reciprocating plate having a locking stud, combined with shaft *e*⁷, its attached notched disc, means to rotate the shaft, a vibrator mounted loosely on the said shaft and having a notch, means to actuate the said vibrator, and means to move the said plate and compel the coupling pin to rest in the notch of the disc in order that the said disc may assume control of and rotate the said gear and shaft *h*¹², substantially as described. 46th. The shaft *h*¹², its gear *d* and pinion, and gear wheel *p*, provided with a reciprocating plate having a locking stud, combined with shaft *e*⁷, its attached notched disc, means to rotate the shaft, a vibrator mounted loosely on said shaft and having a notch, means to actuate the said vibrator, and means to move the said plate in a direction to cause the coupling pin to engage the notch in the said vibrator in order that it may assume control of the said gear wheel and effect the oscillations of the said shaft *h*¹², substantially as described. 47th. In a knitting machine, the main rotating shaft *e*⁷, a notched disc fixed thereto, a vibrator provided with a notch and mounted loosely with relation to the said shaft, means to actuate the vibrator, a gear wheel mounted loosely on the said shaft, a second shaft having a pinion in mesh with the said gear wheel, a guide plate mounted in the said gear wheel and made movable diametrically in connection therewith, a coupling pin carried by the said guide plate, the latter having at one end a projection extended outside the said gear wheel and a spring connected with the said guide plate, combined with a movable brake, and means to actuate it to control the engagement of the said coupling pin with either the notch in the said disc or in the said vibrator, substantially as described. 48th. The shaft *e*⁷, provided with a notched disc, a gear wheel loosely mounted on the said shaft and provided with a diametrically sliding guide plate having a coupling pin and a roller or projection at or near its end opposite the coupling pin, a shaft and a pinion thereon with which the said gear wheel is in engagement, and a vibrator having a notch and provided with a spring held locking dog, combined with a shoe, and with means to move the vibrator and to rotate the shaft having the notched disc, the shoe acting through the guide plate to retain the coupling pin in the notch of the vibrator, substantially as described. 49th. In a knitting machine, a power shaft having a tight and two loose pulleys, and a belt shifter adapted to control two belts, combined with a pattern or monitor chain, a monitor lever, and connections intermediate the monitor lever and the belt shifter to automatically determine which of the two belts shall be put upon the tight pulley according to whether the cam ring is to be rotated or reciprocated, substantially as described. 50th. In a knitting machine, the shaft *e*⁸, and shoe controlled thereby to effect the change from rotating or circular knitting to reciprocating knitting, the belt shifter controlling the driving belts, a monitor lever *f*², connections between it and the belt shifter, a toe 13, on the said monitor lever, and a monitor lever *f*, having a toe, combined with a monitor chain whereby the belt shifter is actuated at a slight period of time in advance of the rocking of the shaft *e*⁸, as and for the purpose set forth. 51st. In a knitting machine, the following instrumentalities, viz., a stationary needle bed, a series of needles therein, a rotating cam ring having a movable drawing down cam, a surrounding annular raceway having a smooth top or upper surface all around the said ring, actuating devices between the said raceway and the said

drawing down cam, inclined supports for the said raceway, and a pattern surface, combined with intermediate devices, substantially as described, and actuating means therefor, whereby the said raceway may be moved for the production of a slack course at times determined upon by the pattern surface, substantially as described. 52nd. In a knitting machine, the following instrumentalities, viz., a needle bed containing a series of needles, a cam ring having cams to reciprocate the same, a yarn guide, and rolls between which the yarn being knitted is passed, the said yarn serving to rotate the said rolls, to thereby feed a supplemental thread, substantially as described. 53rd. In a knitting machine, a thread feeding attachment containing a pair of rolls, two yarn arms located above said rolls, and means to change their relative positions to put the yarn carried by either of said yarn arms between the said rolls to be held thereby, substantially as described. 54th. In a knitting machine, a thread feeding attachment containing a pair of rolls, two yarn arms located above said rolls, and means to change the relative positions of said yarn arms to place that one of the said yarns going to the needles out of contact with the said rolls and leave the end of the yarn not then used in knitting between and held by the said rolls, substantially as described. 55th. In a knitting machine, a shaft having yarn passages, two yarn arms, each having a yarn passage for a distinct and separate yarn, combined with means to rotate the said shaft and yarn arms, substantially as described. 56th. In a knitting machine, a shaft having yarn passages, two yarn arms each having a yarn passage for distinct and separate yarn, combined with rolls, means to rotate the said shaft and yarn arms, and means to move one of the said yarn arms to take its yarn away from the rolls referred to, the other yarn arm being positively brought into position to have its thread held by the said rolls, substantially as described. 57th. In a knitting machine, the combination, with rolls between which the thread is passed on its way to the yarn guide, of cutting mechanism located between the said rolls and the usual yarn guide to sever the said thread below the rolls, substantially as described. 58th. A needle bed, a cam ring, a yarn guide mounted on the cam ring, a pair of rolls located above the said yarn guide, two yarn arms located above the said rolls, a support for the yarn arms, means to actuate the said yarn arms to place one of the yarns outside of and the other between the bight of the said rolls, and a thread cutter to operate, substantially as described. 59th. In a knitting machine, a thread feeding device, a pair of rolls between which the yarn is held, combined with a pair of shears, and with an arrow pointed cam p^2 , to close said shears, substantially as described. 60th. In a knitting machine, a thread feeding device, a pair of rolls between which the yarn is held, combined with a pair of shears, and with a suitable cam p^3 to co-operate with the said shears, substantially as described. 61st. In a knitting machine, a thread feeding device, a pair of rolls between which the yarn is held, combined with a pair of shears, and with the two arrow pointed cams to co-operate with the said shears, substantially as described. 62nd. In a knitting machine, the following instrumentalities, viz., a needle bed, a series of needles therein, a cam ring to reciprocate the needles, a yarn guide, two vibrating yarn arms, each provided with a yarn, a pair of rolls to engage and hold both the said yarns between the yarn arms, and means to effect the twisting of the said yarns between the said rolls and yarn arms, substantially as described. 63rd. In a knitting machine, the following instrumentalities, viz., a rotating shaft, as c^1 , provided with a notched disc fixed thereto, a gear wheel, as h^3 , loose on the said shaft, a guide plate carried by said gear wheel, and provided with a coupling pin, a shaft h^{12} , having a pinion engaged constantly by the said gear wheel, and provided with a bevel gear, a needle bed, a cam ring having teeth engagement with the teeth of the said bevel gear, a vibrator loose on shaft c^1 , and having a notch, gearing and connections between said shaft c^1 and the said vibrator to reciprocate the same as the shaft is rotated, and a device to slide the said plate in the said gear wheel to cause the said coupling pin to engage either the notch in the said disc or the notch in the said vibrator, to thereby enable the said disc or the said vibrator to assume control of and move the said gear wheel according as it is desired to rotate or reciprocate the said cam ring, substantially as described. 64th. A knitting machine containing the following instrumentalities, viz., a needle bed, a series of needles therein, a cam ring having cams to actuate the said needles, a yarn guide to present yarn to the needles, two guide arms, each provided with a yarn, and a pair of rolls located between said guide arms and the yarn guide, the said rolls receiving at times both yarns between their bight and aiding one yarn to carry the other with it toward the needles and at other times to hold the end of but one of the said yarns, viz., the one not engaged in the fabric at the needles, substantially as described. 65th. A knitting machine, containing the following instrumentalities, viz., a needle bed, a series of needles therein, a cam ring having cams to actuate the said needles, a yarn guide to present yarn to the needles, two guide arms, each provided with a yarn, and a pair of rolls located between said guide arms and the yarn guide, the said rolls receiving at times both yarns between their bight and aiding one yarn to carry the other with it toward the needles and at other times to hold the end of but one of the said yarns, viz., the one not engaged in the fabric at the needles, means to twist together the said yarns between the said yarn arms and rolls, the thread cutting mechanism located and made operative below said rolls and between them and the yarn guide to sever one or the other of the said yarns, according to which one is not then to be engaged by the needles,

substantially as described. 66th. The hollow shaft K^1 , the thread arms O^2 , P^2 , pivoted thereon, and the gear M^1 , combined with means to rotate the said shaft in one and then in an opposite direction and to vibrate the said thread arms, substantially as described. 67th. The rolls B^2 , the hollow yarn guiding shaft K^1 , adapted to guide and keep separated two yarns, the centre of rotation of said shaft being substantially in line with the bight of said rolls, combined with two thread arms, and with means to impart rotary reciprocatory movement to said shaft and to vibrate the said thread arms, substantially as described. 68th. The shaft K^1 , its attached pinion, the rack and means to reciprocate it, and the segment arm L^1 , combined with the gear N^1 , the connected hollow yarn guiding shaft, its pivoted arms, and the rolls, to operate substantially as described. 69th. The take up, and the rotating hollow shaft for the yarns, combined with a series of jointed guides interposed between them, substantially as described. 70th. The take up lever, provided with a quadrant at its rear end, combined with a spring adapted to be adjustably secured at different points of the quadrant to operate substantially as described. 71st. In a knitting machine, a needle bed having a series of stationary seats, combined with a series of sinkers having their bearings when the stitch is being drawn on the said seats, and means to actuate the said sinkers, substantially as described. 72nd. In a knitting machine, the combination, with rolls between which the thread is passed on its way to the yarn guide yarn arms, and means to move them and hold their yarns out of contact with the said rolls, as when both the yarns are to be fed to the needles, one yarn re-enforcing the other, substantially as described. 73rd. In a reversible knitting machine, a needle bed adapted to receive and guide a series of needles, and a needle actuating cam ring or plate having a knitting groove and a non-knitting groove on a level extended all around the upper edge of the said ring, and adapted to receive the butts of the said needles and maintain them in correct position, not only for all around or circular work as well as when narrowing and widening, as described, but also for topping, combined with mechanism to depress from the said level into the knitting groove, and elevate from said knitting groove back into the said level, all the said needles in succession for all around work, or any number of needles less than the whole number, as may be required for heel and toe knitting, substantially as described. 74th. In a knitting machine, a bed for the needles, a series of needles therein, a cam ring to actuate the needles, a series of seats stationary with relation to the cam ring, and a sinker actuating cam, combined with a series of sinkers, the breasts of which are drawn a curve struck from the point of contact of the end of the sinker with the said seats at the time that the needles are drawing their loops about the breasts of the sinkers below their hooks, substantially as described. 75th. A knitting machine containing the following instrumentalities, viz., a bed plate having an opening, a conical needle bed having a shank to fit said opening, a narrow cone-shaped cam ring having a series of cams, substantially as described, a yarn guide, and a yarn rest interposed between said yarn guide and needles to receive the yarn and prevent it from sliding on the needles, not being reciprocated to form loops, whereby conical beds of various lengths may be used in connection with the same cam ring, according to the diameter of the tube to be knitted, substantially as described. 76th. In a knitting machine, the combination with a needle bed for round about or circular knitting, said needle bed being grooved for the reception of a series of needles, the upper end of the bed being provided with a series of slots in line with the dividing walls of the needle grooves, and adapted to receive and guide a series of sinkers, of a series of sinkers having their fulcra between the upper and lower ends of the said sinker grooves, a series of needles, a cam ring to actuate the said sinkers, and a ring having cams to reciprocate the said needles for the purposes set forth.

No. 40,079. Printing Press. (*Presse d'imprimerie.*)

William Bartholomew Lawrence, Columbus, Ohio, U.S.A., 26th August, 1892; 6 years.

Claim.—1st. In a printing press, the combination with the frame and travelling inking-rollers, of one or more ink plates supported adjacent to the path of said rollers, a central opening in said plate and an inking-disc supported and adapted to be rotated within said plate opening, substantially as specified. 2nd. In a printing press, the combination with the main frame, frame arms 5 projecting therefrom, arms 37 bridging said frame arms and key-ways 38 therein, of an inking-plate 39 having a central opening, an arm 41 bridging said opening and having central lugs 42, set screws 85, passing through said lugs, and engaging with said key-ways of the arms 37 and rotating ink-disc suspended from arm 37 within the inking plate opening, substantially as specified. 3rd. In a printing press, the combination with the frame, parallel frame arms 5, having slots 18 as described, fixed vertical bed-plate 6 between said frame sides, the movable printing-plate bearing skeleton bed, connected roller bearing blocks 67 opposite said slots 18, pins 68 projecting loosely through said slots, inking rollers pivoted between said roller bearing blocks, an inking plate or disc for each set of rollers and a ratchet-wheel formed therewith, of the rotating gear-wheel 25 and disc 26, cam ways therein formed as described of concentric and eccentric grooves, cross heads 34, 31, sliding in slots 29 and 30 of the press frame and connected by shafts 35, 32, arms 51 extending from shaft 32, T-shaped bodies 52 jointly connected with arms 51 and sliding

in frame grooves 18, rods 55, 56, connecting the outer arms of bodies 52, pawls or fingers 57 supported from said rods and engaging with the teeth of the inking disc ratchet-wheel, lug or arm 61 projecting therefrom, rod 62 connecting said lugs 61, 63, and slotted arms 65 connecting the shaft 64 and roller bearing block pins 68, substantially as described.

No. 40,080. Smoke Consumer. (*Appareil fumivore.*)

Edward Eugene Dulier, Chelsea, England, 26th August, 1892; 6 years.

Claim.—1st. The herein described method of destroying smoke by mixing it with steam, and cooling the mixture so as to condense the steam and thus entrap the impurities suspended in the smoke. 2nd. In apparatus for destroying smoke, the combination of a chimney, or set of chimnies with a steam ejector, a chamber for mixing the smoke and steam, and chambers provided with tubes or equivalent surfaces for cooling the mixture and condensing the steam, substantially as described.

No. 40,081. Lounge. (*Causeuse.*)

Charles Mee, Cortland, New York, U. S. A., 26th August, 1892; 6 years.

Claim.—A lounge having a frame proper with end and side rails, the side rails recessed at their ends and having a head rest resting in the recess and connected by hinges to the frame proper, said rest having an outer facing which laps past the joint at the front of the frame, and a brace hinged to the frame, and having a roughened facing, which engages a roughened washer on the head rest, and is adjustable to hold the head rest at different angles by a clamp screw, all substantially as described.

No. 40,082. Signal Rocket for Vessels.

(*Fusée de signal pour vaisseaux.*)

Thomas William Hand and Walter Teale, Hamilton, Ontario, Canada, 26th August, 1892; 6 years.

Claim.—1st. In a signal rocket, the combination of an igniting light A, with its wad a, and its attached fuse B, which is also attached to a series of coloured lights c, substantially as and for the purpose hereinbefore set forth. 2nd. In a signal rocket, an igniting light A, and its attached fuse B, with the coloured lights c, in combination with the non-ignitable connecting line D, substantially as and for the purpose hereinbefore set forth. 3rd. In a signal rocket, the combination of the igniting light A, coloured lights c, fuse B, connecting line D, and a parachute E, with its strands d, and its centre elastic e, substantially as and for the purpose hereinbefore set forth. 4th. The rocket H, having widened top, with its close fitting cover I, forming a chamber containing and inclosing the igniting light and wad, the flexible fuse, the coloured lights, the flexible connecting line, and fabrical parachute with fuse J, attached to lower part of said rocket H, giving power to the whole, substantially as and for the purpose hereinbefore set forth.

No. 40,083. Telephonic Transmitter.

(*Transmetteur téléphonique.*)

Arthur Thomas Collier, St. Alban's, England, 26th August, 1892; 6 years.

Claim.—1st. In a telephonic transmitter, the combination, with the front and back portions of the casing thereof, of the diaphragm and a frame for same, an adjustable fulcrumed support and means for supporting same, a rod suspended from such support and carrying said diaphragm frame, the front electrode and connections for securing it to the diaphragm and the back electrode with a yielding support, as shown and described. 2nd. In a telephonic transmitter, a back electrode mounted upon or attached to a yielding support, substantially as hereinbefore described and illustrated. 3rd. In a telephonic transmitter, the combination, with the back electrode, of gimballs upon the centre ring of which the electrode is mounted, substantially as hereinbefore described and illustrated. 4th. In a telephonic transmitter, the combination and arrangement with the front electrode, of an adjustably suspended diaphragm, of a back electrode mounted upon a yielding support, substantially as hereinbefore described and illustrated. 5th. In a telephonic transmitter, the construction and arrangement of an adjustably suspended diaphragm on which the front electrode is mounted, substantially as hereinbefore described and illustrated.

No. 40,084. Art of Casting in Metals.

(*Art de fondre dans les métaux.*)

Walton Haydon, Canmore, North-west Territories, Canada, 26th August, 1892; 6 years.

Claim.—1st. The process of casting metals, consisting in exhausting the air from the bottom of the mould whilst the metal is poured in, substantially as described. 2nd. A means for exhausting the air from moulds, consisting in a casing A, having a perforated bottom G, to support the flask, a packing F, an impervious coating G, and a pipe C, communicating with an exhauster, substantially as described.

No. 40,085. Cigarette Machine. (*Machine à cigarettes.*)

Jenetta V. Bohannon, Washington, Columbia, U. S. A., 26th August, 1892; 6 years

Claim.—1st. In a cigarette machine, employing a continuous wrapper, the combination, of a longitudinally reciprocating slide having a trough and a head block, the latter being provided with a groove registering with the said trough, intermitting laterally sliding jaws arranged upon said head block and having coating wrapping and forming means in their meeting faces, and suitable means for alternately grasping and releasing the continuous cigarette, substantially as set forth. 2nd. The combination, of a slide provided with a trough, and having a head block provided with a groove, jaws fitted to reciprocate transversely on the said head block and having in their meeting faces the recesses b and d, one of which has a ledge or shelf c, to enter the recess of the other, and a clamp arranged in front of said head block, substantially as set forth. 3rd. The combination of the slide E, having the trough D, and the head block E', having the groove c, the jaws L, L', upon the head block, one of which has the recess b, and the other the shelf or ledge c, adapted to enter it, the nozzle i, and ring n attached to the head block, and a grasping and releasing device whereby the paper is wrapped and pressed around the filler, the paste is applied and the wrapper closed. 4th. The combination of a slide provided with a trough, and having a head block provided with a groove, jaws having coating wrapping devices in their meeting faces, and one jaw being wedge shaped at the inner side of its rear end, and the presser J, having the lever K pivoted to a fixture of the head block, and adapted to be engaged by the said wedge, substantially as described. 5th. The combination of a tobacco containing box having the concave lip Z at its delivery end, a cutter fitted to reciprocate across the said end, and having the concave crusher 2, a grate w, having the concave lip y, and pivoted to swing to and from the lip z, substantially as described. 6th. The combination of a slide, provided with a trough, and a head block having a groove registering therewith, jaws upon the said head block having coating wrapping devices in their meeting faces, a tobacco containing box above said slide and having the lip z, a cutter B, having the concave crusher 2, a pivoted gate w, having the concave lip y, and means for alternately grasping and releasing the continuous cigarette, substantially as described. 7th. The combination of a tobacco containing box having the lip z at its delivery end, the reciprocating cutter B, the grate w, having the lip y, and pivoted to swing to and from the lip z, the concave crusher 2, and latch 3 upon the said cutter, and means for positively opening said gate whereby the same is first locked and then opened, substantially as described. 8th. The combination of a tobacco containing box having the lip z, a gate w, having a lip y, and the arm 4, and pivoted to swing by gravity against the lip z, the cutter B, having a concave crusher 2, and the latch 3, adapted to engage the arm 4, substantially as described. 9th. The combination of a tobacco containing box having the lip z, a gate w, having a lip y, and pivoted to swing automatically against the lip z, said gate having the arms 4 and 6, the cutter B, having the latch 3, to lock the arm 4, and having the crusher 2, and a lever 5, pivotally connected with the frame carrying the cutter B, and adapted to engage the said arm 6 of the gate, substantially as described. 10th. The combination of a slide having a trough and head block having a grooved continuation thereof, jaws upon the head block, provided in their meeting faces with cigarette wrapping devices, a paste containing reservoir mounted on the table, a paste delivering nozzle i, upon said head block forward of the jaws, a flexible tube s connecting the said reservoir and nozzle, the ring n attached to said head block, and means for grasping and releasing the continuous cigarette, substantially as described. 11th. The combination of a slide having cigarette forming attachments thereon, a paste conveying nozzle i attached to the said slide and connected with a paste containing reservoir, a valve l, provided with a closing spring m for the said nozzle, and a valve closing arm 22 attached to the slide propelling mechanism, substantially as described. 12th. The combination of a slide, having cigarette forming attachments thereon, a paste delivery forward of said slide, a closing ring n attached to the latter, and clamp consisting of the fixed part u, and the reciprocating jaw r at the delivery of the machine, substantially as described. 13th. The combination of a slide, having cigarette forming attachments thereon, a paste delivery forward of said slide, a closing ring n fixed to the latter, a suitable clamp for alternately holding and releasing a continuous cigarette, and a supporting device X carried by the slide, between it and the said clamp, substantially as described. 14th. The combination of a slide, having cigarette forming attachments thereon, pasting, closing and rounding devices in line thereof, a fixed jaw u, a jaw r provided with a closing spring, and a cutting blade fixed to the outer end of one of the two jaws, and adapted to act with the other jaw as a shear, substantially as described. 15th. The combination of a slide, having cigarette forming jaws thereon, pasting closing and intermittently clamping devices in line thereof, arms P, P, extending from the outer edges of the said jaws, and fixed guides Q, Q, the springs f, f, acting to force the said jaws apart, and the levers 5, 5, with wedging ends 11 to engage the arms P, P, substantially as described. 16th. The combination of a slide, having cigarette forming jaws thereon, pasting, closing and intermittently clamping and releasing devices in line thereof, a slot 14 in the underside of the said slide, another slide 8,

connected with the driving mechanism, and a post or stud 13, fixed upon the slide 8, to engage the slot 14, substantially as described. 17th. The combination of a slide, having cigarette forming devices thereon, pasting and closing devices in line thereof, the fixed jaw *u*, the movable jaw *v*, the lift plate 16, having oppositely inclined ends, the rods 15 connecting the said plate, and the jaw *r*, the springs 19, the tripping wedge 21, and the rod 20 connecting it with reciprocating mechanism, substantially as described.

No. 40,086. Printing Machine. (*Presse d'imprimerie.*)

Calvert Baron Cottrell, Westerly, Rhode Island, U.S.A., 26th August, 1892; 6 years.

Claim.—1st. The combination with the impression cylinder of a printing machine, of a tympan which remains stationary during several revolutions of the cylinder, and automatic shifting mechanism for shifting the said tympan during a single revolution far enough to present a new portion of the tympan to the impression surface of the cylinder which it covers, substantially as herein set forth. 2nd. The combination with the impression cylinder of a printing machine, of a shifting tympan which remains stationary during several successive revolutions of the cylinder, and intermittently operating feed mechanism deriving motion from the cylinder through one revolution thereof, whereby the tympan is shifted far enough to present a new portion of the tympan to the impression surface of the cylinder which it covers, substantially as herein set forth. 3rd. The combination with the impression cylinder of a printing machine, of two tympan rollers within the said cylinder, a shifting tympan attached at its ends to said tympan rollers, a feed roller within the cylinder interposed between the two tympan rollers, and friction gears between the said feed roller and one of the said tympan rollers, whereby the latter is driven by said feed roller, at the requisite velocity to take up the tympan as it is shifted by the said feed roller substantially as herein described. 4th. The combination with the impression cylinder of a printing machine, of two tympan rollers within said cylinder of which one is a delivery roller and the other a take-up roller, a shifting tympan attached at its ends to said rollers, a feed roller for the tympan between said take up and delivery rollers, a clutch on the shaft of said feed roller for driving the same, a ratchet wheel on said delivery roller, a pawl engaging with said ratchet wheel, and a connection substantially as herein described between said clutch and said pawl, whereby when the said clutch is thrown into gear with the said feed roller the said pawl is thrown out of gear with the said ratchet wheel on the delivery roller, all substantially as herein described. 5th. The combination with the impression cylinder of a printing machine, of two tympan rollers within the said cylinder, a shifting tympan attached to said rollers, a feed roller between said tympan rollers, a clutch on the shaft of said feed roller for driving the same, a lever on said clutch, and two cams and fixed supports for the same outside of the cylinder, in contact with which cams the said lever is brought by the rotation of the said cylinder for the purpose of throwing the said clutch into and out of gear with the shaft of said feed roller, substantially as and for the purpose herein set forth. 6th. The combination with the impression cylinder of a printing machine, of a shifting tympan applied to said cylinder, a feed roller, the shaft of which works in bearings in the heads of said cylinder for shifting said tympan, a driving clutch one member of which is fast on said shaft, a screw threaded sleeve surrounding said shaft and carrying the other member of said clutch, a screw threaded bushing and a bearing therefor carried by the cylinder, a lever attached to said screw threaded sleeve, and cams outside of said cylinder, the said cams being arranged within the range of the revolution of said sleeve and lever with the cylinder for the purpose of producing the screwing of the said sleeve inward and outward from the bushing to produce the engagement and disengagement of the clutch, substantially as herein described. 7th. The combination, with the impression cylinder of a printing machine and a shifting tympan thereon, of a feed roller within the said cylinder for shifting said tympan, a clutch on the shaft of said feed roller for driving the same, a lever connected with said clutch, a fixed cam support outside of said cylinder and a cam attached to said support, movable into and out of the range of the revolution of said lever, with the cylinder for the purpose of producing the operation of the clutch at desired intervals of time, substantially as herein described. 8th. The combination, with the impression cylinder of a printing machine, and a shifting tympan thereon, a feed roller in said cylinder for shifting said tympan, and a driving clutch on the shaft of said roller, of a gear on the driving member of said clutch, and a stationary gear concentric with the cylinder with which the first mentioned gear engages for shifting the tympan when said clutch is in gear, substantially as herein described. 9th. The combination, with the impression cylinder of a printing machine, and a shifting tympan thereon, a feed roller in said cylinder for shifting said tympan, a driving clutch on the shaft of said roller, and a lever attached to said clutch for throwing it into and out of gear, of the cam lever *U*, and the trip lever *W*, both having fixed fulcrum supports, and the springs *x*, *Y* applied to said levers, substantially as herein described. 10th. The combination, with the impression cylinder of a printing machine, and a shifting tympan thereon, a feed roller in said cylinder for shifting said tympan, a driving clutch on the shaft of said roller, and a lever attached to the said clutch for throwing it into and out

of gear, of the cam lever *U*, and the trip lever *W*, both having fixed fulcrums, the springs *x*, *Y* applied to said levers, the fixed gear *D*, and loose gear *E*, both concentric with the cylinder, the gear *F*, gearing with both of said gears *D*, *E*, and the stud 9, on the said loose gear *E*, all substantially as and for the purpose herein set forth. 11th. The combination, with the impression cylinder and a shifting tympan thereon, of the delivery roller *d*, the take up roller *j*, and the feed roller *h*, having bearings in the ends of the said cylinder, the clutch *t*, on the shaft of said roller *h*, and the lever *n* attached to one member of said clutch for operating the same, the ratchet wheel *d'* on said delivery roller, the pawl *d''* for engaging the said ratchet wheel, the rods 11, 15, and rock shaft 12, 14, connecting said lever *n* and pawl, and the spring 16 applied to said rod, all substantially as and for the purpose herein set forth.

No. 40,087. Game. (*Jeu.*)

Oscar M. Hubner, New York, State of New York, U. S. A., 26th August, 1892; 6 years.

Claim.—1st. In a game, the combination, with a board, table or support, of pieces held to move thereon and arranged side by side, one half of the number of pieces bearing marks distinguishing them from the others, and the said pieces being so located that the distinguishing marks will alternate, one with the other, as described. 2nd. In a game, the combination, with a board, table or support, of eight movable pieces grouped thereon in close order, the pieces being of contrasting colour, or provided with marks distinguishing them one from the other, the said pieces being also evenly divided as to their distinguishing marks and subject to movements, substantially as herein shown and described.

No. 40,088. Conveyer for Grain. (*Transport à grain.*)

Frederic Eliot Duckham, Millwall Docks, London, England, 26th August, 1892; 6 years.

Claim.—1st. In a pneumatic grain conveying apparatus, the combination, with grain inlet nozzle of the suction pipe, of a circumferential air passage opening above the level of immersion of said nozzle, and terminating just above the level of the inlet orifice so as to admit to the grain inlet orifice a carrying current of air along with the grain drawn therein by the vacuum, as specified. 2nd. In a pneumatic grain conveying apparatus, the combination, with the grain inlet nozzle of the suction pipe, of a circumferential air passage formed by a sleeve surrounding the nozzle open at top and terminating at the lower end at such a height, with regard to the inlet orifice of the nozzle that a radial line touching the end of the sleeve and parallel to the angle of repose of the grain, will meet the side of the nozzle at a given distance above its inlet mouth, substantially as specified. 3rd. In a pneumatic grain conveying apparatus, the combination, with a pendent inlet nozzle, provided with a circumferential air passage, as described, the suction or conveying pipe and the exhausted hopper receiver, of the discharging receiver divided into two compartments, having inclined floors and self closing discharge flaps and adapted to rock on a horizontal axis, and thereby to automatically make connection alternately between the one and the other of its chambers and the said hopper, for the purpose of discharging the grain without admitting air, as specified. 4th. In a pneumatic grain conveying apparatus, the combination, with the twin receiver adapted to rock on a horizontal axis and thereby to make connection alternately between the one and the other of its chamber and the hopper above, of automatic releasing mechanism consisting of counterweighted levers, latches connected to said levers and adapted to automatically engage with and support the rocking receiver, and of connections between the latches and the weighted arms whereby the motion of the latter under the preponderating weight of the load in the corresponding chamber of the receiver will cause the latches to be disengaged and allow the receiver to fall over to the other side so as to put the empty chamber in communication with the hopper and allow the full chamber to discharge its load, substantially as specified. 5th. In a pneumatic grain conveying apparatus, the combination, with the exhausted hopper, of the rotating bucket drum partially inclosed in a casing and so applied in connection with the hopper that the latter will discharge the grain in a direction approximately tangential to the drum, substantially as specified. 6th. In a pneumatic grain conveying apparatus, the combination, with the discharge mouth of the exhausted hopper, of the rotating bucket drum arranged in relation thereto, as described, the drum being partially inclosed in a casing and provided with flexible lips making a joint with the peripheral portion of the casing and the drum heads being received in recesses in the sides of the casing so that the edges of said heads make a practically air tight joint with the shoulders of said recesses, as described. 7th. In a pneumatic grain conveying apparatus, the combination, with the exhausted hopper and the rotating bucket drum partially inclosed in a casing and arranged, as described, with regard to the hopper mouth, of the bye pass return air pipe for permitting the air in the empty buckets to expand into the exhausted receiver without obstructing the flow of the grain, as described. 8th. In a pneumatic grain conveying apparatus, the combination, with the exhausted hopper, of the "air lock" chamber and valves, substantially as and for the purpose specified. 9th. In a pneumatic grain conveying apparatus, the combination, with the exhausted hopper, of a series of valves opening outwards and inclosed in casings in a discharge spout attached to said hopper, the

valves being partially balanced under atmospheric pressure so as to open under the weight of the grain accumulating against them, as described.

No. 40,089. Self-reascending Motor.

(*Moteur à ascension automatique.*)

Philippe Baldensperger, Paris, France, 26th August, 1892; 6 years.

Claim.—The new system of self-reascending motor, herein described, characterized by the employment of a shaft with a keyed ratchet wheel driven alternately by either of two pawls mounted upon links loose on the shaft, which are actuated by the same lever upon which acts, 1st the man with his arms, and 2nd the saddle by the shifting of the same around its fulcrum, as above specified.

No. 40,090. Wheel for Vehicles. (Roue de voiture.)

Harrey Moore, Wellingborough, County of Northampton, England, 26th August, 1892; 6 years.

Claim.—1st. A wheel, having a cone or cones operated by a screw thread, formed upon the axle box to bear upon wedge shaped bars, held in position within the hub to force the spokes outwardly from the hub in radial directions, substantially as described. 2nd. The combination of oil box and a tubular dipping peg for filling oil into the said oil box, and distributing the same upon the axle of a wheel when the wheel is rotated, substantially as described. 3rd. The combination of a wheel, having spokes extensible radially from the hub to the felloe, and a doubly flanged tire into which the felloe is expanded to obtain the required rigidity of the wheel, substantially as described.

No. 40,091. Fire Proof Door. (Porte à l'épreuve du feu.)

Reuben Hallenstein, Melbourne, Victoria, Australia, 26th August, 1892; 6 years.

Claim.—1st. For working doors, closing apertures in floors of buildings, the combination, with a lift of a counterweighted rod A, its rack and the gearing operated thereby, substantially as described and illustrated by the accompanying drawings. 2nd. For working doors, closing apertures in floors of buildings, the combination of the vertical shaft F, and the gearing operated thereby, substantially as described and illustrated by the accompanying drawings.

No. 40,092. Breech Loading Small Arms.

(*Arme à feu se chargeant par la culasse.*)

Philip Thomas Godsall, of Eton, Buckingham, England, 26th August, 1892; 6 years.

Claim.—1st. The combination, of the block or obturator E, provided with a handle, and with radial lugs, which are capable of locking into a female portion on the end of the barrel, a saddle block or carrier F, containing the main spring G, and striker G¹, and connected with the obturator E, and a safety bolt arrangement connected with the saddle block, the whole constituting an improved breech action for small arms, as herein shown and described. 2nd. In a magazine small arm, the combination, of an obturator E, and carrier F, a pusher piece J, provided with a notched edge, and a magazine R, as shown and described. 3rd. In a magazine small arm, the combination, of an obturator and carrier E, F, a pusher J, a magazine R, and an automatic cut-off mechanism, arranged to be released either by the deliberate action of the firer or automatically by means of pins on the pusher J, as set forth. 4th. In a breech loading small arm, the combination, of an obturator having a cam surface on its rear face, a striker having a cam surface near its forward end, and upward projection P*, at its rear end, and a bent G², and a saddle block or carrier having a frame F², on which is pivoted a spring block or bolt O, the whole constituting a safety mechanism for withdrawing or holding back the striker from the cartridge, until the action is closed, and for retaining the striker in the cocked position independently of the sear, when the arm is loaded, as set forth. 5th. In a breech loading small arm, the combination, of a cartridge extractor of the form described, the stem of which works in a groove in the guide bar C, a saddle block or carrier, one side of which overlies the stem and retains it in the groove, and an obturator capable of axial motion in the carrier, and provided with a handle, by means of which the carrier can be drawn back and a succession of blows can be given to the extractor, as and for the purpose set forth. 6th. The combination, with a magazine arm, of a cut-off mechanism having an automatic cut-off action automatic and a releasing motion produced intentionally by the firer, as and for the purpose set forth. 7th. In a magazine arm, the combination, with the hollow block H*, of the cut-off bolt J*, with piston J¹*, attached and having a finger piece J²*, and a spiral spring for operating said bolt, as shown and described. 8th. The combination, with the extractor H, having the extension piece H¹, and tail piece H², the rear end of which is formed with a shoulder or stop H³, of the side piece F¹, of the saddle block projecting downwards over the tail piece H², for the purpose set forth. 9th. The fore trigger plate offset to one side of the barrel to allow a cleaning rod of greater length than such barrel to be screwed into a lug H⁴, projecting laterally from the cut-off bolt holder H*, as shown and described. 10th. In combination, with the stem P, its projection P*, and the extension F², of the plug F⁴, the spring bolt O, pivoted in the recess N, of such extension, for the purpose set forth.

No. 40,093. Apparatus for Making Nets.

(*Appareil pour la fabrication des filets.*)

William Stuart, Musselburgh, County of Midlothian, Scotland, 26th August, 1892; 6 years.

Claim.—1st. The machinery for the manufacture of double knotted nets for fishing and other purposes, substantially as hereinbefore described and shown in the accompanying drawings. 2nd. In machinery for making double knotted nets for fishing and other purposes, the arrangement and combination with the ordinary front hooks C, needles D, clapping bar N, and fallers P, of the movable pushers G¹, and movable back hooks J¹, all substantially as and for the purposes hereinbefore described and shown in the accompanying drawings. 3rd. In machinery for making double knotted fishing and other nets, the arrangement and construction of the movable pusher bar G, having pushers G¹, mounted thereon, in combination with the movable back hook bar J, and the back hooks J¹, or any mere modification of said pawls, all substantially as and for the purposes hereinbefore described and shown in the accompanying drawings. 4th. In net making machinery, the combination with the front hooks C, needles D, pushers G¹, back hooks J¹, and fallers P, of the faller springs having a double coil R, substantially as and for the purposes hereinbefore described and shown in the accompanying drawings.

No. 40,094. Gas Tap or Cock. (Robinet à gaz.)

Law Heppenstall, Huddersfield, Yorkshire, England, 26th August, 1892; 6 years.

Claim.—1st. In a gas tap, the rotary plug or key thereof having channels of differing areas formed therein, and arranged to communicate with each other, and with the main passage leading to the burner, or with a channel connected with said passage, as and for the purposes set forth. 2nd. In a gas tap, where the light cannot be entirely extinguished, the plug a, with a groove f, formed around the whole circumference thereof, for the purpose of giving off either a small or full light, as described.

No. 40,095. Incandescent Electric Lamp.

(*Lampe électrique incandescente.*)

Ephraim E. Weaver, Gustavus B. Manypenny, John W. Comfort, William S. Ambler and John Cunningham, jun., all of Philadelphia, Pennsylvania, U.S.A., 26th August, 1892; 6 years.

Claim.—1st. An incandescent electric lamp, provided with a filament and a reflecting body of irregular, square or elliptical form disposed between or about the filament of the lamp, substantially as and for the purposes set forth. 2nd. An incandescent electric lamp provided with a hollow reflector of irregular, square elliptical cross section forming the inner wall of the vacuum chamber thereof, and a filament having the two parts thereof disposed in proximity to the points or ends of the hollow reflector, and said filament connected with electrodes sealed to the socket of the lamp, the construction and arrangement being such that a supply of air is afforded around about the internal surface of the reflector, whereby overheating or other damage to the reflector of the lamp is prevented, for the purposes set forth.

No. 40,096. Gas Engine. (Machine à gaz.)

Tangye Linnised, Soho, County of Stafford, assignee of Charles William Pinkey, of Smethwick, both of England, 26th August, 1892; 6 years.

Claim.—1st. In engines worked by gas, generated from petroleum or other liquid hydrocarbon, an inlet valve (for the inlet of the mixture of petroleum or other liquid hydrocarbon and the air) situated at or near to the cylinder end of the combustion chamber for the purposes of allowing well mixed petroleum (or the like), and air to enter the cylinder in an unvaporized condition, and with but little disturbance of the exhaust gases, substantially as hereinbefore described. 2nd. In engines worked by gas, generated from petroleum or other liquid hydrocarbon, the regulation of the time of ignition of the explosive charge by the regulation of the temperature and degree of compression, substantially as hereinbefore described. 3rd. In engines of the kind referred to, the combination, with the combustion chamber, of a chamber such as T, and a valve such as t, for regulating the degree of compression and time of ignition of the explosion charge, substantially as hereinbefore described. 4th. In engines of the kind referred to, the combination, with the combustion chamber of a space around, or in proximity to, the cylinder end thereof of an extending to a distance therefrom in accordance with the desired time of ignition and with or without means (such as the screw c), for regulating the admission of cooling medium thereto from the cylinder jacket, substantially as hereinbefore described. 5th. In engines of the kind referred to, the combination, with the combustion chamber of a chamber, such as the chamber 1, the passage 2, and the valve 5, and means for operating it, substantially as hereinbefore described. 6th. In engines of the kind referred to, the combination, with the combustion chamber, of a device for passing thereto cooling air, substantially as and for the purpose hereinbefore described. 7th. In engines of the kind referred to, the combination, with the combustion chamber, of a pump for passing thereto cooling air, and a cock such as the cock 13, for regulating

or stopping the supply of air to the said chamber, substantially as and for the purpose hereinbefore described. 8th. In engines of the kind referred to, the arrangement for controlling the supply of petroleum or the like, according to the speed of the engine, by means of a governor directly connected to a valve, substantially as hereinbefore described.

No. 40,097. Copy Holder. (Serre-papier.)

Gustave H. Grabe and James W. Snyder, Coudersport, Pennsylvania, U.S.A., 26th August, 1892; 6 years.

Claim.—1st. In a copy holder, the combination, with opposite standards and opposite rolls, the upper one of which is spring pressed upon the lower, of a ratchet mounted rigidly upon the shaft of the lower roll, an oscillating disk mounted upon said shaft at one side of the ratchet, a pivoted pawl secured to the disk and meshing with the ratchet, a spring for maintaining the same in contact with the ratchet, a pivoted key lever secured to the base, a spring for raising the same, and a pitman connecting the key lever with the oscillating disk, substantially as specified. 2nd. In a copy holder, the combination, with two rolls, the upper one of which is maintained in yielding contact with the lower, and means for operating the rolls, of a manuscript passage to the base between the rolls, having a rear flared mouth and its forward end upwardly curved in front of the rolls and terminating in a point between the same, substantially as specified. 3rd. In a copy holder, the standards mounted upon the base and carrying the rolls, one of which is spring supported, as shown, a ratchet on one of the rolls, and a disk located upon and rigid with the shaft and at one side of the ratchet, and a pawl pivoted to the disk and engaging the ratchet connections between the lever and the disk, as set forth. 4th. In a copy holder, the combination, with the two rolls between which the copy is passed, of the manuscript passage in the form of the letter J in cross section, having its base secured to the base of the copy holder, and its front end curving upwardly and terminating at a point nearly opposite the point of contact of the rolls, as set forth.

No. 40,098. Explosive Shell. (Bombe explosible.)

Henry Parker Merriman, New York, State of New York, U.S.A., 26th August, 1892; 6 years.

Claim.—1st. In an explosive shell, the combination of a collapsible head, a detonator exploded by an abrupt movement thereof, endwise of the shell, a longitudinal shaft within the shell bearing the detonator, and a radiating structure composed of arms or members that diverge obliquely from the said longitudinal shaft toward and connect with various portions of the said collapsible head, as hereinbefore described with reference to the figures 1, 12 and 24, in the annexed drawings. 2nd. The combination in an explosive shell, of a detonator, a movable primer case, an inertia actuated hammer therein in rear of the primers, and a pressure actuated piston exposed at the head of the shell connected to the primer case, whereby to be depressed and cause an abrupt movement of the primers in opposition to the hammer by the blow of immersion upon a water target, as hereinbefore described with reference to figures 1, 6, 12, 15 and 18, in the annexed drawings. 3rd. The combination in an explosive shell of a detonator, a movable primer case, an inertia actuated hammer thereon opposite the primer, and a pressure actuated piston depressible within a cylinder at the head of the shell connected to the primer case, within which cylinder the abutting column of water is confined against lateral deflection at the time of the blow of immersion to effectuate the abrupt movement of the primers in opposition to the hammer, as hereinbefore described with reference to figures 1, 6, 15 and 18, in the annexed drawings. 4th. The combination in an explosive shell, of a detonator, a movable primer case, an inertia actuated hammer therein opposite the primers, a pressure actuated piston exposed at the head of the shell connected to the primer case, a spring for advancing the piston after the shell is projected preparatory to its depression by pressure, and a latch for holding the piston normally in a retired position which latch is disengaged by the initial projection of the shell, as hereinbefore described with reference to figures 1, 6, 15 and 18, in the annexed drawings. 5th. In an explosive shell, the combination of a collapsible head capable of resisting the blow of immersion upon a water target, an instant action detonator exploded by an abrupt movement thereof with reference to the shell, a shaft bearing said instant detonator terminating with radiating arms such as described oblique to the axis of the shell connected with various parts of the said collapsible head, a movable apex in the head depressible by the blow of immersion, and a time action detonator connected to said apex actuated by an abrupt movement thereof with reference to the shell, as hereinbefore described with reference to figures 1 and 12, in the annexed drawings. 6th. The combination of the collapsible head, the detonator shaft, the radial structure of arms or webs secured to the shaft and diverging therefrom, and a ring interior to the head to which the radiating extremities of the said arms or webs are connected, as hereinbefore described with reference to figures 1 and 22, in the annexed drawings. 7th. In an explosive shell, the combination of detonator composed of a case movable lengthwise of the shell, and a safety discharging device consisting of thimbles projected rearwardly from the case containing hammers opposite the percussion primers of the detonator, shoulders in the hammers, and studs projecting from a stationary part of the shell through slots in

the thimbles, so as to engage with the shoulders of the hammers, and prevent contact of the latter with the primers, except by a rearward thrust of the case, as hereinbefore described with reference to figure 1, in the annexed drawings. 8th. The combination with an explosive shell, of a detonator, percussion primers thereof disposed from various directions toward a common centre, and a spherical or other hammer occupy a free or releasable position at the said common centre, whereby to invariably discharge one or more such primers irrespective of its direction of movement imparted by an endwise or lateral concussion of the shell, as hereinbefore described with reference to figures 1, 6 and 15, in the annexed drawings. 9th. The combination with an explosive shell, of a detonator, percussion primers thereof disposed from various directions toward a common centre, a spherical or other hammer occupying a free or releasable position at the said common centre, and firing pins radiating toward the primers interposed between the same and the said hammer, as hereinbefore described with reference to figures 1, 6 and 15, in the annexed drawings. 10th. In a detonator for explosive shells, the combination of a spherical or spheroidal concussion hammer, a case for the same provided with a concave seat or socket at its rear part as situated in the shell, for the partial reception of the hammer, and percussion primers (or their firing pins) in front of the hammer converging from various directions toward the same, as and for the purpose hereinbefore set forth with reference to figures 1, 6 and 15, in the annexed drawings. 11th. In a detonator for explosive shells, the combination of a spherical or spheroidal concussion hammer, a case for the same provided with a concave seat or socket at its rear part, as situated in the shell, for the partial reception of the hammer, percussion primers (or their firing pins) in front of the hammer converging from various directions toward the same, and a retaining rod screw threaded through the forward part of the case, provided with an automatic wind wheel for unscrewing said rod when the shell is projected, as hereinbefore described with reference to figures 1 and 6 in the annexed drawings. 12th. The combination, with the detonator case having a cylindrical interior and openings 156, communicating with the detonating compound, of the longitudinally movable hammer containing case 50, fitting said cylinder, and provided with longitudinal fuse channels 53, communicating with the percussion primers, and maintaining connection of the same with the detonating compound irrespective of the advanced or retracted position of said hammer case 50, as hereinbefore described with reference to figures 1 and 6, in the annexed drawings. 13th. The combination of the cylindrical detonator case having a plurality of differently timed fuse channels, the percussion primer case provided with a longitudinal fuse channel or channels, and means such as the key 47, whereby the percussion primer case may be rotatively adjusted, and its channel or channels brought into coincidence with one or another of such differently timed fused channels for the purpose hereinbefore described with reference to figures 1, 4, 6 and 8, in the annexed drawings. 14th. In an explosive shell, the combination of a collapsible shell head, a detonator, percussion primers within the shell head connected by fuse channels with the detonator disposed in directions radiating toward all parts circumferentially, of the interior of the head, and a body transmitting material substantially as described, interposed between the primers and the said surrounding interior of the head, whereby a collapse of any portion of the same will compress the transmitting material about and toward the primers discharging the detonator, in the manner hereinbefore set forth, with reference to figure 15, in the annexed drawings. 15th. In an explosive shell, the combination of a collapsible shell head, a detonator, percussion primers within the head arranged in an annular series disposed toward the sides thereof, and an annular case opposite the primers connected directly to the apex of the head, whereby the collapse of the latter in the direction of the axial line of the shell is transmitted to explode, the said primers in the manner hereinbefore set forth, with reference to figure 18, in the annexed drawings. 16th. The combination in an explosive shell, of a collapsible conoidal head, an annular series of detonating percussion primers therein, and an axial telescoping primer case having adjacent conic surfaces, substantially as shown between which such primers or their firing pins are located as hereinbefore described, in reference to figure 18, in the annexed drawings. 17th. The combination in an explosive shell, of a collapsible conoidal head, a stationary detonator and primer case bearing the primers or their firing pins in an annular series diverging toward and within the said head, and a sleeve projected inwardly from the apex of the head, bearing a converging conic surface or flange opposite and adjacent the said primers or their firing pins, so as to contract the same when the head is collapsed, as hereinbefore set forth, in reference to figure 18, of the annexed drawings. 18th. The combination, with an explosive shell, of a detonator for the shell charge having a channel or channels provided with instant action fuses, a collapsible shell head capable of resisting concussion upon a water target, percussion primers discharged by collapse of the said head communicating to said instant action fuses, also a channel or channels communicating with the detonator provided with delay action fuses, a depressible apex of the shell head yielding to concussion upon a water target, and percussion primers communicating to the delay action fuses discharged by the depression of said apex, in the manner hereinbefore described, in reference to figures 15 to 18, inclusive, in the annexed drawings. 19th. The combination in an explosive shell of a detonator, a hammer case within the shell head movable lengthwise thereof, percussion primers within the said movable case, and

fuse channels communicating with the detonator and with the primers, a depressible shell apex connected to the hammer case for actuating it, a hammer movable within said case, a rod extending axially through the apex and screw threaded into the hammer case to retain the hammer in a stationary position, a torsional spring for unscrewing the rod when released and retracting it from the hammer, a hook upon the end of the rod extending through the apex, and a pin 252, parallel with the movement of the apex intercepting the rotation of the hook when the apex is advanced, substantially as and for the purposes hereinbefore set forth, with reference to figures 15 to 18, inclusive, in the annexed drawings. 20th. The combination, with an explosive shell, of an explodable core tube fixed axially within the shell, and an interior explodable tube fixed to a removable head of the shell, telescoping said core tube, and containing or bearing the fuses and fuse detonating mechanism, being the means of withdrawing the same by the removal of the removable head, as hereinbefore set forth, with reference to figures 19, 20, 21, in the annexed drawings. 21st. The combination, with an explosive shell, of an explodable core tube axial to the shell, an interior explodable fuse bearing tube telescoping said core tube, said interior tube bearing and operating a detonating fuse at its inner portion, and encasing within it a separate detonating fuse independently operated, substantially as hereinbefore described, with reference to figures 19, 20, 21, in the annexed drawings. 22nd. In an explosive shell, the combination of a collapsible head composed of inner and outer walls, tubes or ——— directly or indirectly connected to the respective heads to move longitudinally by collapse of the same, and corresponding shell charge detonators connected to the separate tubes or shafts, in the manner hereinbefore described, in reference to figures 19, 20, 21, of the annexed drawings. 23rd. The combination, with an explosive shell, of an exterior shell head collapsible by water concussion, a delay action percussion fuse, and a fuse bearing detonating stem or shaft whereby the concussion of the exterior head is transmitted to the said delay fuse, an exterior shell head collapsible by concussion upon a solid, an instantaneous action percussion fuse, and a fuse bearing detonating tube or shaft whereby the concussion of the interior head is transmitted to the said instantaneous fuse, as hereinbefore set forth, with reference to figures 19, 20, 21, in the annexed drawings. 24th. The combination, with an explosive shell, of a percussion fuse, a fuse detonating shaft projecting toward the head of the shell, a collapsible liquid filled shell head or compartment thereof, a flexible diaphragm or other movable surface exposed to the liquid within said head or compartment and connected with the detonating shaft, whereby the shock of concussion is transmitted to the percussion mechanism by the compression of any portion of the liquid filled space, as hereinbefore set forth, with reference to figures 19, 20, 21, of the annexed drawings. 25th. The combination, with an explosive shell, of an external liquid filled shell head collapsible by water concussion, a flexible diaphragm exposed to the liquid therein, a delay action percussion fuse, and a stem or shaft connecting said diaphragm with the delay fuse to detonate the same by compression of the external head, an internal collapsible shell head (or partition transverse to the shell) collapsible by concussion of the projectile upon a solid, an instantaneous action percussion fuse and a tube or shaft connecting the same with said internal head to produce detonation by the rupture of said internal head, as hereinbefore described, with reference to figures 19, 20, 21, of the annexed drawings. 26th. The combination, with an explosive shell, of an external liquid filled shell head collapsible by water concussion, a flexible diaphragm exposed to the liquid therein, a delay action percussion fuse, and a stem or shaft connecting said diaphragm with the delay fuse to detonate the same by compression of the external head, an internal liquid filled shell head adapted to resist water concussion, but collapsible by concussion of the projectile upon a solid, a flexible diaphragm exposed to the liquid therein, an instantaneous action percussion fuse, and a tube or shaft connecting the latter diaphragm with the instantaneous fuse to detonate the same by compression of the internal head, substantially as hereinbefore set forth, with reference to figures 19, 20, 21, of the annexed drawings. 27th. The combination, in an explosive shell, of a series of separate plungers arranged in circular order about a common stationary core spindle, shoulders upon the spindle engaging with shoulders upon the respective plungers to retain them permanently from forward displacement, and independent percussion caps, mounted in the fuse casing clear of the plungers which fuse casing is rearwardly movable toward the hammers by the concussion of the projectile, as hereinbefore set forth, with reference to figures 19, 20, 23, inclusive, in the annexed drawings. 28th. The combination, with the herein described percussion fuse, hammers arranged in multiple series circularly within barrels therefor in the fuse casing, of a retaining spindle 24, longitudinal to the projectile, having shoulders that partly intersect the surrounding barrels to engage with corresponding shoulders upon the said hammers for the purpose of permanently retaining them in the manner hereinbefore described, with reference to figures 19 to 23, inclusive, in the annexed drawings. 29th. The combination, with the retaining spindle 24, and hammers 15, of the foot 365, connected to said retaining spindle, and the pressure actuated latches 380, extending through the base of the shell, to engage or disengage between the said spindle foot, and the rear of the fuse casings, by application or release respectively, of gas pressure from the rear of the projectile upon the pistons of said latches, as hereinbefore set forth, with reference to figure 21, in the annexed drawings. 30th. The combina-

tion, with the longitudinally movable fuse actuating tube 79, of the hinged latches 334, projecting into slots therein to lock the same, the reciprocating plunger 333, capable of unseating the latches at a forward point of its stroke, and an elastic cushion that will react upon said plunger when it is driven thereon by inertia to thrust it toward the latches, substantially as hereinbefore set forth, with reference to figures 19, 20, in the annexed drawings. 31st. The combination, with the longitudinally movable fuse actuating tube 79, of the hinged latches 334, projecting therein, to lock the same, an inertia acting, and compression reacting plunger 333, fitting within said tube, adapted to disengage the said latches by its reacting movement, and a compression plunger fitting the exterior of said tube and the interior of the surrounding tube, connected by air passages to co-operate with the said plunger 333, in the manner hereinbefore set forth, in reference to figures 19, 20, in the annexed drawings. 32nd. The combination, with an explosive shell, of a detonating hammer, and a passage communicating therewith through the body of the shell from an opening in the surface thereof directed so as to receive a column of water when the shell strikes a water target, as hereinbefore set forth, with reference to figures 24 to 36, inclusive, in the annexed drawings. 33rd. The combination, with an explosive shell, of a detonator actuated by pressure, and a tube or passage extending through the body of the shell connecting with the detonator with an opening or openings in the head of the shell directed so as to receive a column of water when the shell strikes a water target, as hereinbefore set forth in reference to figures 24 to 36, inclusive, in the annexed drawings. 34th. The combination with an explosive shell, of a detonator actuated by pressure, a tube or passage axial to the shell communicating with the detonator, and with an opening or openings in the head of the shell directed so as to receive a column of water when the shell strikes a water target, as hereinbefore set forth in reference to figures 24 to 36, inclusive, in the annexed drawings. 35th. The combination with an explosive shell, of a detonator actuated by pressure, a tube or passage axial to the shell connecting with the detonator, and branches of said tube or passage communicating with openings in various parts of the head of the shell directed so as to admit a column of water when the shell strikes a water target, as hereinbefore set forth in reference to figures 24 to 36, inclusive, in the annexed drawings. 36th. The combination with an explosive shell, of a detonator actuated by pressure, a tube or passage axial to the shell connecting with the detonator, and radiating branches of said tube oblique to the axis of the shell, communicating with openings in various parts of the head of the shell, substantially as and for the purpose hereinbefore described with reference to figures 24 to 36, inclusive, in the annexed drawings. 37th. The combination with an explosive shell, of a detonator actuated by pressure, a detonator actuated by impact, and a tubular shaft connecting between said detonator and the head of the shell at an opening or openings thereof, acting both as a transmitter of pressure and concussion, in the manner hereinbefore described in reference to figures 24 to 36, inclusive, in the annexed drawings. 38th. The combination with an explosive shell, of a detonator actuated by pressure, a detonator actuated by impact, and a tubular structure consisting of an axial tube, and divergent tubes radiating therefrom, at an angle, connecting between various parts of the head of the shell at openings thereof, and said detonators, said structures acting both as a transmitter of pressure and of longitudinal or lateral concussion on the head of the shell, substantially as hereinbefore set forth with reference to figures 24 to 36, inclusive, in the annexed drawings. 39th. The combination with an explosive shell, of a detonator actuated by pressure, a tube or passage extending therefrom through the body of the shell to an opening or openings in its surface, and diaphragms interposed in said tube or openings thereof, capable of rupture by the blow of immersion as hereinbefore described in reference to figures 24 to 36, inclusive, in the annexed drawings. 40th. The combination with an explosive shell, of a detonator actuated by pressure, a tube or passage extending therefrom through the body of the shell to an opening or openings in its surface, and a piston interposed in a cylindrical part of said tube or passage, for the purpose hereinbefore described, in reference to figures 24 to 36, inclusive, in the annexed drawings. 41st. The combination, with an explosive shell, of a detonator having fulminate caps and pressure actuated plungers opposite them, of a tube or passage communicating with said plungers, and with openings in the surface of the shell, substantially as hereinbefore set forth, in reference to figures 34 to 36, inclusive, in the annexed drawings. 42nd. The combination in a pressure actuated detonator for explosive shells, of a case containing cylinders or barrels, plungers therein, fulminate caps opposite the plungers connecting to the detonating compound, a passage in the case for admission of pressure to the plungers, an endwise movable shaft axial to the case, a locking collar thereon having elevations and depressions in its periphery which rotate in a circle intersecting the path of the plungers, and a piston exposed to pressure applied to the rear of the projectile, a torsion spring, and spline, connected to the shaft, co-operative therewith as described, to rotate the elevations of said collar out of interposition in the path of the plungers, when pressure is applied to the piston, substantially as hereinbefore set forth, in reference to figures 24 to 36, inclusive, in the annexed drawings. 43rd. The combination, with an explosive shell, of a movable detonator case having cylinders or barrels parallel to the axis of the shell, a part of said barrels containing pressure actuated plungers, and a part thereof containing hammers

actuated by impact, fulminate caps opposite said plungers and hammers communicating with the detonating compound, and a tube or passage communicating with the backs of said plungers, and with openings in the surface of the shell, substantially as hereinbefore set forth, in reference to figures 24 to 36 inclusive, in the annexed drawings. 44th. The combination, with an explosive shell, of a pressure actuated detonating plunger or plungers, a rotary locking shaft bearing circumferential elevations and depressions, which elevations intercept the path of the plungers, and a spirally bladed wheel exposed at the surface of the shell for rotating the shaft to disengage the plungers, substantially as hereinbefore set forth, in reference to figures 35 to 37 inclusive, in the annexed drawings. 45th. The combination, with an explosive shell, of a pressure actuated detonating plunger or plungers perpendicular to the axis of the shell, and a rotary locking shaft parallel to the axis of the shell, having circumferential elevations and depressions at portions opposite the plunger or plungers which respectively intercept or clear the path of the latter, and a spirally bladed wheel exposed at the surface of the shell for rotating the shaft to disengage the plungers, substantially as hereinbefore described, in reference to figures 35 to 37 inclusive, in the annexed drawings. 46th. The combination with an explosive shell, of a pressure actuated detonating plunger or plungers perpendicular to the axle of the shell, a rotary locking shaft axial to the shell, having circumferential elevations and depressions at portions opposite the plunger or plungers which respectively intercept or clear the path of the same, a spirally bladed wheel on the shaft exposed at the apex of the shell, and a guard or perforated shield placed over the said wheel, having inlet and outlet passages substantially as hereinbefore described in reference to figures 35 to 37, inclusive, in the annexed drawings. 47th. As a structural combination in an explosive shell, a detonator case containing firing plungers tangentially arranged about a common axial locking shaft, recesses in the shaft to clear the plungers when turned opposite them, a spirally bladed wheel on the shaft exposed at the apex of the shell, and a tubular water passage concentric with the shaft through which the latter extends, communicating with the pressure side of the plungers and branched to open around the apex, the whole being combined in a removable apex piece, substantially as hereinbefore described in reference to figures 35 to 37, inclusive, in the annexed drawings. 48th. In an explosive shell, the combination of a detonator, actuated by pressure, a cylinder and piston within the shell, a frictionally actuated wheel on the exterior of the shell, and mechanism whereby the motion of the wheel is imparted to the piston, for the purposes hereinbefore described in reference to figures 38 to 42, inclusive, in the annexed drawings. 49th. In an explosive shell, the combination of a detonator actuated by pressure, a cylinder and piston within the shell, a spring operative upon the piston to compress the air, a frictionally actuated wheel in the exterior of the shell, and mechanism whereby the motion of the wheel is imparted to compress the spring in the manner substantially as hereinbefore set forth in reference to figures 38 to 42, inclusive, in the annexed drawings. 50th. In an explosive shell, the combination of a detonator actuated by pressure, a cylinder and piston within the shell, a spring operative upon the piston to compress the air, a frictionally actuated wheel on the exterior of the shell, mechanism whereby the motion of the wheel is imparted to compress the spring, and a tripping mechanism whereby the spring is released to act on the piston at a given time during the motion of the wheel, substantially as hereinbefore described in reference to figures 38 to 42, inclusive, in the annexed drawings. 51st. The combination with an explosive shell, of a pressure actuated detonating plunger or plungers, a shaft intercepting the plungers, and a frictionally actuated wheel on the exterior of the shell, giving longitudinal motion to the shaft, to release the plungers, substantially in the manner hereinbefore set forth in reference to figures 38 to 42, inclusive, in the annexed drawings. 52nd. The combination with an explosive shell, of a detonating plunger or plungers movable in a line perpendicular to the axis of the shell, as an air chamber or passage communicating with the backs of the plungers and a spring actuated piston for compressing the air in said chamber, substantially as hereinbefore set forth, in reference to figures 38 to 42, inclusive. 53rd. The combination in an explosive shell, of a detonating plunger or plungers perpendicular to the axis of the shell, an air chamber or passage communicating with the backs of the plungers, a spring actuated piston for compressing the air in said chamber, a screw threaded axial locking shaft normally intercepting the plungers, and a spirally bladed nut on the shaft exposed at the apex of the shell, operative as hereinbefore described, in reference to figures 38 to 42, inclusive, in the annexed drawings. 54th. The combination in an explosive shell, an air compressing cylinder and a spring actuated piston therein, an axial shaft normally intercepting the path of the plungers extending through the piston and the apex of the shell, a spirally bladed wheel screw threaded to the shaft, and a tripping device, substantially as described, whereby the piston is engaged by or released from the shaft at definite points of the latter's retraction, substantially as hereinbefore described, in reference to figures 38 to 42, inclusive, in the annexed drawings. 55th. As a structural combination in an explosive shell, a detonator case containing firing plungers tangentially arranged about a common axial locking shaft, a spirally bladed nut on the shaft exposed at the apex of the shell, and a cylinder case and an air compressing piston upon said shaft longitudinally movable therewith, the whole being

combined in a removable apex piece, substantially as hereinbefore described, and shown in figures 38 to 42, inclusive, in the annexed drawings.

No. 40,099. Phonograph. (Phonographe.)

Thomas Alva Edison, Llewellyn Park, New Jersey, U. S. A., 26th August, 1892; 6 years.

Claim.—1st. The combination, with a phonogram cylinder, of a false shell made in two parts hinged together, for receiving the phonogram blank, substantially as set forth. 2nd. The false shell for phonographs, having a tapering bore and a cylindrical outer surface and made in two parts hinged together, substantially as set forth. 3rd. The false shell for phonographs, made in two parts hinged together, in combination with a locking device for holding said parts together, substantially as set forth. 4th. The false shell for phonographs, composed of two parts hinged together, and having their edges provided with registering projections and perforations, substantially as set forth. 5th. The flexible phonogram blank, consisting of a backing of flexible material covered, except at its ends, with a flexible indenting material, substantially as set forth.

No. 40,100. Phonogram Blank. (Blanc de phonogramme.)

Thomas Alva Edison, Llewellyn Park, New Jersey, U. S. A., 26th August, 1892; 6 years.

Claim.—1st. A cylindrical phonogram blank, having a wound inner surface of filiform material, such as thread, and an outer surface of sound recording material, substantially as set forth. 2nd. A cylindrical phonogram blank, having in combination, a cylindrically wound body of filiform material, such as thread, and an outer covering of the sound recording material, substantially as set forth. 3rd. A cylindrical phonogram blank, having a wound internal lining of filiform material, substantially as set forth.

No. 40,101. Phonograph. (Phonographe.)

Thomas Alva Edison, Llewellyn Park, New Jersey, U.S.A., 26th August, 1892; 6 years.

Claim.—1st. In a phonograph, the turning off tool provided with a breaking shoe or shoulder for powdering or breaking the chips, substantially as set forth. 2nd. In a phonograph, the combination with the turning off tool, of a breaking shoe adjustably secured thereto and acting to powder or break the chips, substantially as set forth.

No. 40,102. Process of Treating Phonogram Blanks.

(*Procédé de traitement des blancs de phonogrammes.*)

Thomas Alva Edison, Llewellyn Park, New Jersey, U.S.A., 26th August, 1892; 6 years.

Claim.—1st. The process of treating phonogram blanks having hard brittle surfaces, consisting in producing a tough film upon the surfaces of such blanks preparatory to turning them off, substantially as and for the purpose set forth. 2nd. The process of treating phonogram blanks having hard brittle surfaces, consisting in applying to such blanks preparatory to turning them off, a solution which attacks the substance of the blanks and softens and toughens the surface, substantially as and for the purpose set forth.

No. 40,103. Hemmer and Feller. (Ourleur et rabatteur.)

Stephen Laskey, Chicago, Illinois, U.S.A., 26th August, 1892; 6 years.

Claim.—1st. In a hemmer and feller, the combination, with the upwardly yielding spring controlled lower cloth turning member, of the upper cloth turning member arranged above the former, means for bodily supporting the said member, and a spring arranged to normally retain the said upper member against the lower, but permitting the entire upper member to yield upward independently of the lower member to uniformly and simultaneously enlarge the entire opening between the two members, substantially as described. 2nd. In a hemmer or feller, the combination, with the lower member consisting of a tongue provided with a suitable inclined or curved upper surface, of the upper cloth turning member consisting of the roller composed of truncated cones joined by their apexes, and arranged to co-operate with said tongue, substantially as and for the purpose set forth. 3rd. In a hemmer or feller, the combination, with the lower member g , consisting of a tongue provided with a suitable inclined or curved upper surface, of the upper member H^1 , consisting of a roller composed of a large truncated cone h^2 , and a small truncated cone h^1 , joined by their apexes and with a convex curve in the surface of the roller at the said point of junction, substantially as and for the purpose set forth. 4th. The combination, with the presser foot, provided with a central recess cut from the front edge of the foot rearwardly, of the cloth turning devices arranged within said recess in the presser foot, substantially as and for the purpose set forth. 5th. The combination, with the presser foot cut away centrally from front to rear, of an upwardly yielding centre arranged in rear of said recess, and a cloth turning device arranged in the front of said recess, substantially as and for the purpose set forth. 6th. The combination, with the presser foot

D, cut away centrally from front to rear and forming the side portions or lateral arms D¹, rigidly connected to the presser bar, of the upwardly yielding centre D², arranged in the rear portion of the cut away space, and provided with a light spring to depress the same, and a cloth turning device arranged in the front portion of the cut away space capable of yielding upward and provided with a light spring to normally depress the same, substantially as described. 7th. The combination, with the presser foot, having a vertically pivoting standard thereon, a spring controlled cloth turning device on said standards arranged to be turned aside and held in a turned out position, substantially as described. 8th. The combination, with the presser foot D, having its central portion cut out from front to rear, with the centre piece D² arranged in said central opening and free to move up and down bodily, a spring arranged to hold the centre down to working position, and a handle whereby the attendant may positively lift the centre bodily whenever desired, substantially as described. 9th. The combination, with the presser foot D, having its central portion cut out from front to rear, of the central piece D², arranged in said central opening, a spring arranged to depress the centre of its work, and a lock whereby the centre may be secured in working and made rigid with the stationary portion of the presser foot, substantially as described. 10th. The combination, with the presser foot D, having its central portion cut out from front to rear, of the centre D², arranged within said recess and provided with the shank D³, d³, and a spring D⁴, arranged within a recess D⁴, in the body of the presser foot which incloses said shank, substantially as described. 11th. The combination, with the presser foot cut away centrally from front to rear, and provided with lateral arms D¹, of the upwardly yielding centre D², arranged between said arms at the rear, and a feed dog consisting of lateral members J¹, corresponding in position to the arms D¹, and lateral extensions D², arranged under the upwardly yielding centre, substantially as described.

No. 40,104. Flexible Metal Tubing.

(*Tube en metal flexible.*)

Gotthard Commichau, Magdeburg, Germany, 26th August, 1892; 6 years.

Claim.—1st. A flexible metal tube made by rolling on a mandril continuous metal rings, as shown in Fig. a, on spirally cut metal strips, as shown in Fig. b. 2nd. A flexible metal tube, as described in claim 1, in which the metal strips are shaped in a suitable manner for the purpose of limiting the telescopic action, substantially as described.

No. 40,105. Wind Wheel. (*Roue à vent.*)

Milo Jackson Althouse, Waupun, Wisconsin, U.S.A., 29th August, 1892; 6 years.

Claim.—1st. In combination, with a wind wheel shaft C, a crank F, intermediate gearing through which the crank receives motion from the shaft, a pump rod sustained from the crank, and a spring adapted and arranged to sustain the weight of the rod and its connection, whereby the sudden advance of the parts as the crank passes over the centre is prevented. 2nd. In a wind wheel, the combination, of the vertical tube, the pump rod therein, the crank, the angular pitman sustained by the crank and in turn sustaining the rod, the radius bars J, the compression spring seated within the tube and adapted and arranged to carry the weight of the rod and attendant parts as the crank passes over the centre, the sprocket wheels and chains for driving the crank, whereby the shifting of the chain to and fro on the wheels is prevented.

No. 40,106. Automatic Stone Cutting and Stone Dressing Machinery. (*Machine automatique à tailler et ajuster la pierre.*)

William Errington, Melbourne, Victoria, Australia, 29th August, 1892; 6 years.

Claim.—1st. In machinery for cutting and dressing stone, the use of a sliding tool block supported on a cross head or bridge, such tool block having an outward or lifting motion and a striking or percussion movement given to it, as herein described. 2nd. In machinery, for cutting and dressing stone, the use of a spring for imparting the striking or percussion movement to the block carrying the tool, as herein described. 3rd. In machinery for cutting and dressing stone, a cross head supported on trunnions, in combination, with the sliding tool block, the spring and the variable stroke lifting bar all assembled, arranged and operated as herein described and as illustrated in my drawings. 4th. In machinery for cutting and dressing stone, a cross head or bridge supported on trunnions or hollow bearers and carrying a sliding tool block B, in combination, with lifting bar C, motion block C¹, working in guides, link C², bell crank C³, connecting rod C⁴, furnished with swivel C⁵, bell crank C⁷, furnished with pin C⁸, and cam C⁹, as herein described and as illustrated in Figs. 1 to 4 of my drawings. 5th. In machinery for cutting and dressing stone, a cross head or bridge supported on trunnions or hollow bearers and carrying a sliding tool block B, lifted by arm C, in combination, with side levers F⁷, F⁸, cross pin F⁵, lever F⁴, connecting rod F², furnished with swivel F², and hand lever F, arranged preferably aside of notched quadrant F¹, as herein described and as illustrated in Figs. 1 to 4 of my drawings. 6th. In machinery for cutting and dressing stone, a cross head or bridge supported on

trunnions or hollow bearers and carrying a sliding tool block B, acted on by a spring E, in combination, with pressure roller E², loop piece E³, bell crank E⁴, links E⁵, furnished with swivel E⁷, and hand lever E⁸, preferably arranged aside of a notched quadrant E², as herein described and as illustrated in Figs. 1 to 4 of my drawings. 7th. A trunnioned cross head or bridge carried horizontally on a turntable and furnished with sliding tool block B, and its operating mechanism, in combination, with an under carriage having a longitudinal traverse, as and for the purposes herein described and as illustrated in Figs. 5 to 9 of my drawings. 8th. A cross head or bridge having sliding tool block B, and its operating mechanism and carried by its trunnions in vertical bearings, in combination, with a carriage having a rising and lowering motion and a longitudinal traverse, as herein described and as illustrated in Figs. 10 and 11 of my drawings. 9th. A trunnioned cross head furnished with sliding tool block and its operating mechanism, in combination, with a pair of head stocks capable of supporting a block of stone to allow of its being dressed to a cylindrical form, as herein described and as illustrated in Figs. 12 and 13 of my drawings. 10th. A trunnioned cross head furnished with sliding tool block and its operating mechanism, in combination, with a carriage or bed for the stone to be dressed, such carriage being a turntable with a lifting and lowering movement and capable of being given a transverse and longitudinal traverse, as herein described and as illustrated in Figs. 14 and 15 of my drawings.

No. 40,107. Motor. (*Moteur.*)

Daniel Robinson Sheen, Peoria, Illinois, U. S. A., 29th August, 1892; 6 years.

Claim.—1st. The combination, with a revoluble shaft having a ratchet wheel fixed thereon, of two levers having pawls engaging said wheel, and a spring supported platform connected with one of said levers, substantially as and for the purpose specified. 2nd. The combination, with the shaft E, having the dissimilar ratchet wheels C, C¹, C² mounted thereon, of the fixed rod F, parallel to said shaft, and the lever A loosely pivoted on said rod, and provided with pawls D, D¹, whereby the lever can be adapted for actuating the shaft dissimilarly, as set forth. 3rd. The combination, with the shaft E, having the dissimilar ratchet wheels C, C¹, C² fixed thereon, of the movable levers A, A¹, having a common fulcrum and suitable pawls, and the spring supported platform B, having grooves J, and buttons J¹, as and for the purpose set forth. 4th. The combination, with the ratchet wheel levers, and pawls, of the eyes G, and cords H¹, as and for the purpose specified.

No. 40,108. Car Coupler. (*Attelage de chars.*)

George Cassady, Vancouver, British Columbia, Canada, 29th August, 1892; 6 years.

Claim.—1st. In a draw head A, the combination of a double groove b, conjoined at the rear and corresponding to the shape and proportions of a coupling link and having sloping sides and a forward and downward sloping and rounded bottom, the hook B, having a rounded front b¹, the rounded rear point b¹¹, and the undercut b¹¹¹, the undercut b² at the rear and bottom of the groove B, and the backward and upward slope b³, and the recess or tapering throat b⁴, from the bottom of the rear portion of the groove b, at a downward and rearward sloping angle, substantially as set forth. 2nd. In a car coupling, the combination, with a draw head A, of a hook B, formed by the formation of a groove adapted to receive the end of a coupling link, said hook being undercut at the rear, a tapering throat b⁴, extending obliquely downwards and rearwards from the rear of the bottom of said groove and adapted to hold the link, and a common link C, substantially as set forth.

No. 40,109. Signal for Electric Railways.

(*Signal pour chemins de fer électriques.*)

William James Smith, Charlottesville, and James Walter Fox, Lexington, all in Virginia, U.S.A., 30th August, 1892; 6 years.

Claim.—1st. The combination, of two pairs of conducting bars located along the track a distance from and on opposite sides of a bridge or trestle work, one or more circuits of which said bars are the terminals, circuit closers on the same, and means to operate said circuit closer to electrically unite said bars, for the purpose set forth, when the bridge or trestle work is destroyed or injured, substantially as described. 2nd. In an electric railway signal, the combination, of the switch rail or rails, the horizontal sliding switch bar carrying the same, and provided with an operating lever, the lateral contact arm rigidly secured to and insulated from said bar and beveled on one longitudinal edge, the spring contact at one end secured upon and insulated from the switch base, having its opposite spring portion raised so that said arm can slide from or beneath said spring end, and the separate slightly raised horizontal conducting bars along opposite sides of the track separately connected with said stationary and movable contacts, substantially as described. 3rd. In an electric railway signal, the combination, with a trestle work or bridge, of a conducting bar along the track a distance from the bridge, a normally open circuit closer at the bridge arranged to be closed by the destruction or falling of the bridge, a normally open line circuit including said closer and bar, and a vehicle having an alarm circuit to close said line circuit when the circuit closer is closed,

substantially as described. 4th. In an electric railway signal, the combination, of the two normally open circuit closers respectively located at opposite ends of a bridge or trestle work, and each consisting of a stationary contact and a movable contact, means connecting the movable contacts of the two closers and extending along the bridge, so that when tension is exerted on said means both of said closers will be closed, and the two separate line circuits in which said closers are respectively and directly included, substantially as described.

No. 40,110. Cogged Wheel. (*Roue d'engrenage.*)

Jacob F. Pftch, Erie, Pennsylvania, U.S.A., 30th August, 1892; 6 years.

Claim.—In a cogged or toothed wheel, the combination, of the hub A, the web B, and the rim C, made integral with said hub and web, extending laterally on each side of the web and provided on one edge with a flange *c*, with the non-metallic supplemental rim D, composed of the segmental sections *g, g*, fitted on the rim C, and cemented together, the ring *d*, fitted to the edge of the said rim C, and the bolts *e, e*, pass through the said ring *d*, the supplemental rim D, and the flange *c*, all constructed and arranged substantially as described.

No. 40,111. Axle and Thread Cutter.

(*Décapoir d'essieu et de fil.*)

Frank E. Beardsley, Traverse City, Michigan, U.S.A., 30th August, 1892; 6 years.

Claim.—1st. In an axle cutter a tool head adapted to carry the turning tools and a threading tool, in combination with a mandrel for turning said tool head, a threaded sleeve mounted on said mandrel and adapted to feed the same longitudinally, and a nut with interior and exterior threads engaging said threaded sleeve, and supporting the same in the frame of said axle cutter, substantially as described. 2nd. In an axle and thread cutter, a tool head adapted to carry the turning and threading tools, in combination with a mandrel for turning said tool head, a threaded sleeve mounted on said mandrel and adapted to feed the same longitudinally, a nut with interior and exterior threads, engaging said threaded sleeve and supporting the same in the frame of said axle cutter, a crank for revolving said mandrel, and means for connecting said crank with said threaded sleeve, whereby the threading tool is advanced one thread each revolution of said crank, substantially as described. 3rd. In an axle and thread cutter, the combination of frame A, adapted to be clamped to an axle, tool frame E adjustably connected to said frame A, to permit vertical movement, mandrel G, threaded sleeve I, nut *e*, having interior threads engaging said sleeve, and exterior threads engaging the tool frame, whereby said sleeve and nut are made interchangeable with other pairs having different pitch, and means for revolving said mandrel and said threaded sleeve simultaneously, substantially as and for the purpose described.

No. 40,012. Car Coupler. (*Attelage de chars.*)

Austin Hammond, William R. Hammond and Oliver S. Hammond, all of Toronto, Ontario, Canada, 30th August, 1892; 6 years.

Claim.—1st. In a car coupling, the draw hook pivoted by one end to the draw bar having a recess therein to contain said draw hook in rear of the pin hole for the ordinary pin and link coupling, said draw bar having a lug on its upper side to connect a chain to lift it, substantially as shown and described. 2nd. In a car coupling, the combination of the draw hook pivoted by one end to the draw bar having a recess therein to contain said draw hook in rear of the pin hole for the ordinary link and pin coupling, and the spring secured to the top of the draw bar and adapted to bear on the draw hook, substantially as shown and described. 3rd. In a car coupling, the combination of the draw hook pivoted by one end to the draw bar having a recess therein to contain said draw hook in rear of the pin hole for ordinary link and pin coupling, the spring secured to the top of the draw bar and arranged to bear on the draw hook, a lug on the draw hook, a chain connecting the hook and lug to the arm on the lifter shaft on the car, and provided with means at its ends to vibrate it, substantially as shown and described. 4th. In a car coupling, the combination of the draw hook pivoted by one end to the draw bar having a recess therein to contain said draw hook, as described, the spring carried by the draw bar and arranged to bear on the draw hook, the chain connecting the draw hook and the arm on the lifter shaft, the lifter shaft carried on the body of the car, and the chain and lever at the roof of the car to operate said draw hook, substantially as shown and described.

No. 40,113. Car Coupler. (*Attelage de chars.*)

Joseph Teel, Kunkletown, Pennsylvania, U. S. A., 30th August, 1892; 6 years.

Claim.—1st. In a car coupler, the combination of a coupler head provided in its top with an opening, a catch pivoted in the opening, and provided with an extension foot plate adapted to be depressed to raise the catch, and a latch lever pivotally mounted on the catch, and adapted to engage the coupler head to hold the catch elevated, substantially as described. 2nd. In a car coupler, the combination of a coupler head provided in its top with an opening 5, and

having a recess 13, at the front of the opening and provided with bearing grooves on opposite sides of the recess, a catch arranged in the opening and having its front end reduced and forming a foot plate and provided with bearing grooves 10, and having an extension 11, which is provided with an opening registering with the grooves 10, and a pivot passing through the coupler head and arranged in said grooves and in the opening of the extension, substantially as described.

No. 40,114. Automatic Money Changer.

(*Appareil automatique pour changer la monnaie.*)

Honoré R. Loranger and George A. Duclou, both of Montreal, Quebec, Canada, 30th August, 1892; 6 years.

Claim.—1st. In a money changing apparatus, the combination, with the coin receptacles adapted to hold coins of various denominations and provided with discharging slides, of an actuating mechanism for such discharge slides consisting of a series of levers suitably pivoted and having varied registering projections, push rods suitably carried, and indicator keys or buttons carried thereby, the said projections being held in contact with said push rods, as and for the purpose set forth. 2nd. In a money changing apparatus, the combination, with the coin receptacles provided with discharging slides, of an actuating mechanism for such discharge slides, consisting of a series of vertical levers suitably pivoted, the lower ends of which carry horizontal bars of differing lengths laterally of the apparatus and formed with projections occupying the whole or two or more portions of the length of such horizontal bars, push rods suitably carried and indicator keys or buttons carried thereby, the said push rods being arranged to present a vertical portion of their length to the said projections, and means for holding these latter normally in contact with said push rods, for the purpose set forth. 3rd. In a money changing apparatus, the combination, with the coin receptacles provided with discharging slides, of an actuating mechanism for such discharge slides consisting of a series of vertical levers, such as F¹ suitably pivoted and carrying registering sections such as G¹, push rods H, with guide bars J, J, J¹, J¹, and means for holding such registering sections normally in contact with said push rods, as set forth. 4th. In a money changing apparatus, the coin receptacles formed in two parts, the one stationary and the other movable and means for carrying same, as and for the purpose set forth. 5th. In a money changing apparatus, the combination, with the supporting plate C, carrying the half section B of the coin receptacles, of a hinged lid or cover section carrying the half section B¹ of such coin receptacle, as set forth.

No. 40,115. Casket. (*Cercueil.*)

Thomas McGovern, New York, State of New York, U.S.A., 30th August, 1892; 6 years.

Claim.—1st. The combination, with the casket, of the lid of the same, said lid having a fixed foot section *a*, and a sliding head section *b*, and grooves in said lid, whereby the latter section slides over and above the former when displaced. 2nd. The combination, with the body of a casket, of the removable lid of the same, said lid having a raised marginal rim *a*, provided with narrow longitudinal grooves *c*, in the inner faces of said rim, and with lateral branch grooves, as *g* and *g*¹, from the grooves *c*, and the sliding panel *e*, provided at its edge with dowels, as *d* and *d*¹, arranged to engage said lateral branch grooves when the panel is in place, as set forth. 3rd. The combination, with the body of a casket, of the removable lid thereof, said lid having a raised marginal rim *a*, a cover portion *b*, with an aperture *x*, therein, grooves *c*, in the inner faces of the raised rim and above the level of the portion *b*, lateral grooves *g* and *g*¹, branching from the grooves *c*, the groove *g*, being larger than the groove *g*¹, and the sliding panel *e*, provided with dowels *d* and *d*¹, of unequal size, engaging said grooves, substantially as set forth. 4th. The combination, with the body of the casket, of the removable lid of the same, said lid having a raised marginal rim *a*, provided with longitudinal grooves *c*, for the sliding panel *e*, and the said sliding panel provided with dowels engaging the said grooves, the rim *a*, being covered with cloth *i*, which extends into and lines said grooves, substantially as and for the purposes set forth.

No. 40,116. Pulp Opener. (*Machine à ouvrir la pulpe.*)

Carl Kellner, Vienna, Empire of Austria, 30th August, 1892; 6 years.

Claim.—1st. In the combination, in a suitable vessel, of two revolving beaters provided with similar pegs or projections which interlock with each other, substantially as hereinbefore described. 2nd. In the combination, in a suitable vessel, of a revolving beater or beaters provided with pegs or projections interlocking with other similar pegs or projections fixed to the interior of the said vessel.

No. 40,117. Manufacture of Artificial Silk Filaments and in Apparatus for that purpose. (*Fabrication de filaments de soie artificielle et appareil pour cet objet.*)

Hilaire de Chardonnet, Paris, France, 30th August, 1892; 6 years.

Claim.—1st. In apparatus for the manufacture of artificial silk, the combination, of a pipe conveying solution of nitrated cellulose to a number of nozzles through which the solution is forced in thin

streams, a pipe conveying to casings surrounding the said nozzles, water through which the streams of solution pass, becoming converted into filaments, and suitable reels for winding the filaments, substantially as described. 2nd. In apparatus for the manufacture of artificial silk, a closed chamber supplied with heated air in which the filaments are wound, in combination, with a condenser for recovery of solvent, substantially as herein described.

No. 40,118. Car Coupler. (*Attelage de chars.*)

Oliver P. Conley, Eaton, Ohio, U.S.A., 30th August, 1892; 6 years.

Claim.—1st. In a car coupling, the combination of a draw head having a longitudinal opening and provided with a pin opening, a pin supporting spring arranged in the longitudinal opening and adapted to be moved rearward by a link, and a coupling pin arranged in the pin opening and adapted to be supported by the spring, and provided with the lower rounded collar and the upper enlarged collar, substantially as described. 2nd. In a car coupling, the combination of a draw head having a longitudinal opening and provided with a pin opening, a pin supporting spring arranged in the longitudinal opening, a pin supported by the spring and provided with the lower rounded collar and the upper enlarged collar, a pivoted supporting post, an operating lever fulcrumed on the post and connected with the coupling pin, and a keeper provided with a latch and receiving the outer end of the lever, substantially as described. 3rd. In a car coupling, the combination of a draw head having a longitudinal opening and provided with a pin opening, having a recess communicating with the pin opening and forming a support, a pin supporting spring arranged within the longitudinal opening and a coupling pin arranged in the pin opening and adapted to be supported by the spring and by the recess, substantially as described.

No. 40,119. Holder for Horses. (*Attache pour chevaux.*)

John Bell, Toronto, Ontario, Canada, 30th August, 1892; 6 years.

Claim.—1st. The combination of the leather strap *d*, with the clasp *a* and *b*, and clip *c*, for the purpose hereinbefore set forth. 2nd. The combination of the leather strap *d*, the iron washers *e, c, e*, with the clip *c*, for the purpose hereinbefore set forth.

No. 40,120. Blanket for Horses. (*Couverture pour chevaux.*)

Samuel Latham, Toronto, Ontario, Canada, 30th August, 1892; 6 years.

Claim.—A horse blanket or cover made in three pieces longitudinally arranged, the centre piece being a strip wide enough to cover the horses vertebrae, and having a stiffened neck piece attached to it, the rear of the blanket being fashioned to fit the haunches of the animal, substantially as and for the purpose specified.

No. 40,121. Swath Turner. (*Tourne-andain.*)

Edward Christopher Blackstone, Stanford, Lincoln, England, 30th August, 1892; 6 years.

Claim.—1st. A swath turner provided with one or more oscillating forks arranged at an angle to the axis of the machine, substantially in the manner described. 2nd. The manufacture and use of the improved swath turner hereinbefore described and illustrated in the accompanying drawings.

No. 40,122. Chair for Cleaning Windows.

(*Chaise pour le nettoyage des fenêtres.*)

William Myron Reynolds, New York, State of New York, U.S.A., 30th August, 1892; 6 years.

Claim.—1st. The combination, with a chair bottom, and devices as *C, D*, for connecting it with the sill, of a brace or support bolted to the chair bottom and to the back bow, and adapted to rest upon and embrace the corner of the sill. 2nd. The combination, substantially as set forth, of the chair bottom and back bow, a brace *B* secured directly to the back bow and chair bottom, and having a seat or notch *b*², for embracing the corner of the sill. 3rd. The combination of a chair bottom, and devices for connecting it with the sill, of a support or brace *B* connected with the chair back, and the rear of the chair bottom, and extending inwardly under the chair bottom, its foot being formed with a notch or seat for embracing the corner of the sill. 4th. The combination, substantially as set forth, of an ordinary chair seat having a back, devices for removably connecting the seat of the chair with the window sill, a support adapted to rest upon the outer part of the sill to sustain the chair seat, and braces swiveled to the sides of the chair back, and adapted to engage eyes or catches on the sides of the window frame. 5th. The combination, substantially as set forth, of the chair bottom, devices for connecting it to the sill, a high chair back, braces or supports connected with the chair back, and rear of the chair bottom and adapted to rest upon the outer part of the sill, and brace rods connected with the sides of the chair back, and adapted to engage eyes or catches on the window frame.

No. 40,123. Method of Subdividing Electric Currents.

(*Subdivision des courants electriques.*)

Walter Simpson, Chicago, Illinois, U.S.A., 30th August, 1892; 6 years.

Claim.—1st. The method of subdividing an electric current substantially as described, which consists essentially in passing the

main current through a series of two or more plates of different electro-motive potential arranged in electrolyte, and connected to the main line, and taking off the subdivided current by means of a local circuit which includes two or more plates, in the manner substantially as herein set forth. 2nd. The combination of the main circuit *A, A'*, and local circuit *E*, with the plates *B, C*, arranged in the electrolyte and connected into the two circuits, substantially as herein set forth.

No. 40,124. Combination Tool for Clamping Timber.

(*Outil à combinaison pour assembler le bois.*)

John James B. Lillington, Blackburn, Australia, 30th August, 1892; 6 years.

Claim.—1st. In tools for clamping timbers, a plunger such as *B* working in the guides and having a rack formed on it, said rack being operated by a cog ended lever such as *C*¹, to which motion is imparted by a handle such as *F*, substantially as and for the purposes herein explained and described and illustrated in the accompanying drawings. 2nd. In tools for clamping timber, a plunger as *B*, with a ratchet formed thereon with which a pawl engages and retains any strain imposed on the plunger by the operator, substantially as hereinbefore set forth. 3rd. In tools for clamping timber, the combination of the spindles *E*, cans *E*¹, bosses *A*² and *A*³, with the handles *E*² for adjusting tension, substantially as explained and as illustrated. 4th. In tools for clamping timber, the general combination, construction and arrangement of parts consisting of a frame as *A*, with its parts *A*¹, *A*², and *A*³, a plunger as *B*, with its parts *B*¹, *B*², and *B*³, a pivoted cog lever as *C*¹, with its parts *C* and *C*², a pawl as *D*¹, and its spindle *D*, the eccentric grippers as *E*¹, with their parts *E* and *E*², substantially as and for the purposes herein set forth, explained and illustrated.

No. 40,125. Automatic Determining Devices for Phonographs. (*Appareil déterminatif automatique pour phonographes.*)

Thomas Alva Edison, Llewellyn Park, New Jersey, U.S.A., 30th August, 1892; 6 years.

Claim.—1st. In a phonograph, the combination, with the recorder or reproducer frame movable toward and away from the phonogram surface, a guide rest, and an adjustable presser foot supporting the said frame from the guide rest, of a determining point carried by said frame, and making contact with the phonogram surface, a lock locking the spectacle frame, operated by hand after the determining point touches the phonogram surface, substantially as set forth. 2nd. In a phonograph, the combination, with the recorder or reproducer frame movable toward and away from the phonogram surface, a guide rest, and an adjustable presser foot supporting the said frame from the guide rest, of a determining point carried by said frame and making contact with the phonogram surface, a lock locking the spectacle frame, operated by hand after the determining point touches the phonogram surface, and mechanism independent of the locking mechanism operating to withdraw the determining point from contact with the phonogram blank after the locking of the spectacle frame is effected, substantially as specified. 3rd. In a phonograph, the combination, with the recorder or reproducer frame, movable toward and away from the phonogram surface, a guide rest, and an adjustable presser foot supporting the said frame from the guide rest, of a lever and determining point carried by said lever and making contact with the phonogram surface, and a lock locking the spectacle frame, operated by hand after the determining point touches the phonogram surface, substantially as specified. 4th. In a phonograph, the combination, with the recorder or reproducer frame, movable toward and away from the phonogram surface, a guide rest, and an adjustable presser foot supporting the said frame from the guide rest, of a lever and a determining point carried by said lever and making contact with the phonogram surface, a lock locking the spectacle frame, operated by hand after the determining point touches the phonogram surface, and mechanism independent of the locking mechanism, operating to withdraw the determining point from the phonogram after the locking of the spectacle frame is effected, substantially as specified. 5th. In a phonograph, the combination, with the recorder or reproducer frame movable toward and away from the phonogram surface, a guide rest, and an adjustable presser foot supporting the said frame from the guide rest, of a determining point carried by said frame and making contact with the phonogram surface and operated by hand, after the operation by hand of the lock locking the spectacle frame, and said lock locking the spectacle frame, operated by hand after the determining point touches the phonogram surface, substantially as set forth.

No. 40,126. Automatic Determining Device for Phonographs. (*Appareil déterminatif automatique pour phonographes.*)

Thomas Alva Edison, Llewellyn Park, New Jersey, U.S.A., 30th August, 1892; 6 years.

Claim.—1st. In a phonograph, the combination, with the recorder or reproducer frame movable toward and away from the phonogram surface, a guide rest, and an adjustable presser foot supporting the said frame from the guide rest, of a determining point carried by said frame and determining by contact with the phonogram surface

the exact position of adjustment of the recording or reproducing point therewith, and a lock operated by hand for locking the position of the spectacle frame at such point of adjustment, and a tripper tripping the determining point away from the phonogram blank operated by a further movement of the locking mechanism beyond that necessary to lock, substantially as specified. 2nd. In a phonograph, the combination, with the recorder or reproducer frame movable toward and away from the phonogram surface, a guide rest, and an adjustable presser foot supporting the said frame from the guide rest, of a lever and a determining point carried by said lever and determining by contact with the phonogram surface the exact position of adjustment of the recording or reproducing point therewith, and a lock operated by hand for locking the position of the spectacle frame at such point of adjustment, and a tripper tripping the determining point away from the phonogram blank operated by a further movement of the locking mechanism beyond that necessary to lock, substantially as specified. 3rd. In a phonograph, the combination, with a movable frame, a guide rest, and adjustable presser foot, of a lock operated by hand to lock the movable frame, and a tripper formed with a depression, and a lever bearing the determining point resting on said tripper, a sliding head on the locking piece, and a connection between the tripper and sliding head, whereby the tripper is operated to trip the determining point away from the phonogram blank, substantially as specified.

No. 40,127. Automatic Determining Device for Phonographs. (*Appareil déterminatif automatique pour phonographes.*)

Thomas Alva Edison, Llewellyn Park, New Jersey, 30th August, 1892; 6 years.

Claim.—1st. In a phonograph, the combination, with the recorder and reproducer frame movable toward and away from the phonogram surface, a guide rest, and an adjustable presser foot supporting the said frame from the guide rest, of a determining point carried by said frame and making contact with the phonogram surface, a lock locking the spectacle frame operated by hand after the determining point touches the phonogram surface, and a tripper tripping the determining point out of contact with the phonogram blank operated by the operation of the lock, substantially as specified. 2nd. In a phonograph, the combination, with the recorder and reproducer frame movable toward and away from the phonogram surface, a guide rest, and an adjustable presser foot supporting the said frame from the guide rest, of a lever and a determining point carried by said lever and making contact with the phonogram surface, a lock locking the spectacle frame operated by hand after the determining point has contacted with the phonogram, comprising a bar on the presser foot, a screw threaded bar in the spectacle frame surrounding the bar on the presser foot, and through which said bar is free to slide, and said presser foot, substantially as specified. 4th. In a phonograph, the combination, with the recorder and reproducer frame movable toward and away from the phonogram surface, a guide rest, and an adjustable presser foot supporting the said frame from the guide rest, of a lever and determining point carried by said lever and making contact with the phonogram surface, a lock locking the spectacle frame operated by hand after the determining point has contacted with the phonogram, comprising a bar on the presser foot, a screw threaded bar in the spectacle frame surrounding the bar on the presser foot, and through which said bar is free to slide, and said presser foot, a tripper for withdrawing the determining point from the phonogram blank operated by the movement for operating the lock, comprising a rocking lever, sliding bolt and tripping piece, substantially as specified.

No. 40,128. Automatic Determining Device for Phonographs. (*Appareil déterminatif automatique pour phonographes.*)

Thomas Alva Edison, Llewellyn Park, New Jersey, U. S. A., 30th August, 1892; 6 years.

Claim. 1st. In a phonograph, the combination, with a movable frame, a guide rest, and adjustable presser foot, of a pivoted determining point adapted to ride in a canted position on the surface of a revolving phonogram, substantially as specified. 2nd. In a phonograph, the combination, with a movable frame, a guide rest, and adjustable presser foot, of a pivoted L-shaped piece, one arm of which forms a determining point, and the other arm of which is operated upon by a spring to throw the determining point into the perpendicular when the phonogram ceases to revolve, and said spring, substantially as specified. 3rd. In a phonograph, the combination, with a movable frame, a guide rest, and adjustable presser foot, of a pivoted determining point adapted to ride in a canted position on the surface of a revolving phonogram, and a lock locking the movable frame, operated by hand after the determining point comes in contact with the phonogram, substantially as specified.

4th. In a phonograph, the combination, with a movable frame, a guide rest, and adjustable presser foot, of a lever bearing a pivoted determining point and an adjusting screw for said lever, substantially as specified.

No. 40,129. Phonogram Blank. (*Blanc de phonogramme.*)

Thomas Alva Edison, Llewellyn Park, New Jersey, U. S. A., 30th August, 1892; 6 years.

Claim.—1st. A phonogram blank composed of a base and an outer recording surface of different materials, having the same or substantially the same coefficient of expansion, substantially as set forth. 2nd. A phonogram blank, composed of a base of one material, and a sound recording surface of a different material, which is of a hard and brittle nature at ordinary temperatures, the two materials having the same or substantially the same coefficient of expansion, substantially as set forth. 3rd. A phonogram blank, having in combination, a base of asphaltic material and an outer covering of sound recording material, substantially as set forth. 4th. A phonogram blank, having in combination, a base of molded material and an outer covering of material having the same or substantially the same coefficient of expansion, substantially as set forth. 5th. A phonogram blank, having in combination, a base of molded material and an outer covering of another molded material, the two materials having the same or substantially the same coefficient of expansion, substantially as set forth. 6th. A phonogram blank, having in combination, a base of asphalt mixed with a material which contracts greatly in solidifying, such as carnauba wax, and an outer covering of sound recording material, substantially as set forth. 7th. A phonogram blank, having in combination, a base of asphalt mixed with a liquefying material, and an outer covering of sound recording material, substantially as set forth. 8th. A phonogram blank, having in combination, a base of asphalt mixed with a material which contracts greatly in solidifying, such as carnauba wax, and also with a liquefying material, and an outer covering of sound recording material, substantially as set forth. 9th. A phonogram blank, having an outer surface of metallic soap and a base of another material, having the same or substantially the same coefficient of expansion, substantially as set forth. 10th. A phonogram blank, having a base of asphaltic material, and an outer surface of metallic soap, substantially as set forth.

No. 40,130. Phonograph. (*Phonographe.*)

Thomas Alva Edison, Llewellyn Park, New Jersey, U.S.A., 30th August, 1892; 6 years.

Claim.—1st. In a phonograph, the combination, with a frame carrying the recorder or reproducer and movable toward and away from the surface of the phonogram blank and a guide rest maintaining its relation with the phonogram surface, of a determining point carried by such frame adjusted with relation to the point of the recorder or reproducer and determining by contact with the phonogram surface the proper relation of the recording or reproducing point therewith, substantially as set forth. 2nd. In a phonograph, the combination, with a frame movable toward and away from the surface of the phonogram blank and carrying the recorder or reproducer, a guide rest, and an adjustable presser foot for supporting said frame from the guide rest, of a determining point carried by said frame, and determining by contact with the phonogram surface the exact position of adjustment of the recording or reproducing point therewith, and a lock for locking the position of the presser foot at such point of adjustment, substantially as set forth. 3rd. In a phonograph, the combination, with a frame carrying the recorder or reproducer and movable toward and away from the phonogram surface, a guide rest and an adjustable presser foot supporting the frame from the guide rest, of a movable determining point carried by said frame, and determining automatically by contact with the phonogram surface the proper adjustment of the recorder or reproducing point with said surface, and a lock for locking the presser foot in that position of adjustment and for releasing the determining point, substantially as set forth. 4th. In a phonograph, the combination, with a frame movable toward and away from the phonogram surface and carrying the recorder or reproducer, a guide rest, and an adjustable presser foot supporting the said frame from the guide rest, of a movable determining point carried by the frame, and determining automatically by contact with the phonogram surface the adjustment of the recorder or reproducer therewith, and a lock for locking the presser foot automatically controlled or operated by the movement of the determining point, substantially as set forth. 5th. In a phonograph, the combination, with a frame movable toward and away from the phonogram surface and carrying the recorder or reproducer, a guide rest, and an adjustable presser foot supporting the said frame from the guide rest, of a movable determining point carried by the frame, and determining automatically by contact with the phonogram surface the adjustment of the recorder or reproducer therewith, and a lock for locking the presser foot automatically controlled or operated by the movement of the determining point, substantially as set forth. 6th. In a phonograph, the combination, with a frame movable toward and away from the phonogram surface and carrying the recorder or reproducer, a guide rest, and an adjustable presser foot supporting the said frame from the guide rest, of a determining point formed by the end of a lever pivoted upon said frame, and a spring lock locking the presser foot and released by the movement of the determining lever, substantially as set forth. 7th. In a phonograph, the combination, with the mov-

able frame and the guide rest, of the presser foot carried by a sliding bar, a spring throwing such presser foot downwardly, and a lock for locking the presser foot at any point of adjustment, substantially as set forth. 8th. In a phonograph, the combination, with the movable frame, of the presser foot thrown outwardly by a spring, a determining point carried by the frame, and a lock for locking the presser foot at the point of adjustment determined by the determining point, substantially as set forth. 9th. In a phonograph, the combination, with the movable frame and the automatic determining point, of the presser foot, a lock therefor, and a releasing finger, which is grasped in raising the frame, substantially as set forth. 10th. In a phonograph, the combination, with the movable frame, guide rest and tilting bar, of the presser foot projected outwardly by a spring and an auxiliary presser foot having a locking tooth and acting to lock the frame in an elevated position when the tilting bar is turned, substantially as set forth. 11th. In a phonograph, the combination, with a spectacle frame carrying the recorder and reproducer in its two eyes, of separate arms for such eyes and the automatic adjustment determining devices mounted upon each of such arms, substantially as set forth. 12th. In a phonograph, a cutting knife having an oblique cutting point curved to conform to the curvature of the cylindrical phonogram surface, substantially as set forth. 13th. In a phonograph, the combination, with the rocking holding arm, the traveller arm and the feed screw, of a lifting arm moved by the movement of the rocking holding arm and serving to disengage the traveller nut from the feed screw, substantially as set forth. 14th. In a phonograph, the combination, with the rocking holding arm and the traveller arm connected loosely together, of a cam moved by the lifting of the rocking holding arm, and a prop arm worked by the movement of such cam, and serving to lift the traveller arm whenever the rocking holding arm is lifted, substantially as set forth. 15th. In a phonograph, the combination, with the phonogram cylinder, of a cover covering its entire upper half, both top and ends, except for an opening through which the recording and reproducing devices act, substantially as set forth. 16th. In a phonograph, the combination, with the phonogram cylinder, of a cover covering the top and ends of such cylinder, the outer end plate of such cover being mounted upon the swinging arm carrying the centre, substantially as set forth.

No. 40,131. Spark Arrester. (Arrête-étincelle.)

John Thornton, Melbourne, Victoria, Austria, 30th August, 1892; 6 years.

Claim.—1st. A spark arrester, consisting of a cylindrical or a conical shaped cage formed of link, ring or woven wire netting that surrounds the space between an opening leading to funnel and top of exhaust pipe, as herein described, and as illustrated in figs. 1 and 2 of my drawings. 2nd. The use within the smoke box, of locomotive or portable engine boilers of link, ring or woven wire netting as a spark arrester, arranged preferably in the form of a cage, as herein described, and as illustrated in my drawings.

No. 40,132. Hoisting Apparatus. (Vindas.)

The Springfield Foundry Company, assignee of James Gibbins, all of Springfield, Massachusetts, U. S. A., 30th August, 1892; 6 years.

Claim.—1st. In a hoisting apparatus, the combination, with a driving shaft, having mounted thereon a winding drum, of a second winding drum of greater diameter, loosely mounted upon said shaft and surrounding said first mentioned drum, said outer drum having therein a transverse slot or opening to permit the passage of a cable to the inner drum, and means for locking the outer drum in a fixed relation to said shaft, substantially as set forth. 2nd. In a hoisting apparatus, the combination, with a driving shaft, having rigidly secured thereto a winding drum, of a winding drum of greater diameter loosely mounted upon said shaft and surrounding said first mentioned drum, said outer drum being provided with a transverse slot to permit the passage of a cable to the inner drum, and means for locking said drums together to cause them to revolve in unison and for disconnecting the same, substantially as set forth. 3rd. In a hoisting apparatus, a driving shaft, a winding drum rigidly secured to said shaft, a second winding drum of greater diameter surrounding said first mentioned drum and provided with a transverse slot to permit the passage of a cable to the latter, and means for locking said drums together at their peripheries and for disconnecting the same, combined and operating, substantially as described. 4th. In a hoisting apparatus, the combination, with a driving shaft and a winding drum rigidly secured thereto, said drum being provided at each end thereof with a projecting rim having therein a series of transverse grooves or recesses, of a second winding drum of greater diameter loosely mounted upon said shaft and capable of a limited endwise movement thereon, said drum surrounding the first mentioned drum and being provided with a transverse slot to permit the passage of a cable to the latter and with inwardly projecting lugs at each end thereof, which are adapted to enter the grooves or recesses in the inner drum to lock the two drums together, and means for imparting endwise movement to said outer drum, substantially as set forth.

No. 40,133. Earth Auger. (Tarière à percer la terre.)

William Addison Howe, assignee of Bradford Lane, both of Carlton, Oregon, U. S. A., 30th August, 1892; 6 years.

Claim.—1st. An earth auger having the cutting edges of its blades outside of the back edge of the opposed blades, and having each an

inwardly inclined side cutting edge, and a broad transversely ranging bottom cutting edge joining said inclined cutting edge, substantially as described. 2nd. In an earth auger, cutting blades rigidly supported from a single handle, said blades being curved or concaved transversely and having returned bottoms, and each blade having the opposite side edges formed approximate with vertically ranging portions b^3 , b^4 , inwardly and downwardly inclined portions b^5 , b^6 , and slightly diagonal bottom edges b^7 , one side and the bottom of each blade being sharpened, substantially as described.

No. 40,134. Fruit Gatherer. (Jaffet.)

William H. Wentworth, Fred. A. Motley, Charles Collins, all of Portland, and Harry B. Stone, Paris, assignee of George Albert Marsh, Dixfield, Maine, U. S. A., 30th August, 1892; 6 years.

Claim.—1st. In a fruit gatherer, the combination of a pole, a cage composed of two rings, and outwardly bowed rods connecting said rings, said cage being attached at its upper ring to said pole, a knife attached to said cage, and a flexible chute connected at its upper end to the lower ring of the cage, substantially as described. 2nd. In a fruit gatherer, the combination of a pole, a cage comprising the rings b and 15, and the rods 16, bent outwardly and forming a fruit holding bulge 18, and a fruit plucking knife, substantially as described.

No. 40,135. Heel Trimming Machine.

(Machine à finir les talons.)

The Acme Heel Trimmer Company, Boston, assignee of Charles W. B. Fuller, Malden and John W. Plummer, Somerville, all of Massachusetts, U. S. A., 30th August, 1892; 6 years.

Claim.—1st. In a heel trimming machine, the combination with a rotary cutter and its shaft, of the fixed bearing d surrounding the shaft, an externally threaded sleeve surrounding and mounted to rotate loosely on said bearings, means for preventing endwise movement of said sleeve, an arm g , having an internally threaded socket engaged with said threaded sleeve, and projecting forward from the sleeve, and a rest attached to the outer end of said arm, said arm being adjustable laterally by the rotation of said sleeve, as set forth. 2nd. In a heel trimming machine, the combination with a rotary cutter and its shaft, of an externally threaded sleeve surrounding and mounted to rotate loosely on the bearing which supports the shaft, means for preventing endwise movement of said sleeve, a rest supporting arm having an internally threaded socket engaged with the sleeve, said socket being split and compressible, and means for compressing the socket and thereby securing the rest supporting arm rigidly to the threaded sleeve, as set forth. 3rd. In a heel trimming machine, the combination with a rotary cutter and its shaft, of a fixed bearing d surrounding said shaft, a sleeve rotatable on said bearing, a rest supporting arm g clamped upon the sleeve and adapted thereby to swing vertically, whereby the outer end of the arm and the rest thereon may be raised or lowered, and means for positively holding the arm at any position to which its swinging end may be vertically moved, as set forth. 4th. In a heel trimming machine, the combination with a rotary cutter and its shaft, of an externally threaded sleeve surrounding and mounted to rotate loosely on the bearing which supports said shaft, a rest supporting arm having an internally threaded socket engaged with the threaded sleeve, said arm being adjustable laterally by the rotation of the sleeve, a stud i affixed to the supporting frame and passing through a slot in said arm, a sleeve o on said stud having a head bearing against one side of the arm, and a nut p engaged with a threaded portion of said sleeve and arranged to bear on the opposite side of the arm, said sleeve being adapted to slide endwise on the stud, and thereby conform to the lateral adjustment of the arm, as set forth. 5th. In a heel trimming machine, the combination of the vertically and laterally adjustable arm g , having the top lift rest fitted to slide in guides on said arm, and provided with an arm s formed as a half nut, and a screw t , journaled in bearings in the arm g , and engaged with the said half nut, as set forth. 6th. In a heel trimming machine, the combination of the vertically and laterally adjustable arm g , having the compressible slot r open at one end, the split rock u , pivoted in said slot, the heel rest having a shank inserted in said socket, and the screw v , whereby the slot and the split socket therein may be compressed to hold the shank at any position to which it may be adjusted.

No. 40,136. Electric Arc Lamp.

(Lampe électrique à arc.)

Thomas P. C. Crampton, of 10 Currittor St., Chancery Lane, and Albert Essinger, of 11 Hutton Garden, all of Middlesex, England, 30th August, 1892; 6 years.

Claim.—1st. In combination, with the lower carbon holder tube, a crown piece at its top carrying several refractory studs, and a weight urging upwards a conoidal piece of insulating material supporting the carbon, so that the coned point of the carbon is retained in position as it is consumed by bearing against the stud against which the conoidal insulating piece is made to bear when the carbon is exhausted. 2nd. In combination, with the upper carbon holder tube, having attached to it a core subject to the differential attraction of two solenoids, a clutch consisting of jaws which grip the carbon until by the descent of the tube a certain distance they meet adjustable stops whereby they are released, allowing the carbon to

slip downwards, substantially as described. 3rd. The combination, of a lower carbon holder such as is referred to in the first claim, and of an upper carbon holder and clutch such as is referred to in the second claim, with suitable solenoids and framing, constituting an electric arc lamp, substantially as described.

No. 40,137. Sad Iron. (Fers à repasser.)

Albert Carman and Archer Martin, both of Winnipeg, Manitoba, Canada, 30th August, 1892; 6 years.

Claim.—In a hand sad iron, the combination, with the hollow body A, having an open bottomed chamber C, of lids or covers to said chamber at the sides of the body, having inner flanges or bearings k, and the hollow pressing roller D, fitting at its open ends loosely on or over said bearings and arranged to project through the bottom of the body, one of said covers being made readily removable and provided with suitable fastenings for holding it closed, substantially as herein set forth.

No. 40,138. Toy. (Jouet.)

Moses Lyman, assignee of Charles M. Crandall, both of Waverly, New York, U.S.A., 30th August, 1892; 6 years.

Claim.—1st. In a toy, a standard containing a reciprocating slide carrying the figure of a man having pivoted arms and legs, said slide having elongated slots between the thighs and shoulders of said man, staples or eyes located within said slots and secured to said standards, and flexible connections passing through said staples and having their opposite ends secured to said arms and legs, in the manner and for the purpose substantially as described. 2nd. In combination, with a suitable base and standard, a gravitating slide bearing a figure and having central slots, a staple eye or similar device secured to said standard and located within the slots, arms and legs pivoted upon opposite sides of said slots and flexible connections secured to said arms and legs, and passing through the staples in the manner and for the purpose substantially as described. 3rd. In combination, with a suitable base and standard, a lever pivoted in said base, a slide secured to gravitate upon said standard and being provided with a figure, staples or eyes secured to the standard and located within elongated slots in the slide, said figure having its arms and legs pivoted upon opposite sides of the slots, and flexible connections secured to said arms and legs and passing through the staples in the manner and for the purpose substantially as described. 4th. In a toy, the combination, of a standard provided with a gravitating slide carrying the figure of a man or the like, said figure having its arms and legs pivoted to the slide and connected by a flexible connection passing through a staple or other fixed object upon the standard, whereby the arms and legs are actuated by the reciprocations of the slide in the manner and for the purpose substantially as described. 5th. In a toy, a reciprocating slide carrying the figure of a man, said figure being provided with pivoted arms and a pivoted head so poised as to drop upon one side or the other by being struck by the arms and by the actions of the slide, in the manner and for the purpose substantially as described.

No. 40,139. Coin Controlled Apparatus for Telephones. (Appareil actionné par une pièce de monnaie pour téléphones.)

William Gray and Charles Soly, both of Hartford, Connecticut, U.S.A., 30th August, 1892; 6 years.

Claim.—1st. In combination, with a telephone apparatus, a signal device, a lever having an arm interposed between the signal and its tappet, and coin controlled levers for moving the interposed arm from between the signal and the tappet, substantially as and for the purpose specified. 2nd. In combination, with a telephone apparatus, a signal device normally locked, the locking lever, the tumbler adapted to engage the arm of the lever, and with one end projecting into or across the coin channel, the coin channel and the means for tilting the tumbler and holding it temporarily in a fixed position, all substantially as described. 3rd. In combination, with a transmitter of a telephone apparatus, a signal device located adjacent to the transmitter, the signal locking lever, the tumbler with one end projecting into a coin channel, the coin channel and the tumbler retaining device, all substantially as described. 4th. In combination, with the transmitter e, of a telephone apparatus, the signal device g, located adjacent to the transmitter and the sound deflector h, the signal locking mechanism and the coin controlled device for releasing the signal, all substantially as described. 5th. In combination, with a telephone apparatus, the signal bell g', having a hammer i, the signal locking lever j, with the arm j', normally located in the path of movement of the hammer in striking, and also having an arm j', located in the path of movement of a tumbler k, the tumbler k, having a cam k', normally out of the path of movement of a tumbler operating slide, and having also a part projecting into the path of movement of a coin, the coin channel, and a slide rod having a projecting pin adapted to engage the cam on the tumbler, and the lever or like means for moving the slide rod and retaining it in its backward position, all substantially as described.

No. 40,140. Vapour Burner. (Foyer à hydrocarbures.)

Warren Mar Abbott and Harvey K. Flagler, both of Boston, Massachusetts, U.S.A., 30th August, 1892; 6 years.

Claim.—1st. In a vapour burner, the combination, with the retort and mixing chamber, of the water chamber connected at its base with

the retort and provided in its upper end with apertures m, and the water supply pipe e, having a screw threaded connection with the water chamber, as set forth. 2nd. In a vapour burner, the combination, with the retort, of the water chamber provided with exit apertures, asbestos or similar material in the water chamber, and a sheet or covering n', of foraminous material over the asbestos, as set forth. 3rd. In a vapour burner, the combination, with the retort, and the oil and water supply means, of the burners h, the cross pipe o, and the vapour supply pipe i, as set forth. 4th. In a vapour burner, the combination, with the retort, and its adjuncts, of the burners h, and the drip pan provided with air inlets between the burners, as set forth. 5th. In a vapour burner, the combination, with the drip pan, and the burners and their adjuncts, of the cover adapted to rest at its lower edge upon the drip pan and provided in its upper part with apertures s, as set forth. 6th. In a vapour burner, the combination, with the retort, of the burners provided with the apertures p, the cross pipe o, and the vapour supply pipe i, the burners being axially adjustable in the cross pipe, as set forth.

No. 40,141. Vapour Burner. (Foyer à hydrocarbures.)

Warren Mar Abbott and Harvey K. Flagler, both of Boston, Massachusetts, U.S.A., 30th August, 1892; 6 years.

Claim.—1st. The improved apparatus for making and burning gaseous fuel, consisting of the base or support, the double walled casing or tank surrounding a combustion chamber over said base, the mixing chamber in said combustion chamber, said mixing chamber being connected with the tank and provided with means for the supply of liquid fuel, and burners connected with the mixing chamber and arranged to heat both the tank and the mixing chamber, and thereby vaporize the liquid or solution in the tank and the fuel in the mixing chamber, the resulting gasses being mingled in the mixing chamber, and conducted from thence to the burners, as set forth. 2nd. The combination of the base or pan, the tank thereon formed to surround a combustion chamber over the pan, the mixing chamber in said combustion chamber, said mixing chamber being connected with the tank, the oil supply pipe entering the mixing chamber, the burners connected with the mixing chamber and arranged to heat the tank and mixing chamber, and the air pipes or inlets arranged to admit air to the combustion chamber, as set forth. 3rd. The combination of the base or pan, the tank thereon formed to surround a combustion chamber over the pan, the mixing chamber in said combustion chamber, said mixing chamber being connected with the tank, the oil supply pipe entering the mixing chamber, the burners connected with the mixing chamber and arranged to heat the tank and mixing chamber, and the non-conducting covering or sheath applied to the oil supply pipe in the combustion chamber, as set forth. 4th. The combination of the base or pan, the tank thereon formed to surround a combustion chamber over the pan, the mixing chamber in said combustion chamber, said mixing chamber being connected with the tank, the oil supply pipe entering the mixing chamber, the burners connected with the mixing chamber and arranged to heat the tank and mixing chamber, and the removable trap connected to the oil supply pipe outside of the combustion chamber, as set forth.

No. 40,142. Apparatus for Revolving and Elevating the Screw Propeller of a Boat. (Appareil pour tourner et élever les hélices de propulsion des vaisseaux.)

William Henry Thomson and George Morris, both of Hamilton, Ontario, Canada, 30th August, 1892; 6 years.

Claim.—1st. The combination with a boat, of a stationary frame secured to the stern, a frame or forked rod sliding in said stationary frame, and having a screw threaded shaft provided with a screw nut, a screw propeller journaled in said sliding frame, and gear pinions N, G, connecting the main driving shaft M with the propeller shaft, whereby the gear wheels separate when the propeller is lifted out of the water by the elevating screw, as set forth. 2nd. In a boat, the main driving shaft carrying a pinion on its rear end to mesh into a pinion on the screw shaft, a bevel pinion on the forward end meshing into a corresponding bevel gear on a counter shaft, a framework carrying a chain wheel, and a smaller chain wheel on the counter shaft connected by a chain belt, and fly wheels designed to operate a screw propeller wheel for driving a boat, substantially as specified. 3rd. In a boat, the combination with the main shaft M, of the pinion N on its rear end, the bevel pinion P on its forward end, fly wheel h, counter shaft A, bevel gear S, chain wheel e, chain wheel e, chain belt d, frame work O, substantially as specified. 4th. In a boat, the combination of the grooved frame B, B, rod H, H, I, blocks F, F, shaft E, screw D, pinions G, N, shaft M, bevel pinion P, counter shaft A, chain wheels e, e, chain belt d, shaft F, frame O, fly wheels Q, Q, all constructed substantially as and for the purpose specified.

No. 40,143. Machine for Forging Horseshoe Nails.

(Machine pour forger le clou à cheval.)

Ann Maria Putnam, Boston, Massachusetts, and George Nichols Fletcher, Detroit, Michigan, assignees of Charles Emery Moore, Boston, Massachusetts, U.S.A., 30th August, 1892; 6 years.

Claim.—1st. In a machine for forging horseshoe nails, the combination with the hammers operated alternately in pairs by a cam

wheel on the main driving shaft, of a cam shaft connected by gears with the main shaft and carrying the cam wheels I, J, the stationary cutter f^1 , and the movable cutter g^1 , the latter mounted on the lever T, the lever W, connected with the lever T, and actuated by the cam wheel I, to operate the movable cutter, the oscillating frame or carrier R, with its feed rolls and their connected shafts, and suitable connections between the frame R and the cam wheel J, whereby the feed roll carrier is oscillated at the required times, and a ratchet wheel and pawl for intermittently rotating the feed rolls, substantially as set forth. 2nd. In a machine for forging horseshoe nails, the combination with the feed rolls and their shafts geared together and mounted in an oscillating frame or carrier, operated substantially as described, and a ratchet wheel secured to one of said feed roll shafts, of the sliding pawl S, and the cam a^1 , and spring u , for operating the same, substantially as described. 3rd. In a machine for forging horseshoe nails, the combination with the hammers operating alternately in pairs, as described, and the stationary and movable cutters, of the feed rolls with their connected shafts mounted in an oscillating frame or carrier R, normally inclined at an angle, whereby the nail rod when swung over by the movements of said frame is brought down on to the edge of the lower cutter located below the level of the side hammers, substantially as described. 4th. In a machine for forging horseshoe nails, the combination with the hammers operated alternately in pairs, by a cam wheel having a groove for the reception of the hammer helves, and provided with recesses or enlargements, whereby the hammers are released from the control of the cam previous to giving their blow, and left free to complete their movement by their own momentum, of stops adapted to intercept the side hammers after they have passed out of the control of the cam grooves, and prevent them from striking the nail rod just previous to the cutting off of the nail, and means for operating said stops at the required times, substantially as set forth. 5th. The combination, with the side hammers operated by a cam wheel, substantially as described, of the stops A^1 , B^1 , pivoted to the frame L, the lever C^1 , connected with said stops by rods r^1 , and having an arm or branch t^1 , carrying a roll 28, and the cam wheel K, whereby the stops are operated to intercept the side hammers, substantially in the manner and for the purpose set forth. 6th. In a machine for forging horseshoe nails, the combination with the feed rolls and their shafts mounted in the oscillating frame or carrier R, of the connecting spur gears s , t , the former provided with bevelled teeth, the sliding shaft e^1 , with its bevelled pinion b^1 , adapted to engage with the bevelled teeth of the gear s , and the latch c^1 , for locking the shaft e^1 , with its pinion b^1 , in or out of engagement with the gear s , substantially as set forth.

No. 40,144. Car Coupler. (Attelage de chars.)

Charles E. Seabury, Stony Brook, New York, U.S.A., 30th August, 1892; 6 years.

Claim.—1st. A car coupling, comprising a draw head having a recess in the top and a link having a spring secured thereon and adapted to enter the recess, substantially as described. 2nd. In a car coupling, the combination, with the draw head having a concave recess in its top, of the coupling link having a spring secured to one side and adapted to enter the recess, substantially as described. 3rd. The combination, with the draw head having the concave recess in the top, of the coupling link having the upwardly curved spring secured thereto, said spring having its free end rounded, substantially as described.

No. 40,145. Scrubbing Machine. (Appareil à nettoyer.)

James Meehan, Cartier, Ontario, Canada, 30th August, 1892; 6 years.

Claim.—1st. As an improved floor washing machine, a cylindrical brush vertically adjustable upon a frame suitably supported on ground wheels, gearing to revolve the said brush, and a water reservoir provided with pipes arranged to convey the water from the said reservoir onto and in front of the cylindrical brush, substantially as and for the purpose specified. 2nd. As an improved floor washing machine, a cylindrical brush vertically adjustable upon a frame suitably supported on ground wheels, gearing to revolve the said brush, and a water reservoir provided with pipes arranged to convey the water from the said reservoir onto and in front of the cylindrical brush, in combination with a cylindrical mop located behind the cylindrical brush, substantially as and for the purpose specified. 3rd. As an improved floor washing machine, a cylindrical brush vertically adjustable upon a frame suitably supported on ground wheels, gearing to revolve the said brush, and a water reservoir provided with pipes arranged to convey the water from the said reservoir onto and in front of the cylindrical brush, in combination, with a cylindrical mop located behind the cylindrical brush, and a tray or collector designed to scrape the accumulated moisture off the cylindrical mop, substantially as and for the purpose specified.

No. 40,146. Air Brake. (Frein atmosphérique.)

Herbert McNulta, Detroit Michigan, U.S.A., 30th August, 1892; 6 years.

Claim.—1st. In an air brake system, the combination, in an engineer's valve, connected respectively with the supply reservoir and the train service pipe, of a pair of balanced pistons connected together and operated simultaneously to alternately establish and cut

off communication between the supply reservoir and the train service pipe, substantially as described. 2nd. In an air brake system, an engineer's valve, comprising a pair of cylinders connected respectively with the supply reservoir and the train service pipe and with each other, and a pair of balanced pistons working in said cylinder and connected together and operated alternately to open and cut off communication between the supply reservoir and the train service pipe, substantially as described. 3rd. In an air brake system, an engineer's valve, comprising a pair of cylinders connected with the supply reservoir and the train service pipe, and with each other, an exhaust port for the cylinder connected with the train service pipe, a pair of balanced pistons working in said cylinders and connected respectively with a lever, the piston in the last mentioned cylinder alternately opening the passage connecting it with the other cylinder and closing the exhaust port, and *vice versa*, and a movable fulcrum for said lever between the pistons, substantially as described. 4th. In an air brake system, an engineer's valve, comprising a pair of cylinders connected respectively with the supply reservoir and the train service pipe and with each other, an exhaust port for the cylinder connected with the train service pipe, a pair of balanced pistons working in said cylinders and connected respectively with a lever, the piston in the last mentioned cylinder alternately opening the passage connecting it with the other cylinder and closing the exhaust port, and *vice versa*, and a movable fulcrum for said lever between the pistons, substantially as described. 5th. In an air brake system, an engineer's valve, comprising a pair of cylinders connected respectively with the supply reservoir and the train service pipe and with each other, an exhaust port for the cylinder connected with the train service pipe, a pair of balanced pistons working in said cylinders and connected respectively with a lever, a hollow piston working therein provided with an opening for alternately registering with the supply passage from the other cylinder and the exhaust port, a piston of equal area with the first mentioned piston working in the other cylinder above the passage, a lever connected with both of said pistons, and a movable fulcrum for said lever between said pistons, substantially as described. 6th. In an air brake system, an engineer's valve, comprising a pair of cylinders connected respectively with the supply reservoir and the train service pipe and with each other, an exhaust port for the cylinder connected with the train service pipe, a pair of balanced pistons working in said cylinders and connected respectively with a lever, a movable fulcrum for said lever, and a hand lever for operating said fulcrum, substantially as described. 7th. In an air brake system, an engineer's valve, comprising a pair of cylinders connected respectively with the supply and the train service pipe and with each other, an exhaust port for the cylinder connected with the train service pipe, a pair of balanced pistons working in said cylinders and respectively connected with a lever, a movable fulcrum for said lever, a guide therefor, a lever for actuating the same, and a lock device for securing said lever in any adjusted position, substantially as described. 8th. In an air brake system, an engineer's valve, comprising a pair of cylinders connected respectively with the supply reservoir and the train service pipe and with each other, an exhaust port for the cylinder connected with the train service pipe, a pair of balanced pistons working in said cylinders and respectively working with a lever, and a movable fulcrum for said lever, means for actuating the same, and a dash pot, the piston of which is also connected with said lever, substantially as described.

No. 40,147. Variable Cut-off Engine.

(Machine à détente variable.)

John Abell, Toronto, Ontario, Canada, 30th August, 1892; 6 years.

Claim.—1st. A cylinder having a steam reservoir formed in its body, and connected to a steam boiler, in combination with valves and valve seats located at each end of the reservoir for the purpose of controlling the cylinder, substantially as and for the purpose specified. 2nd. A steam valve fitted on to a gridiron valve seat located between the steam reservoir and short port leading to the interior of the cylinder, substantially as and for the purpose specified. 3rd. A steam valve fitted on to a gridiron valve seat located between the steam reservoir and short port leading to the interior of the cylinder, in a combination with a valve, and a valve seat located between the short port leading to the interior cylinder and the exhaust port, substantially as and for the purpose specified. 4th. A cylindrical chamber formed in the end of the steam reservoir, and communicating with the short port leading to the interior cylinder and the exhaust port, a divided plug fitted tightly into the chamber, a separate valve seat being formed on each half of the plug, and the space between the two halves located so as to communicate with the short port, substantially as and for the purpose specified. 5th. A pivoted arm connected to the spindle of the steam valve and having two arms extending from it, one arm connected to a spring or dash pot and the other arm provided with a pivoted bar, in combination with a revolving wiper arranged to periodically connect with a hook formed on the end of the said pivoted bar, substantially as and for the purpose specified. 6th. A pivoted arm connected to the spindle of the steam valve and having two arms extending from it, one arm connected to a spring or dash pot and the other arm provided with a pivoted bar, in combination with a revolving wiper arranged to periodically connect with a hook formed on the end of the said pivoted bar, and with a lifting finger operated by a governor, substantially as and for the purpose specified. 7th. A pivoted arm connected to the spindle of the steam valve and having two arms extending from it, one arm connected to a spring or dash pot and the other arm provided with a pivoted bar, in combination with a revolving wiper arranged to periodically connect with a hook formed on

the end of the said pivoted bar, and with a lifting finger connected to a sleeve deriving rocking movement from the vertical adjustment of the sleeve on the governor spindle, substantially as and for the purpose specified. 8th. A horizontally revolving rod having fixed to it a wiper arranged to periodically connect with a hook formed on the bar, connected as described to the steam valve spindle, a vertical spindle carrying the governor balls and geared to the horizontal rod, in combination with a sleeve fitted onto the vertical spindle and connected to the arms of the governor balls at one end and to the housing at the opposite end, a crank *b*, connected to a sleeve fitted onto the horizontal and connected to the vertically bar adjustable housing, substantially as and for the purpose specified.

No. 40,148. Washing Machine. (*Machine à blanchir.*)

Benjamin Brobst, Columbus, Ohio, U. S. A., 30th August, 1892; 6 years.

Claim.—1st. The combination in a washing machine, of a tub F, supporting frame A, having metal leg portions B, provided with channel portions *a*, *a*¹ and *a*², in which are secured a cross bar E, and standard D, substantially as described, and for the purpose set forth. 2nd. The combination in a washing machine, of a tub, supporting frame having leg portions B, as described, a cross bar E, and standards D, of a spindle G secured to said cross bar, a tub having a central perforation in its bottom portion, an inverted step box J secured over said perforation, and perforated plate K secured about said perforation, the two parts J and K secured to said bottom portion and together, an actuating lever M pivotally secured to said frame and connected to tub, whereby said tub may be turned on its pivot, substantially as set forth. 3rd. In combination, with the tub F, a false bottom U, bifurcated arm V, provided at their lower end portions with prongs *k* spread apart a distance, and said arms V secured to said bottom diametrically opposite, or thereabout, and each formed at its upper end portion with an aperture *k*², and a handle portion *k*¹, and a turn bottom or hook to take into said aperture, by which the arms may be removably secured to the tub to hold the false bottom in rigid relation to the tub when in operation or to raise the said bottom out of the tub, substantially as described, and for the purpose set forth. 4th. The combination, with the supporting frame and tub of a lever supporting bracket L, secured to said frame, an actuating lever M pivotally secured in said bracket, connecting rod box N¹, having a body portion *d*¹, angle wing portion *d*², lug *d*³, and a spherical box portion *d*⁴, a connecting rod O¹ having spherical end portions, a casting P, secured to the bottom of the tub, as shown and a plate Q, which has a spherical box *h*², a nut *h*¹, and a thumb screw *h*³, by which the plate may be removably secured to the casting P, substantially as described, and for the purpose set forth. 5th. The combination, with the supporting frame A, having a tub F pivotally secured thereto, of a lever supporting bracket secured to said frame and having outwardly projecting arms *a*¹ and *a*², and inwardly projecting trunnions, one of which is made adjustable, a lever engaged between said trunnions, and a rod connecting said lever to said tub, substantially as set forth.

No. 40,149. Clamp for Dental Flasks.

(*Serre-châssis de moulage dentaire.*)

Morgan R. B. Creery, Ebensburg, Pennsylvania, U.S.A., 30th August, 1892; 6 years.

Claim.—1st. In a clamp for dental flasks, the combination, with the flask having the side posts provided with locking notches or shoulders, of a spring metal clamping plate pivoted upon the top of said flask and provided with upturned lips adapted to engage said locking shoulders or notches, substantially as set forth. 2nd. In a clamp for dental flasks, the combination, with the flask having the side posts provided with locking notches or shoulders and a top perforation or recess, of a movable spring metal clamping plate having a pivot stud or pin engaging said top perforation or recess, a series of upturned spring locking lips adapted to engage said locking shoulders or notches, and operating flanges, substantially as set forth.

No. 40,150. Wagon. (*Wagon.*)

John Wigand, Cleveland, Ohio, U.S.A., 30th August, 1892; 6 years.

Claim.—1st. A horizontal supporting frame and the front axle beneath the same, side springs fixed on the said axle and to said frame, and front cross springs secured to said frame at one end and supported in front of the said axle at the other end, substantially as described. 2nd. The front axle and the frame for supporting the fifth wheel above said axle, the side springs connecting said frame and axle and extending forward of the axle, and front springs supported at one end on said side springs and at the other attached to said frame, substantially as described. 3rd. The axle, the side springs fixed thereto and having shackles at their forward ends, springs supported on said side springs, and a top frame to which the upper ends of the said side and cross springs are secured, substantially as described. 4th. The front axle, the side springs fixed thereto, and shackles secured to the front ends of said springs, said shackles constructed to connect the thills, in combination with cross springs supported on said shackles, and a frame to which the upper ends of said several springs are secured, substantially as described. 5th. A horizontal frame for supporting the front of the wagon body, side

springs supported on the front axle near their front ends and attached to the said frame at their rear ends, in combination with a pair of front springs attached at their upper ends to the said frame and crossed and attached at their lower ends to the ends of the opposite side springs in front of the axle, substantially as described. 6th. The front carriage having a horizontal frame carrying the fifth wheel, side springs fixed to the said frame and to the axle, and having spring ends extending to the front of the axle, and cross springs fixed to the front ends of the side springs and to the front corners of the said frame, in combination with a wagon body coupled to the said horizontal frame at the rear portion thereof, and shackles at the union of the side and front springs to attach the thills or draft pole, substantially as described.

No. 40,151. Spring Rail Frog.

(*Rail de croisement à ressort.*)

Henry Elliot, St. Louis, Missouri, U. S. A., 30th August, 1892; 6 years.

Claim.—1st. In a spring frog, the combination of a base plate, track rails 1 and 8, and a frog point fixed to the plate, a moving rail forming in normal position a continuation of the rail 1, and adapted to move to and from the frog point, a reinforce rail 11, fixed to the moving rail and having hinge connection with the fixed rail 1, and a spring adapted to force the moving rail to the frog point. 2nd. The moving rail 9 of a spring frog, having an end 9^b, fitting the end 1a of a track rail 1, and forming a continuation of the rail 1, a base plate 2, on which the moving rail slides and to which the end of the rail 1 is fixed, and a rail 11 fixed to the moving rail, and having hinge connection to the fixed rail 1, substantially as set forth. 3rd. The combination, in a spring frog, of a base plate, a moving rail abutting at the end upon the end of a track rail firmly secured to the base plate, and a reinforce rail 11 attached firmly to the moving rail and having hinge connection at 21 to the fixed rail, substantially as set forth. 4th. The combination, in a spring frog, of the base plate, the track rails 1 and 8, and frog point, all firmly fixed to the plate, the moving rail 9, abutting at the end against the end of the track rail 1, the reinforce rail 11, fixed to the moving rail and connected to the track rail 1 by a hinge at 21, and a stop, as 10, limiting the outward movement of the moving rail. 5th. The combination, in a spring frog, of a base plate, the track rail 1, firmly fixed to the plate and having its end 1a beveled, the moving rail 9, having its end 9^b beveled to fit the rail 1, and in line with the rail 1, rail 11, firmly fixed to the moving rail and having a hinge connection with the rail 1, the frog point firmly fixed to the base plate, and a spring forcing the moving rail to the frog point. 6th. The combination in a spring frog, of the plate, the moving rail 9, having a projecting plate 23, and the fixed rail 8, having a plate 24 above the plate 23, substantially as and for the purpose set forth. 7th. The combination, in a spring frog, of the base plate, the rail 1 extending onto the base plate, and fixed to the plate, a moving rail 9, abutting end to end on the rail 1 when in normal position, a rail 11, and filling piece 13, fixed to the side of the moving rail, and extending past the abutting ends of the rails 1 and 9, and connected with the rail 1 by a filling block 9, and a hinge at 21, substantially as set forth.

No. 40,152. Copy Holder. (*Serre-papier.*)

Charles E. Brunthaver and John J. O'Connell, both of Washington, Columbia, U.S.A., 30th August, 1892; 6 years.

Claim.—1st. The combination in copy holders, of a frame, two cylinders journaled therein one above the other, and one of them provided with a gear wheel, an intermediate wheel journaled upon a stud fixed on the frame, and gearing with the aforesaid wheel, and having a ratchet wheel fixed to it, a lever journaled upon the said stud and provided with a series of pawls and springs to engage the aforesaid ratchet wheel, a spring for returning the lever, a fixed stop at one end of the path, the lever, and a stop adjustably fixed in its path, substantially as shown and described. 2nd. The combination in copy holders, of two feed rollers journaled in a frame, and one of them provided with a gear wheel, an operating lever journaled upon a stud fixed on the frame and provided with pawls, a ratchet wheel engaged by the said pawl and geared to an intermediate wheel journaled upon the said stud and geared with the said wheel upon the roller, a slotted segment fixed to the frame and having a shoulder ending the path of the said lever, and a stop pin provided with a screw nut adjustable along the slot in the said segment in the path of the lever, substantially as shown and described. 3rd. The combination in copy holders, of two feed rollers journaled in a frame, a sash having a shield in it hung in front of the rollers, and an aperture through the sash above the shield, and a plate fixed nearly tangent to the lower roller between the same and the said shield, substantially as shown and described. 4th. The combination in copy holders, of two feed rollers journaled in a frame, and a sash hung in front of the rollers upon hinges, and having an aperture exposing to view the region of the rollers, substantially as shown and described, whereby the rollers may be uncovered to place the paper between and below them, and then the paper be partially concealed. 5th. The combination in copy holders, of a pair of feed rollers, one of which is provided with a ratchet wheel, a lever having a pawl or pawls to engage the said ratchet wheel, and means for regulating the amount of movement of the said lever, substantially as described.

No. 40,153. Door. (Porte.)

William Turner Gregg, San Francisco, and David F. McIntire, Lakeport, both in California, U.S.A., 30th August, 1892; 6 years.

Claim.—1st. The combination with a door frame having an upper and a lower opening, the vertical sides of each opening being provided with beads flush with one face of the door and the horizontal sides of each opening being provided with grooves, that in the middle rail opening through the locking stile of the door frame, of panelled, glass, screen and blind sections interchangeably fitting said openings, each section being cut away at its vertical edges, so as to engage said beads, having a groove in one edge adapted to register with that in the middle rail and having a tongue on its other edge adapted to fit the groove at the other vertical side of said opening, and a locking strip removably inserted through the locking stile and standing in said registering grooves, as and for the purpose set forth. 2nd. The combination, with the door frame having an upper and a lower opening, the horizontal sides of each opening being provided with grooves, that in the middle rail extending through the locking stile of the door frame, of panelled, glass, screen and blind sections interchangeably fitting said openings, each section having a groove in one edge adapted to register with that in the middle rail and a tongue on its other edge adapted to fit the groove at the opposite side of said opening, and a locking strip removably inserted through the locking stile and standing in said registering grooves, as and for the purpose set forth. 3rd. The combination, with a door frame having an upper and a lower opening, the horizontal sides of each opening being provided with grooves, one end of the grooves in the middle rail being continued into a recess in the hanging stile and the other end being continued in an opening through the locking stile, of panelled, glass, screen and blind sections interchangeably fitting said openings, each section having a groove in one edge adapted to register with that in the middle rail, and a tongue on its other edge adapted to fit the groove at the opposite side of said opening, and a locking strip removably inserted through the locking stile, its body standing in said registering grooves and its inner end in said recess, as and for the purpose set forth. 4th. The combination, with a door frame having an opening, the horizontal sides of such opening being provided with grooves, one of which extends through one of the stiles of the door frame, of panelled, glass, screen and blind sections interchangeably fitting said opening, each section having a groove in one edge adapted to register with said extended groove, and a tongue on its other edge adapted to fit the opposite groove, a locking strip removably inserted through said stile and standing in said registering grooves, and a handle at the outer end of said strip normally flush with the edge of said stile, as and for the purpose set forth. 5th. The combination, with a door frame having an opening, one horizontal side of such opening being provided with a groove which is continued through one of the stiles in the door frame in an opening having a cavity around its outer end, of panelled, glass, screen and blind sections interchangeably fitting said openings, each section having a groove in one edge adapted to register with that in the frame, detachable connections between its other edge and the opposite side of the opening, a locking strip removably inserted through said stile, with its body standing in said registering grooves, and a handle connected to the outer end of said strip and normally standing in said cavity flush with the outer edge of said stile, as and for the purpose set forth. 6th. The combination, with a door frame having an upper and a lower opening, the horizontal sides of each opening being provided with grooves, one end of the groove in the middle rail being continued into a recess in one stile and the other end being continued through the opposite stile in an opening having a cavity around its outer end, of panelled, glass, screen and blind sections interchangeably fitting said openings, each section having a groove in one edge adapted to register with that in the middle rail, and a tongue on its other edge adapted to fit the groove at the opposite side of the opening, a locking strip removably inserted in said registering grooves, one end standing in said recess and the other end in said cavity, and a ring-shaped handle pivoted in said latter end and normally standing in the cavity flush with the edge of the stile, as and for the purpose hereinbefore set forth.

No. 40,154. Grater. (Rape.)

Alice E. Thomas, administratrix of George Hilbard Thomas, Chicopee Falls, Massachusetts, U. S. A., 30th August, 1892; 6 years.

Claim.—1st. A grater, comprising a grating plate or surface curved in cross section, and a holder for the substance to be grated connected with the grating plate, substantially as shown and described, whereby the parts are rendered capable of being moved longitudinally, transversely and angularly, one in relation to the other. 2nd. A grater, comprising a curved grating plate, and a frame or holder for the material to be grated mounted thereon, and moved longitudinally and transversely thereof. 3rd. In combination, with a grating plate, having a curved form in cross section, a frame or holder for the nut applied, substantially as shown and described, whereby the parts are adapted to move both longitudinally and transversely, and angularly one in relation to the other. 4th. In combination, with curved grating plate A, arms C, C projecting beyond the ends thereof in a line coincident with the axis of the plate, and frame F provided with a nut holder, and with arms G, G to fit upon the

arms C, C, substantially as shown and described. 5th. In combination, with curved grater plate A, having its edges connected by a plate B, a rod bent at its middle to form a tang D, and having its ends C, C projecting beyond the ends of the plates, a handle E applied to the tang, and a nut holding frame F applied to the arms, substantially as shown and described. 6th. In combination, with curved plate A, and bottom plate B, arms C, C projecting beyond the ends of the plates, a handle E, and a frame F comprising a bar M, having down turned ends G, to fit the arms C, a housing J, having an opening in one side and adapted to cover an opening I formed in the bar, and a spring pressed follower mounted in the housing.

No. 40,155. Machine for Threading Bolts.

(Machine à fileter les boulons.)

Emil Hubner, New York, State of New York, U.S.A., 30th August, 1892; 6 years.

Claim.—1st. In a machine of the character described, the combination, with a drive shaft having fixed gears, a tubular driven shaft provided with a screw cutting die and a sliding trip rod located in the tubular shaft of gears held to slide upon the tubular shaft, a shifting shaft located beneath said tubular shaft, a latch lever engaged by the trip rod and engaging with the shifting shaft, and a clutch mechanism carried by the tubular shaft and connected with the shifting shaft, substantially as described. 2nd. In a machine of the character described, the combination, with a drive shaft, a tubular driven shaft provided with loosely mounted gears, a screw-cutting die and a clutch located between the gears, of a spring-pressed shifting shaft connected with the clutch, a trip rod adapted to be engaged by a finished bolt and loosely placed in the tubular shaft, a trip lever provided with an adjustable head located near one end of the trip rod, and a spring pressed latch connected with the lever and engaging the shifting shaft, as and for the purpose set forth. 3rd. In a machine of the character described, the combination, with a drive shaft, a driven shaft provided with loosely mounted sliding gears, a screw-cutting die, and a clutch between the gears, of a spring controlled shifting shaft connected with the clutch, a recording mechanism, a recording shaft, a trip mechanism connecting the recording shaft and the recording mechanism, and a link connection between the shifting shaft and the recording shaft, substantially as described. 4th. In a machine of the character described, the combination, with a drive shaft, a tubular driven shaft provided with sliding gears, a clutch between the gears, and a screw cutting die, and a trip rod adapted to be acted upon by the finished bolt, said rod being located within the tubular shaft, of a spring controlled shifting shaft connected with the clutch, a trip lever located near one end of the trip rod, a latch attached to the lever and engaging with the shifting shaft, a recording mechanism operated from said shaft, and a link connection between the shifting and the record shafts, as and for the purpose specified. 5th. In a machine of the character described, the combination, with a drive shaft, a tubular driven shaft provided with sliding gears and a screw cutting die, a shifting shaft, and a clutch located between the gears of the tubular shaft and connected with the shifting shaft, of a trip rod held to slide in the tubular shaft, a trip lever near one end of the trip rod, a latch connected with the lever and engaging with the shifting shaft, and a movable head stock adapted to carry the bolt, and also adapted for engagement with the shifting shaft to set the same, as and for the purpose specified. 6th. In a machine of the character described, the combination, with a drive shaft, a tubular driven shaft provided with sliding gears and a screw cutting die, a shifting shaft, and a clutch located between the gears of the tubular shaft and connected with the shifting shaft, of a trip rod held to slide in the tubular shaft, a trip lever near one end of the trip rod, a latch connected with the lever and engaging with the shifting shaft, a movable head stock comprising a series of adjustable sections, a bolt socket or chuck adjustably attached to the head stock, and an arm projected from the head stock and engaging at one point in its travel with the shifting shaft and moving the same, substantially as described. 7th. In a machine of the character described, the combination, with a drive shaft, gears fixed thereon, a tubular shaft provided with sliding gears of different diameters and a screw cutting die, a spring controlled shifting shaft below the tubular shaft, a clutch mechanism located upon the tubular shaft between its gears and connected with the shifting shaft, and a trip rod held to slide in the tubular shaft, of a trip lever provided with an adjustable head located near one extremity of the trip rod, a latch carried by the lever and adapted for engagement with the shifting shaft, a recording mechanism, a recording shaft adjacent to the recording mechanism, a link connecting the shifting shaft and recording shafts provided with a spring pressed dog, a ratchet wheel mounted upon the recording shaft and engaged by the dog, a second and larger ratchet wheel secured upon the recording shaft, and a lever engaging with the larger ratchet wheel and connected with the trip device of the recording mechanism, as and for the purpose specified. 8th. In a machine of the character described, the combination, with a drive shaft having fixed gears, a tubular driven shaft provided with a screw cutting die and sliding gears of different diameters, a spring controlled shifting shaft, a clutch held to slide upon the tubular shaft and connected with the shifting shaft, a recording mechanism, a recording shaft journaled at a right angle to the shifting shaft, and a link connecting the recording shaft and shifting shaft, and pro-

vided with a spring controlled dog, of a trip rod held to slide in the tubular shaft, a lever the upper end of which is opposite one end of the trip rod, a latch attached to the lever and engaging with the shifting shaft, a movable head stock, an adjustable chuck or bolt clamp carried by the head stock, an arm attached to the head stock and engaging with the shifting shaft, and a trip mechanism operated upon by the recording shaft and connected with the recording mechanism, as and for the purpose specified. 9th. In a machine of the character described, the combination, with a drive shaft having fixed gears, a series of independent essentially parallel tubular shafts, each tubular shaft being provided with loosely mounted sliding gears, the gears of the several shafts meshing with each other and certain of the gears with the fixed gear of the drive shaft, a screw cutting die located upon end of each tubular shaft, and a clutch located upon each of the tubular shafts between its gears, of a spring controlled shifting shaft located beneath each tubular shaft and connected with the clutch of the tubular shaft above it, a recording mechanism, a recording shaft, link connections between the shifting end shafts and the recording shaft, and a trip mechanism connected with the recording mechanism and the recording shaft, as and for the purpose specified. 10th. In a machine of the character described, the combination, with a drive shaft provided with fixed gears of equal size, of a driven shaft provided with a screw cutting die, sliding gears of different diameters adapted to mesh alternately with the fixed gears of the drive shaft, a spring controlled shifting shaft, a clutch located upon the driven shaft between its gears and connected with the shifting shaft, a latch lever engaging with the shifting shaft, and a trip rod located in the driven shaft and adapted to engage with the latch lever, substantially as shown and described, whereby the driven shaft will be given a slow movement when the bolt is being threaded and a quick movement after the bolt is threaded, as set forth. 11th. In a machine of the character described, the combination, with a box like base or body adapted to carry the operative mechanism of the machine, a trough supported upon the supports of the base, and a tank located above the mechanism carried by the base, of a pump connected with the trough and tank, and tubes leading from the base into the trough, substantially as and for the purpose specified. 12th. In a machine of the character described, the combination, with a box like base or frame, a tank or trough located beneath the frame, and a second tank located above the frame, of a pump having connection with both tanks, tubes connecting the base with the lower tank, tubes projected from the upper tank downward and provided with flexible tips, and an overflow pipe leading from the upper tank into the box like frame, as and for the purpose specified.

No. 40,156. Sheep Shearing Machine.

(Appareil pour tondre les moutons.)

George Walter Blanks, Bernard Lefebvre and Frederick John Bird, Sydney, New South Wales, 31st August, 1892; 6 years.

Claim.—1st. The combination of the parts marked S, R, E, D, F, G, J, d, e and c, with the spindle H, substantially as and for the purpose herein set forth. 2nd. The combination, of the parts marked K, f, g, h, and the oscillating bar L, with the spindle H, substantially as and for the purpose herein set forth. 3rd. The combination, of the oscillating bar L, with the cutter M, and the comb N, substantially as and for the purpose herein set forth. 4th. The combination, of a tension screw with an oscillating bar, substantially as and for the purpose herein set forth. 5th. In a sheep shearing machine, the combination, of a case and box with a water jacket, substantially as and for the purpose herein set forth.

No. 40,157. Method of and Appliances for Trapping Soil Pipes, Drains, Sewers, &c. (Méthode d'aérage pour tuyaux d'égouts, etc.)

David George Hoey, Glasgow, Scotland, 31st August, 1892; 6 years.

Claim.—1st. The method of trapping soil pipes, drains, sewers and the like, wherein the pipe connection from the house is left with a gap or hiatus at a certain point, said gap or hiatus being provided or fitted with a box or its equivalent, having an opening or openings for air ingress, substantially as hereinbefore set forth. 2nd. In trapping soil pipes, drains, sewers, and the like, the provision where the pipe connection is made or left with a gap or hiatus, of a box such as c, for inclosing said hiatus or gap, substantially as hereinbefore described. 3rd. In trapping soil pipes, drains, sewers, and the like, the combination, of the box c, and the trapping appliance a, substantially as hereinbefore described. 4th. The construction of a box or trapping arrangement having a cone shaped baffle or seal fitted therein, substantially as hereinbefore described as and for the purpose set forth. 5th. The construction of a box or trapping arrangement having an angled baffle or seal of "A" shape fitted therein, substantially as hereinbefore described as and for the purpose set forth.

No. 40,158. Filter and Heater for Steam Boilers.

(Filtre et appareil de chauffage pour chaudières à vapeur.)

William Dougherty, Chester, Pennsylvania, U. S. A., 31st August, 1892; 6 years.

Claim.—1st. As an improvement in boilers, the filter herein described, having water feed and blow pipes extending therein to

near opposite ends thereof, and a curved plate C, longitudinally disposed in said boiler above said blow pipe, substantially as set forth. 2nd. The filter herein described, longitudinally disposed in a boiler and provided with strainer plates, and water feed and blow pipes extending through said filter to near opposite ends thereof, and a curved plate C, beneath which said blow pipes is disposed, as set forth. 3rd. The filter herein described, located in the boiler and provided with upper and lower strainer plates, the latter being free at their lower ends, a longitudinally disposed curved plate, and water feed and blow pipe, as set forth. 4th. The combination, with a furnace and the boiler located therein, of the filter secured in said boiler and provided with strainer plates, and the water supply pipe having a series of inclined coils arranged in the smoke chamber of said furnace and extending into said filter beneath and between said strainer plates, as set forth. 5th. The combination, with a furnace and the boiler located therein, of the filter secured in the said boiler, the curved plate C longitudinally disposed therein, the blow pipe extending through said filter beneath said plate, and the water supply pipe having a series of inclined coils arranged in the smoke chamber of said furnace and extending into said filter, as set forth. 6th. As an improvement in boilers, the filter having the blow pipe, the water supply pipe leading thereinto, and the upper surface blow pipe or circulation pipe connected to said water supply pipe, as set forth. 7th. The combination, with the boiler and its heater, of the filter located therein, through which the water supply is passed, and wherein the sediment is collected, the blow pipe located in said filter, the water supply pipe passed through the smoke chamber of said heater, and the upper blow or circulation pipe connected to said water supply pipe, as set forth.

No. 40,159. Machine for Forming Hollow Ware from Pulp. (Appareil pour la fabrication des ustensiles en pâte à papier.)

George Decatur King, Oswego, New York, U.S.A., 31st August, 1892; 6 years.

Claim.—1st. In combination with the dies or moulds, the pulp induction pipe connected to one of the dies, a plunger working in said pipe, and the pulp conduit tapping the side of the induction pipe, substantially as described and shown. 2nd. In combination with the male and female dies, the pulp induction pipe secured stationary to the male die, and having its discharge end permanently flush with the inner side of the said die, and a plunger in said pipe having a stroke to carry the head thereof to a position flush with the inner side of the die to which the said pipe is connected, substantially as described and shown. 3rd. In combination with the dies or moulds, the pulp induction pipe connected to one of the dies, a tubular plunger working in said pipe, a strainer applied to the head of the plunger, and the pulp conduit tapping the side of the induction pipe, substantially as described and shown. 4th. In combination with the inverted female die and male die, the pulp induction pipe a, connected to the centre of the male die, the tubular plunger b in said pipe, the strainer c on the head of the plunger, the lever l for operating the plunger, and the pulp conduit d, tapping the side of the pipe a, substantially as described and shown. 5th. In combination with the upper die, the lower die hung on horizontal pivotal bearings, a pulp induction pipe connected to said lower die, and a pulp conduit extending through one of the aforesaid bearings and connected to the aforesaid induction pipe, as set forth. 6th. In combination with the female die placed horizontally and in an inverted position, the male die pivoted horizontally to its supports at opposite ends of the die, substantially as described and shown. 7th. The combination of the pulleys P, P, cables or chains c, c, running upon said pulleys, the female die A, suspended by one end of each of said cables or chains, the blocks C, C, connected to the opposite end of the respective cables or chains, and the male die B, swivelled in said blocks, substantially as described and shown.

No. 40,160. Electric Signal Box.

(Boîte de signal électrique.)

William E. Deroow, Boston, Massachusetts, U.S.A., 31st August, 1892; 6 years.

Claim.—1st. In an electric signal box, the combination with the train and circuit breaking wheel, and the armature of an electro magnet in the circuit, of a circuit key movable into and out of the path of the circuit breaking wheel, whereby the liberation of the train while the circuit is being broken at a distant point, allows the circuit key to move out of the path of the circuit breaking wheel. 2nd. The combination with a circuit breaking wheel, the armature of an electro magnet in the circuit and a detent, of a circuit key engaging with said detent if the break in the circuit is due to the action of the box to which it is attached, but not otherwise. 3rd. The combination with a circuit key movable into and out of the path of a circuit wheel, of a detent moved by the train and capable by engagement with the circuit key, of restoring said circuit key to the path of the circuit breaking wheel. 4th. A circuit key movable into and out of the path of the circuit breaking wheel, bearing on it a trip cam placed to engage with a movable part of the train only when the circuit key is out of the path of the circuit breaking wheel, and by consequent engagement with the stop lever to render it inoperative to stop the train.

No. 40,161. Grain Conveyor for Harvesters.*(Transport à grain pour moissonneuses.)*

John S. Davis, Cleveland, Ohio, U. S. A., 31st August, 1892; 6 years.

Claim.—1st. The combination of a grain carrier, composed of a series of endless belts and their rollers, a revolving shaft located between the rollers and the upper and lower surfaces of the belts, fingers on the shaft, which revolve through the spaces between the belts and into the stream of grain thereon in the same direction, but at a speed different from the speed of the belts, substantially as hereinbefore set forth. 2nd. The combination of the series of endless belts and their rollers, a revolving shaft located between the rollers and the upper and lower surfaces of the belts and provided with hooked fingers, as shown, which revolve through the spaces between the belts and into the stream of grain thereon in the same direction, but at a speed different from the speed of the belts, substantially as hereinbefore set forth. 3rd. The combination of a grain carrier, composed of a series of endless belts, with a revolving shaft provided with fingers which project between the belts and penetrate the stream of grain thereon, acting upon it in the same direction, but at a speed different from the speed of the belt, substantially as hereinbefore set forth. 4th. The combination of a carrier belt with metal spurs attached at suitable intervals along its length, said spurs being formed with a thin or pointed top and a broad base, which is concealed on its under side and has a ductile metal pin projecting therefrom, said pin passing through the belt fabric and clinched or riveted on its under side, substantially as hereinbefore set forth.

No. 40,162. Rail Joint. (Joint de rail.)

Richard Roxby, Dartmouth, Nova Scotia, Canada, 31st August, 1892; 18 years.

Claim.—1st. A rail joint, comprising overlapping sheaths adapted to be secured to the meeting ends of railroad rails, the sheaths being disconnected at their overlapping ends to form a sliding joint shaped to fit the lower portion of the rails, substantially as described. 2nd. A rail joint, comprising sheaths adapted to be secured to the meeting ends of railroad rails, one of said sheaths having thinned ends, and the opposite sheath having an enlarged portion to fit over the adjacent sheath, substantially as described.

No. 40,163. Hay Rack. (Râtelier à foin.)

William T. Wallace, Beloit, Kansas, U.S.A., 31st August, 1892; 6 years.

Claim.—1st. In a hay rack, the combination, with a base structure provided with a longitudinally adjustable frame, of side and end panels connected with the base structure, the front panel being laterally adjustable and provided with a drop section, a locking connection, substantially as shown and described, between the front panel and the side panels, the end and side panels being capable of opening outward from the base structure when desired, exposing the contents of the rack from top to bottom, substantially as set forth. 2nd. In a hay rack, the combination, with a base structure, a frame held to slide in said structure, and a flexible connection between the sliding frame and the base structure, of side and end panels erected upon the base structure at the margins thereof, the front end panel being adjustable to and from the rear panel, and fastening devices, substantially as described, connecting the panels, as and for the purpose set forth. 3rd. In a hay rack, the combination, with a base structure made in skeleton form, and a frame provided with a lattice body and held to slide in the base, the said frame having a flexible connection with the rear of the base structure, of side panels attached to the side margins of the base structure, a rear end panel also attached to the base structure, and a forward end panel attached to the forward portion of the sliding panel of the base, and devices, substantially as shown and described, connecting the panels erected upon the base and upon the base panel with each other, as and for the purpose specified. 4th. In a hay rack, the combination, with a base structure of essentially skeleton form, a panel held to slide in said structure of less length than the structure, and a flexible connection between the rear of the panel and the rear of the structure, of an upper structure consisting of side panels and a rear end panel attached to the base structure, and a front panel hinged to the forward portion of the base panel, and fastening devices connecting the panels of the upper structure one with the other, as and for the purpose set forth. 5th. In a hay rack, the combination, with a base structure of essentially skeleton form, a panel of less length than the base structure held to slide therein and having a flexible connection with the rear of the structure, of an upper structure erected upon the base around the base panel, the said upper structure consisting of side panels, a rear end panel hinged to the base structure, the hinges being provided with studs extending through the base structure and nuts upon the lower ends of the studs, and a forward panel having a hinge connection with the forward portion of the base panel, the forward portion of the upper structure being constructed in hinged sections, and fastening devices, substantially as shown and described, uniting the panels of the upper structure, as and for the purpose set forth. 6th. A hay rack, provided with a base consisting of a skeleton frame, a panel sliding in said frame, and a flexible connection between the panel and the skeleton frame, substantially as shown and described, one upright panel of the rack being adapted for attachment to the sliding panel of the base, as specified.

No. 40,164. Boring Machine. (Machine pour percer.)

Charles Henry Irwin, Friederich Mill and John Edward Hitch, Wilmington, Ohio, U.S.A., 31st August, 1892; 6 years.

Claim. 1st. In a boring machine, the combination, with a shaft mounted to turn and to be shifted lengthwise, and two gear wheels, of which one is fastened and the other is loose on the shaft, of a second shaft mounted to turn and carrying two integral gear wheels adapted to engage the said fast and loose gear wheels, substantially as shown and described. 2nd. In a boring machine, the combination, with a shaft mounted to turn and to be shifted lengthwise, and two gear wheels, of which one is fastened and the other loose, of a second shaft mounted to turn and carrying two integral gear wheels adapted to engage the said fast and loose gear wheels, and means, substantially as described, for locking the shaft to be shifted in position, permitting it, however, to turn, substantially as shown and described. 3rd. In a boring machine, the combination, with posts, of a frame mounted to slide on the said posts, a shaft held to turn and adapted to be shifted in the said frame, a bevel gear wheel having clutch teeth secured on the said shaft, a second bevel gear wheel held loose on the said shaft and adapted to be engaged by the said first named bevel gear wheel, two integral gear wheels of different diameter and adapted to mesh in the said gear wheels on the said shaft, and a second shaft held at right angles to the said first named shaft and carrying the said two integral gear wheels, substantially as shown and described. 4th. In a boring machine, the combination, with posts, of a frame mounted to slide on the said posts, a shaft held and adapted to be shifted in the said frame, a bevel gear wheel having clutch teeth and secured on the said shaft, a second bevel gear wheel held loose on the said shaft and adapted to be engaged by the said first named bevel gear wheel, two integral gear wheels of different diameter and adapted to mesh in the said gear wheels on the said shaft, a second shaft held at right angles to the said first named shaft and carrying the said two integral gear wheels, and a clutch held on the said last named shaft for carrying the auger, substantially as shown and described. 5th. In a boring machine, the combination, with posts, of a frame mounted to slide on the said posts, a shaft held to turn and adapted to be shifted in the said frame, a bevel gear wheel having clutch teeth and secured on the said shaft, a second bevel gear wheel held loose on the said shaft and adapted to be engaged by the said first named bevel gear wheel, two integral gear wheels of different diameter and adapted to mesh in the said gear wheels on the said shaft, a second shaft held at right angles to the said first named shaft and carrying the said two integral gear wheels, and latches for alternately locking the first named shaft in the right or left hand position, permitting the shaft, however, to turn in its bearings on the frame, substantially as shown and described. 6th. In a boring machine, the combination, with posts, of a frame mounted to slide on the said posts, a shaft held to turn and adapted to be shifted in the said frame, a bevel gear wheel having clutch teeth and secured on the said shaft, a second bevel gear wheel held loose on the said shaft and adapted to be engaged by the said first named bevel gear wheel, two integral gear wheels of different diameter and adapted to mesh in the said gear wheels on the said shaft, a second shaft held at right angles to the said first named shaft and carrying the said two integral gear wheels, and means, substantially as described, for locking the said posts in any desired position, as set forth. 7th. In a boring machine, the combination, with posts, of a frame mounted to slide on the said posts, a shaft held to turn and adapted to be shifted in the said frame, a bevel gear wheel having clutch teeth and secured on the said shaft, a second bevel gear wheel held loose on the said shaft and adapted to be engaged by the said first named bevel gear wheel, two integral gear wheels of different diameter and adapted to mesh in the said gear wheels on the said shaft, a second shaft held at right angles to the said first named shaft and carrying the said two integral gear wheels, and means, substantially as described, for quickly raising the said frame on the said posts to withdraw the auger from the drilled hole, substantially as shown and described.

No. 40,165. Calelectric Generator.*(Générateur calelectrique.)*

Edward G. Acheson, Pittsburg, Pennsylvania, U.S.A., 31st August, 1892; 6 years.

Claim.—1st. The combination of an electric conductor conveying a current of changing value, a mass of material magnetized thereby and a source of heat arranged to influence said mass, substantially as described. 2nd. The combination of an electric conductor conveying a current of changing value, a mass of magnetic material magnetized by said current, a source of heat arranged to influence said mass, and a second electric conductor, including a translating device and arranged within the influence of the magnetic mass, substantially as described. 3rd. The combination with an electric conductor through which varying electric currents are passed, of a thermo-couple arranged in inductive relation to said conductor and a source of heat, substantially as described. 4th. The combination with an electric conductor, of a magnetic core energized thereby, thermo-couples arranged in inductive relation to said core, a source of heat for said couples, and a circuit including the couples and a translating device, substantially as described. 5th. The method of converting heat energy into electric energy, which consists in causing heat energy to transverse the elements of a thermo-couple, and subjecting said currents to the influence of changing lines of magnetic force, substantially as described.

No. 40,166. Motor (Moteur).

William G. MacLaughlin, Chicago, Illinois, U.S.A., 31st August, 1892; 6 years.

Claim.—1st. The method herein described for utilizing the combined power of a body of compressed air and a column of water, the same consisting in employing the water, while under the force of the compressed air to give motion to a motor, and in raising a supply of water to restore that necessary to keep up the operation of the motor, substantially as specified. 2nd. In a pneumatic and hydraulic motor, the combination of the water tank, the compressed air tank above, the motor, the pumping mechanism or injector and the tank for receiving and holding the waste from the motor to be restored for subsequent use, substantially as specified. 3rd. In a pneumatic and hydraulic motor, the combination of an air compression tank, a water reservoir and a cylinder of the reciprocating piston, the counter shaft and pump, and intermediate mechanism whereby the pump is driven, substantially as specified. 4th. In a pneumatic and hydraulic motor, the combination of the water reservoir, the air reservoir and valves, and the air pump or air reservoir, whereby a volume of compressed air may be injected into the air chamber, substantially as specified. 5th. The combination with the water tank, air chamber, valve and motor of the supplementary tank and injector, whereby water may be injected into the air chamber to keep the air therein intact, substantially as specified. 6th. The combination with the tank for receiving the waste water from the motor, of the tank, and conducting pipe and valve, whereby water may be supplied to restore that lost by evaporation, substantially as set forth. 7th. In a pneumatic and hydraulic motor, the combination with water tank and air compressor above, of the air receiving tank and pipe leading therefrom to an injector, whereby the water is supplied from the receiving tank, the motor, substantially as set forth. 8th. The method herein described of operating a motor, consisting in forcing a liquid into the same by means of a body of compressed air, the body of liquid being constantly renewed as fast as used by forcing additional liquid therein in a reduced jet or stream, substantially as described.

No. 40,167. Band Saw Mill. (Scierie à lame sans fin.)

Charles M. Emerson, Eau Claire, Wisconsin, U.S.A., 31st August, 1892; 6 years.

Claim.—1st. The saw mill base having the lower and upper parts, the hollow bracket and the two columns all constructed in one piece, substantially as described. 2nd. The saw mill base having the lower flaring part, the narrower top, the hollow bracket and hollow columns all cast in one piece, substantially as described. 3rd. A saw mill base, consisting in the lower flaring part, the narrower top, the bracket, the depressed portion and the hollow columns all cast in one piece, in combination with a detachable hanger secured to the outer part of said bracket, substantially as described. 4th. The combination, with the base having the bracket portion, of the hanger attached thereto and depending therefrom, the lower part of said hanger being secured on the upper portion and adapted to be moved laterally thereon, substantially as described. 5th. The combination, with the base, of the hanger 18 having the lower movable part provided with the bearing, and set screws 25 arranged to engage the same, whereby said lower part may be shifted with respect to said upper or main part of the hanger, substantially as described. 6th. The combination, with the base having the flaring bottom and the two columns cast integrally therewith, of the door or doors provided in the sides of said base, substantially as described. 7th. The combination, with the base of the columns thereon, the upper and lower wheels, the shaft of said upper wheel and levers for supporting the ends thereof equally and of operating the same simultaneously, substantially as described. 8th. The combination, with the base of the columns thereon, the upper and lower band wheels, the shaft of said upper wheel, shanks depending from the ends thereof, weighted levers 44 arranged within said base and supporting said shaft upon the outer ends of said levers, and a lever for drawing down the inner ends thereof simultaneously, substantially as described. 9th. The combination, with the base of the hollow columns thereof, the upper and lower band wheels, the shaft 21, bearings 26 and 27, and the adjustable shanks 84, substantially as described. 10th. The combination, with the base provided with the hollow columns arranged thereon, the shanks arranged to move vertically in said hollow columns, levers supporting said shanks, bearings pivotally supported upon said shanks, a shaft mounted in said bearings, and the upper band wheel mounted upon said shaft, substantially as described. 11th. The combination with the base provided with the hollow columns, of the shanks arranged in said columns and adapted to move vertically therein, levers supporting said shanks with a yielding tension, a lever for simultaneously moving said shanks, and a jack screw for moving either of said shanks independently of the other substantially as described. 12th. The combination with the base provided with the hollow columns, of the shanks arranged in said columns, the threaded rods connected with said shanks, the levers supporting said rods, the weight connected with said levers, and a ratchet mechanism for turning either of said threaded rods independently of the other, and thereby adjusting either of the shanks, for the purpose set forth. 13th. The combination with the base provided with the hollow columns, of the bearing sleeves supported upon the upper ends of said columns, and independently adjustable thereon, substantially as

described. 14th. The combination with the base provided with the hollow columns, of the bearing sleeves 37 arranged in the upper portions of said columns and provided with the flanges 38 adapted to rest upon the tops of the columns, and screws for laterally adjusting said sleeves in said columns. 15th. The combination with the base provided with the hollow columns, of the bearing sleeves arranged in the upper portions of said columns, screws for laterally adjusting said sleeves in said columns, the shanks arranged in said sleeves, the upper shaft supported upon said shanks, and screws for simultaneously or independently moving said shanks in a vertical direction, substantially as described. 16th. The combination with the base and the hollow columns, of the bearing sleeves arranged in the upper ends of said columns, the upper shaft, the shanks arranged in said bearing sleeves, the shaft bearings pivotally supported upon said shanks, the jack screws connected with said shanks, ratchets for operating said screws, and the weighted levers supporting said jack screws, substantially as and for the purpose specified. 17th. The combination with the base provided with the hollow columns, of the upper shaft, the shanks arranged in said columns and supporting said shaft, jack screws for adjusting said shanks, and a screw or indicator for showing the position of said shanks, substantially as described. 18th. The combination with the base, and the columns provided with scales arranged thereon, of the adjustable shanks arranged in said columns and supporting the shaft of the upper wheel, and the pointers arranged upon said shanks, and extending over said scales, as and for the purpose specified. 19th. The combination with the base provided with the columns, of the shanks supporting the shaft of the upper wheel and arranged in said columns, the jack screws connected with said shanks, the ratchet wheels secured upon said screws, the ratchet lever provided with a double pawl adapted to engage said ratchet wheel, and levers supporting said jack screws, substantially as described. 20th. The combination, with the base provided with the columns of the upper wheel, its shaft shanks arranged in said columns and supporting said shaft, levers supporting said shanks, a weight connected with said levers, and adapted to raise said shanks, and a hand lever arranged to raise said weight, and thereby to permit the upper wheel to be lowered, substantially as described. 21st. The combination, with the base and the wheels supported thereon, of the saw guide consisting of the plates 86 and 87, each provided with a slotted L-portion having a dove tail rib 89, a swing block to which said plates are secured, the arm upon which said swing block is secured, and screws for adjusting said swing block, substantially as described. 22nd. The combination, with the base provided with a suitable bracket, a guide arm arranged to be vertically adjusted upon said brackets, a swing block secured upon said arm and adapted to be adjusted thereon, and the guide plates secured upon said block, substantially as described. 23rd. The combination, with the base of the vertically adjustable guide arm, the guide secured thereon, the driving shaft provided with the oppositely arranged friction cones, the screw shaft connected with said guide arm, and having a friction cone arranged between the friction cones on the main shaft, a lever for moving said screw shaft, and handles connected with said lever, and extending both to the front and rear of the frame of the machine, substantially as described and for the purpose specified.

No. 40,168. Building Block. (Bloc de construction.)

Eugene H. Lewis, St. Joseph, Michigan, U.S.A., 31st August, 1892; 6 years.

Claim.—A composition for building blocks, consisting of one part of lime, and seven parts of sand reduced to a plastic condition by a solution of water and iron sulphate, substantially as described.

No. 40,169. Method of Operating Gas Engines.

(Méthode de fonctionnement des machines à gaz.)

Henry Hoelljes, New York, State of New York, U.S.A., 31st August, 1892; 6 years.

Claim.—1st. The method of operating a gas engine, which consists in compressing a certain charge of air or neutral gas into a heating chamber, compressing a certain charge of explosive mixture, consisting of inflammable gas or vapor and air, igniting this explosive mixture, and causing it to enter in an ignited state into the said heating chamber, in which the whole charge of compressed air or neutral gas is already contained, thereby heating the air or neutral gas, and finally discharging the heated compressed air or neutral gas and the products of combustion into a power cylinder, causing them to move a piston, substantially as specified. 2nd. The method of heating a charge of compressed air or neutral gas by introducing the charge of compressed air or neutral gas into a heating chamber and causing an ignited explosive mixture, consisting of inflammable gas or vapor and air, to enter into said heating chamber, in which the whole charge of compressed air or neutral gas is already contained, substantially as specified. 3rd. The method of preventing the dilution of the explosive mixture in a gas-engine, which consists in compressing a charge of air or neutral gas into a heating chamber and introducing an ignited explosive mixture into said heating chamber, in which the whole charge of compressed air or neutral gas is already contained, substantially as specified. 4th. The method of operating a gas engine, which consists in compressing a certain quantity of air or neutral gas into a heating chamber or the motor cylinder, introducing an explosive mixture into another chamber or the motor

cylinder, separated from the body of compressed air or neutral gas by the motor piston, establishing a communication between the compressed air or neutral gas and the explosive mixture by moving the motor piston, in the meantime igniting the whole charge of said explosive mixture instantaneously, the exploding gases heating the body of the compressed air or neutral gas, and finally causing the so heated compressed air or neutral gas and products of combustion to move a piston, substantially as specified. 5th. The method of operating a gas engine, which consists in compressing a certain quantity of air or neutral gas into a heating chamber or the motor cylinder, introducing an explosive mixture into a chamber separated from the body of the compressed air or neutral gas, igniting the whole charge of said explosive mixture instantaneously and causing the exploding gasses to enter through automatic valves, or valves moved by the engine, into the body of compressed air or neutral gas, thereby heating the same, and finally causing the so heated compressed air or neutral gas and products of combustion to move a piston, substantially as specified. 6th. The method of operating a gas engine, which consists in compressing a certain quantity of air or neutral gas into a heating chamber, causing a compressed charge of explosive mixture to flow in a state of flame gradually into the chamber in which the whole charge of compressed air or neutral gas is contained, then heating the body of compressed air or neutral gas, the quantity of which latter being constant and not augmented while being heated, except by the products of combustion of the explosive mixture, and finally, after the complete combustion of the explosive charge, discharging the heated compressed air or neutral gas and products of combustion into a power cylinder, causing it to move a piston, substantially as specified. 7th. The method of operating a gas engine, which consists in compressing a certain quantity of air or neutral gas into a heating chamber or the motor cylinder, causing a compressed charge of explosive mixture to flow in a jet gradually into the chamber or motor cylinder in which the whole charge of air or neutral gas is contained, said jet of explosive mixture being ignited when flowing into and thus heating the body of the compressed air or neutral gas, the quantity of which latter being constant and not augmented while being heated, except by the products of combustion of the explosive mixture, the compressed air or neutral gas and products of combustion being caused to move a piston, while the explosive mixture flows into the compressed air or neutral gas and heats the same, substantially as specified. 8th. The method of using heating chambers communicating with the motor cylinder by suitable valves, into which heating chambers charges of compressed air or neutral gas and charges of an ignited explosive mixture are introduced intermittently and successively to each other each charge of air being first admitted and then being heated by a charge of an ignited explosive mixture, the so heated air or neutral gas and the products of combustion then being discharged into the power cylinder to move a piston, substantially as specified.

No. 40,170. Electrical Insulating Composition.

(*Composition isolante électrique.*)

Ernst Fahrig, of 24 Listeria Park, Stamford Hill, County of Middlesex, England, 31st August, 1892; 6 years.

Claim.—1st. The process employed for manufacturing an improved composition, substantially as described. 2nd. The use in the manner and for the purposes mentioned of the various ingredients or their equivalents, in about the proportions stated, substantially as hereinbefore set forth. 3rd. The improved composition herein described, prepared substantially in the manner set forth.

No. 40,171. Process of Tanning Hides.

(*Procédé pour tanner les peaux.*)

William Zahn, Newark, New Jersey, assignee of Hermann Endermann, Brooklyn, New York, U. S. A., 31st August, 1892; 6 years.

Claim.—The process herein described of tanning skins, which consists in first treating the same with a bath containing a chromo salt, and then subjecting them to the action of sulphuretted hydrogen, substantially as set forth.

No. 40,172. Car Coupler. (Attelage de chars.)

James Edwin Walker and Charles F. Hunt, Detroit, Michigan, U. S. A., 31st August, 1892; 6 years.

Claim.—1st. In a car coupler, the combination of the draw bar, a box shaped draw head thereon, a transverse shaft journalled therein, a hook secured at one side of said shaft, and the portion G of said shaft forming a bearing for the engagement of the hook of the coupler upon an adjoining car, substantially as described. 2nd. In a car coupler, the combination of the draw bar, a box shaped draw head thereon, a transverse shaft journalled therein, a hook secured at one side of said shaft, the portion G of said shaft forming a hook bar, and the laterally extending lugs L, and means for disengaging said hooks, substantially as described. 3rd. In a car coupler, the combination of the draw bar, a box shaped draw head thereon, the transverse shaft D journalled in the head, and carrying the forwardly extending hook, the draw head provided with a notch N, into which the hook may be turned, and the link M pivoted below the hook, and the notches O in the draw head, in which said link is adapted to engage, substantially as described.

No. 40,173. Duplicating Machine.

(*Machine duplicata.*)

Robert Morgeneier and Jasmin Pierre Bergeron, Winona, Minnesota, U. S. A., 31st August, 1892; 6 years.

Claim.—1st. In a duplicating machine, the combination of vertically and horizontally movable pattern and material holders, and a reciprocating guide finger and drill or bit, substantially as described. 2nd. In a duplicating machine, the combination of vertically and horizontally movable pattern and material holders, a reciprocating guide finger, and a reciprocating and rotary bit or drill, substantially as described. 3rd. In a duplicating machine, the combination of a reciprocating frame, a guide finger, and a continuously rotating bit or drill, said guide finger and drill or bit being carried by the reciprocating frame, substantially as described. 4th. In a duplicating machine, the combination, with a reciprocating frame, of a guide finger mounted therein, and having a movement independent of the movement of the said frame, substantially as and for the purpose set forth. 5th. In a duplicating machine, the combination, with a reciprocating frame and a guide finger carried by said frame, of a mechanism for arresting the movement of the frame when the guide finger encounters the face of the pattern, substantially as described. 6th. In a duplicating machine, the combination, with reciprocating frame and a guide finger carried thereby, of a mechanism for arresting the movement of the frame when the guide finger encounters the face of the pattern, and means for imparting a slight backward movement to the said frame when arrested, substantially as described. 7th. In a duplicating machine, the combination with a reciprocating guide finger, of a spring for retracting the finger, and a tripping device operated by the finger to disengage it from the advancing mechanism, substantially as described. 8th. In a duplicating machine, the combination with a frame and a guide finger and drill or bit carried thereby, of a reciprocating mechanism for operating said frame, and a releasing mechanism operated by the guide finger when it encounters the face of the pattern to release the reciprocating mechanism from the frame, substantially as described. 9th. In a duplicating machine, the combination with a frame and a guide finger and drill or bit carried thereby, of a reciprocating mechanism of operating the frame, a releasing mechanism operated by the guide finger when it encounters the face of the pattern to release the frame from the reciprocating mechanism, and a spring for imparting a slight backward movement to the frame when released from the reciprocating mechanism, substantially as described. 10th. In a duplicating machine, the combination with a frame and a guide finger and drill or bit carried thereby, of a reciprocating bed, a pawl carried by the frame and adapted to be engaged by the reciprocating bed, and a tripping mechanism operated by the guide finger for disengaging the pawl from the said reciprocating bed, substantially as described. 11th. In a duplicating machine, the combination with a frame and a guide finger and a drill or bit carried thereby, of a reciprocating bed, a pawl carried by the frame and adapted to be engaged by the reciprocating bed, a tripping mechanism operated by the guide finger to disengage the pawl from the reciprocating bed, and a spring for imparting a slight backward movement to the frame when its pawl is disengaged from the reciprocating bed, substantially as herein shown and described. 12th. The combination, with a guide finger, of a pawl, a means for throwing out the pawl, and a pawl tripping mechanism operated by the guide finger, substantially as described. 13th. The combination, with a guide finger and its stem, of a case, a spring arranged in connection with the case and stem, a housing, a stem extending to the rear from the housing, a second spring arranged in connection with the housing stem, a pawl arranged within the housing, and a pawl tripping mechanism, substantially as described. 14th. The combination, with a guide finger and its stem, of a case, a spring arranged in connection with the case and stem, a housing, a pawl mounted therein, a spring arranged in connection with a pawl, a spring pressed trigger, a lever arranged in connection therewith, a toe carried by the finger stem and arranged to bear upon the lever, a lever 146, arranged to engage the pawl and formed with an outwardly extending projection, a stem extending to the rear from the housing, and a spring arranged in connection with the stem, substantially as described. 15th. The combination, with a series of reciprocating guide fingers and tripping mechanism arranged in connection with the guide fingers, of revoluble cutters, a means for revolving the same, and a connection between the cutters and guide fingers, substantially as described. 16th. The combination of a pair of disks adapted to receive holders for the material to be operated upon and the pattern, respectively, and means for simultaneously rotating said disks, substantially as described. 17th. The combination of a pair of vertically and horizontally movable disks adapted to receive material and pattern holders, means for simultaneously rotating the said disks, and locking catches for said disks, substantially as described. 18th. A duplicating machine provided with rotating and transversely moving material and pattern holding disks, substantially as described. 19th. A duplicating machine provided with a pair of vertically, longitudinally, and horizontally moving and simultaneously rotating material and pattern holding disks, substantially as described. 20th. The combination of disks adapted to receive material and pattern holders, chain wheels carried by the disks, and a chain passing around said wheels, substantially as described. 21st. The combination, with a pair of disks adapted to receive material and pattern holders, of chain wheels

carried by said disks, a chain arranged in connection with said wheels, and a means for locking the disks, substantially as described. 22nd. The combination, with a pair of disks formed with notched peripheral edges and adapted to receive pattern and material holders, of chain wheels arranged in connection with the disks, a chain which engages said wheels, locking estiches 103, arranged to engage the disks, and rods by which the catches are connected, substantially as described. 23rd. The combination, with a pair of disks adapted to receive material and pattern holders, of a means for simultaneously revolving the disks, and clamping screws 131, arranged above the disks, substantially as described. 24th. The combination, with a shaft 67 and a means for advancing the same, of cams carried by said shaft, a table or frame mounted above the cams and provided with guiding pins, and anti-friction rolls carried by the table or frame which bear upon the cams, whereby upon the turning of the shaft the table or frame will be raised, substantially as described. 25th. The combination, with a threaded shaft and a means for advancing the same, of a table, arms extending downward therefrom, and nut sections carried by the arms and arranged to engage the shaft, whereby when the shaft is turned the table or frame will be moved laterally. 26th. The combination, with a table or frame mounted to slide in ways, of pivotally mounted arms which extend downward from the table or frame, nut sections carried by the arms, a threaded shaft which is engaged by the nut sections, a means for turning the shaft and a device for separating the nut sections, substantially as described. 27th. The combination, with a table or frame mounted to slide in ways, of arms hinged thereto and extending downward therefrom, nut sections mounted to slide upon the arms, a threaded shaft that is engaged by said sections, a means for revolving the shaft, a headed bar which extends through the lower ends of the arms, springs arranged in connection with the bar and arms, a cam held between the lower ends of the arms, and a means for turning the cam, substantially as described. 28th. The combination, with a series of guide fingers, of a rotary series of cutters controlled thereby, vertically and transversely movable disks arranged in advance of the fingers and cutters, and means for revolving the said disks, substantially as described. 29th. The combination, with a ratchet, of pivoted arms, a pawl carried thereby and engaging the ratchet, a means for reciprocating the arms, and a guard or shield arranged to overlap a portion of the ratchet teeth. 30th. The combination, with a ratchet, of pivoted arms mounted in connection therewith, a pawl carried by the arms and engaging the ratchet, a means for reciprocating the arms, a guard or shield arranged to overlap a portion of the ratchet teeth, and means for adjusting the guard or shield. 31st. The combination, with a ratchet, of reciprocating arms arranged in connection therewith, a pawl carried by the arms and engaging the ratchet and means for disengaging the pawl from the ratchet, substantially as described. 32nd. The combination, with a ratchet, of pivoted arms arranged in connection therewith, a means for reciprocating the arms, a pawl carried by the arms and arranged to engage the ratchet teeth, a projection 89, carried by the pawl, a means for throwing the projection downward, a guard or shield arranged in connection with the ratchet, and a retaining pawl, substantially as described. 33rd. The combination, with a series of cutters or drills, of spindles to which the cutters are connected, and a belt running in contact with the spindles. 34th. The combination, with a series of cutters or drills, of spindles to which the cutters are connected, a belt running in contact with the spindles, and a series of belt tightening rollers, substantially as described. 35th. The combination, with a base plate, of a frame 114 carried thereby, a frame 115, carried by the frame 114, and an adjusting screw 121, that is arranged to engage the frame 115, substantially as described. 37th. The combination, with the base plates 113, of frames 114 carried thereby, frames 115 carried by the frames 114, adjusting screws 121, arranged in connection with the frames 115, cranks formed upon the screw shafts, and connections between the cranks, substantially as described. 38th. The combination, with a series of guide fingers, of a series of cutters connected thereto, a set of pawls arranged in connection with the guide fingers, an arm or standard 29 arranged to engage the pawls, and a means for reciprocating the arm or standard to bring it into engagement with one of the pawls, substantially as described. 39th. The combination, with a series of guide fingers, of a series of cutters connected thereto, a set of pawls arranged in connection with the guide fingers, a tripping lever formed with an outwardly extending projection, which lever is arranged in connection with the pawls, an arm or standard 29, arranged to engage the pawls, a means for reciprocating the arm or standard to bring into engagement with one of the pawls, and stops or projections 170 carried by the standard, substantially as described. 40th. The combination, with a series of guide fingers, of a series of cutters connected thereto, a set of pawls arranged in connection with the guide fingers, tripping levers arranged in connection with the pawls and formed with outwardly extending projections *m*, an arm or standard 29, adapted to engage one of the pawls, a means for reciprocating the same, and adjustable stops carried by said arm or standard and adapted to engage the projections *m*. 41st. The combination of adjustable and revolving panel and pattern holders, a series of reciprocating guide fingers, a series of cutters, connections between the guide fingers and cutters, and means for reciprocating the guide fingers and cutters and rotating the cutters, substantially as described.

No. 40,174. Valve. (Soupape.)

George Byron Moore, Springfield, Massachusetts, U. S. A., 31st August, 1892; 6 years.

Claim.—1st. In a valve, the combination of a chamber having a confined inlet controllable by a valve cone and an outlet at the top continued by a duct around the side to a discharge nozzle and a similar chamber communicating with said other chamber and separated therefrom by a piston moving freely in a contracted passage, and closed by a screw cap, a valve spindle passing through said chambers and through the screw cap and inlet and carrying a valve cone operating on the inlet to the chamber and a piston operating between said chambers, substantially as set forth. 2nd. In a ball cock, the combination of a body A B having an inlet *a*¹ and closed with a screw cap C and packing *c* a chamber 2 having an outlet 3 duct 4 and discharge nozzle *b*¹ and a chamber 5 communicating with said chamber 2, a valve spindle D passing through both chambers the screw cap and the nozzle *b*¹ and having a piston *d* fitting freely in a cylindrical throat by which said chambers communicate and a valve cone adapted to close the nozzle *b*¹ substantially as set forth. 3rd. In a ball cock, the combination of the body section B having lugs *b*¹ screw cap C closing said section, valve spindle D passing through said cap, lever E pivoted to said spindle and having split hub *e* and link G pivoted to the lugs *b*¹ and forming the fulcrum of said lever, substantially as set forth. 4th. In a ball cock, the combination of the body sections A and B having screw joint *a* *b*, an inlet nipple *a*¹ on the section A, and the chamber 6 provided with guide ribs *a*¹ substantially as set forth. 5th. In a ball cock, the combination of the body A B having the inlet *a*¹ and containing the chambers 2 5 and 6 the valve seat *b*¹ and the outlet 3 4 and discharge nozzle *b*¹ the screw cap C and packing *c* providing a water tight joint of the chambers 5 with a valve spindle, the valve spindle D passing through said cap packing chambers and valve seat and having the pistons *d* and *D*¹ and the valve *D*¹, and the ribs *a*¹ in the chamber 6 providing a guide for the valve hub *D*¹, substantially as set forth.

No. 40,175. Foot Attachment for Raising the Cutter Bar of a Mower. (Levier à pied pour portelame des faucheuses.)

David Maxwell, St. Mary's, Ontario, Canada, 31st August, 1892; 6 years.

Claim.—1st. A foot lever independently pivoted and having a toe extending below a lug formed on the hand lever to which the lifting chain is attached, substantially as and for the purpose specified. 2nd. A hand lever fixed to a hand lever bracket B, which is pivoted on the hub *b*, and connected to the cutter bar by the lifting chain or rod C, a lug J, formed on the bracket B, in combination with a foot lever independently pivoted on the same centre as the hand lever A, and provided with a toe I, extending in the path of the lug J, substantially as and for the purpose specified.

No. 40,176. Heater. (Calorifere.)

Frank C. Peteler, Minneapolis, Minnesota, U.S.A., 31st August, 1892; 6 years.

Claim.—1st. A heater comprising, in combination, an outer wall or casing, an inner combustion chamber whose walls constitute the inner walls of an air chamber between it and the outer casing, an exit flue extending from the upper part of the combustion chamber laterally into the air space at one side of the combustion chamber, a drum arranged in said air space, with the upper portion of which said exit flue communicates, a series of pipes extending vertically through said drum and open at both their upper and lower ends, a smoke pipe 32, pipes 19 and 20, connecting the upper and lower portions of said drum with said smoke flue, a damper in said upper pipe, an air inlet pipe 26, extending through the outer casing at a point below the lower end of said drum, and pipes 22 for the heated air connected with the said air space above the upper end of said drum, substantially as described. 2nd. In a heater, the combination, with the outer wall or casing 2, of the combustion chamber located within said outer casing, with an air space between the walls of said combustion chamber and the walls of the casing, inclined air pipes extending through the combustion chamber from one side thereof to the other and communicating at both ends with said air space, an air inlet 12, connected with said air space below the lower ends of said inclined tube, a drum arranged in said air space at the side of said combustion chamber, and provided with a series of vertical pipes 16 communicating at both ends with said air chamber, a smoke pipe connecting said combustion chamber with the upper part of said drum, smoke pipes connected with the upper and lower portions of said drum, a damper in the upper pipe, an air inlet pipe connecting with said air space below said drum, and air conducting pipes 22, connected with said air space above said drum and above the upper ends of said inclined tube, substantially as described. 3rd. The combination in a heater of the exterior casing having an inclined wall 13 of non-conducting material, and the walls 2, with the fire pot arranged in one side of said case, the intermediate wall 11, the inclosed and inclined air flues 15 fixed in inclined heads, the flange arranged on the top of the wall 11, and whereon said upper head is supported, doors 8 and 9, a chamber 10, and a smoke drum vertically arranged therein, flues in said drum, a smoke connection 18, and smoke pipes leading from

said drum, and an inlet at the bottom of said casing, substantially as described.

No. 40,177. Hydrant. (*Borne-fontaine.*)

Adam Scheid, Harrison, New Jersey, U.S.A., 31st August, 1892; 6 years.

Claim.—1st. In a hydrant, the combination, with the body, the piston and piston operating mechanism, of a top, a cross bar arranged in said body and bearing against an inner shoulder of the latter, and a bolt passing through said top and engaging an internally threaded opening in said cross bar, all said parts substantially as described and for the purposes set forth. 2nd. In a hydrant, the combination, with the body, the piston and piston operating mechanism, of a tube secured to said body, two segmental flanges arranged opposite each other and made integral with the outer end of said tube, and a tube provided with corresponding lugs and adapted to engage said segmental flanges, all said parts substantially as described and for the purposes set forth. 3rd. In a hydrant, the combination, with the body and piston, of a rod pivotally secured to said piston, a crank pivotally connected with the upper end of said rod, and a shaft firmly secured to said crank and adapted to operate the latter, all said parts substantially as described and for the purposes set forth. 4th. In a hydrant, the combination, with the body and piston, of a rod pivotally secured to said piston, a crank pivotally connected with the upper end of said rod, a shaft carrying said crank, a projecting lug *q*, made integral with the body and adapted to serve as bearing for one end of the shaft, a bushing arranged opposite said lug and on the outside of the body and adapted to also serve as bearing for said shaft, a flange or collar secured to said shaft, a suitable packing arranged between said bushing and said flange, and a crank adjustably secured to the outer end of said shaft, all said parts substantially as described and for the purposes set forth. 5th. In a hydrant, the combination, with the body and the water inlet, of two guiding blocks secured to or made integral with said body, a piston adapted to be operated in said body and be guided in its upward movement by said guiding blocks, said blocks being also adapted to form with said piston (when moved upwards), channels to connect the water inlet with the hydrant, and means for operating said piston, all said parts substantially as described and for the purposes set forth. 6th. In a hydrant, the combination, with the body and water inlet, of guiding blocks secured to or made integral with said body, a piston adapted to be operated in said body and be guided in its upper movement by said guiding blocks, said blocks being also adapted to form with said piston (when moved upwards), connecting channels between the water inlets and the hydrant, means for operating said piston and an automatically operated escape valve arranged in one of said guiding blocks, all said parts substantially as described and for the purposes set forth. 7th. In a hydrant, the combination, with the body and piston, of a rod secured to said piston and provided at or near its top with a toothed portion, a pinion engaging said toothed portion, a shaft operating said pinion and a crank adjustably secured to said shaft, all said parts substantially as described and for the purposes set forth.

40,178. Car Heater. *Appareil de chauffage pour Wagons.*

The Consolidated Car Heating Company, assignee of James Finney McElroy, Albany, New York, U. S. A., 31st August, 1892: 6 years.

Claim.—1st. In a car heater of the kind described, the combination with the casing and grate, of a water heating coil forming the magazine, substantially as described. 2nd. In a car heater of the kind described, the combination with the casing and grate, of a water heating coil forming the magazine within, and the combustion chamber formed between the outside of said coil and the casing,

substantially as described. 3rd. In a car heater of the kind described, the combination of a water heater coil forming the magazine within, of an inner and outer casing, of the air chamber formed between the two casings, and the combustion chamber formed between the inner casing and the coil, substantially as described. 4th. In a car heater of the kind described, the combination of the casing, a base *A* supporting said casing, the standards *S*¹ supporting the gate and fire pot, the inner casing *b* supported on the fire pot, and the coil *T* forming the magazine, substantially as described. 5th. In a car heater of the kind described the combination with base *A* of the seamless outer casing *D*, and the top *E*, substantially as described. 6th. In a car heater, the combination with the casing and feed aperture therein, of a pivoted door, having a locking aperture, a locking lug on the casing, and a spring such as *J*² upon the pin holding the door upon the lug, substantially as described. 7th. In a car heater, the combination with the casing, of the top *E*, perforated plate *K*, smoke chamber *Q*, a feed opening, a cover *O* sliding in guides *H*¹, the handle *P* and cover *J*, substantially as described.

No. 40,179. Art of Obliterating Sound Records from Record Tablets. (*Art d'effacer des tablettes l'emprunte des sons.*)

David Wolfe Brown, Washington, Columbia, U.S.A., 31st August, 1892; 6 years.

Claim.—1st. The herein-described method of obliterating an engraved or indented sound-record from a waxy or other plastic surface, which consists in forcing the ridges of material between the record-grooves, substantially as described. 2nd. The herein-described method of obliterating an engraved or indented sound-record from a waxy or other plastic surface, which consists in forcing the ridges of material between the record-grooves into the said grooves by external mechanical pressure and solidifying and smoothing the surface by such pressure, substantially as described. 3rd. The herein-described method of reparing a graphophone or phonograph tablet having a sound-record in plastic material for the reception of a new record, which consists in obliterating the old record by forcing the material of the ridges which separate the record-grooves into such grooves by the forcible application thereto of a tool, substantially as described. 4th. The herein-described method of reparing a cylindrical graphophone or phonograph tablet having a grooved sound-record upon a surface of plastic material for the reception of a new sound-record, which consists in rotating the tablet and feeding a pressure-tool bearing upon a portion of the surface of the tablet along the same, substantially as described. 5th. The method of recording sounds upon a plastic surface having a grooved sound-record already formed thereon, which consists in successively obliterating the successive portions of the old record by forcing the ridges of material between the record-grooves into the said grooves, and simultaneously therewith producing a new record upon the reprepared portion of the surface, substantially as described.

No. 40,180. Car Brake. (*Frein de char.*)

Chester Levi Ames, Cabery, Illinois, U.S.A., 31st August, 1892; 6 years.

Claim.—1st. In combination with the frame and brakes of a car, the chains *S*, *S*¹, *S*², *S*³, *S*⁴, rods *R*, levers *L*, *L*¹, draw bars *B*, brake lever *K*, coil spring *S*², pulley *P*, *P*¹, and brake rod *a*, all arranged substantially as and for the purpose set forth. 2nd. In the car brake, and in combination with the brakes of a truck, brake rod, and the reciprocating draw bars, the levers *L*, *L*¹, chains *S*, *S*³, *S*⁴, coil spring *S*², rods *S*⁴ and *R*, brake lever *K*, pulley *P* and pulley block *P*¹, substantially as and for the purpose set forth.

CERTIFICATES OF THE PAYMENT OF FEES FOR FURTHER TERMS HAVE BEEN ATTACHED TO THE FOLLOWING PATENTS.

2687. EPHRAIM F. HERRINGTON, 2nd five years of No. 27,328, from the 2nd day of August, 1892. Improvements in Oil Hole Covers, 1st August, 1892.
2688. THE NATIONAL TYPOGRAPHIC COMPANY (assignees), 2nd five years of No. 27,478, from the 18th day of August, 1892. Improvements in Machines for Producing Type Bars, 3rd August, 1892.
2689. F. E. & C. W. LEONARD, 2nd five years of No. 27,363, from the 8th day of August, 1892. Improvements in Steam Engine Governing Devices, 3rd August, 1892.
2690. THE NATIONAL TYPOGRAPHIC COMPANY (assignees), 2nd five years of No. 27,345, from the 4th day of August, 1892. Improvements in Machines for Producing Type Bars for Printing Purposes, 4th August, 1892.
2691. THE NATIONAL TYPOGRAPHIC COMPANY (assignees), 2nd five years of No. 27,487, from the 19th day of August, 1892. Improvements in Machines for Producing Type Bars and Matrices for Type Bars, 4th August, 1892.
2692. BENJAMIN FRANKLIN SMITH, 2nd five years of No. 27,358, from the 6th day of August, 1892. Improvements on Hand Drilling Machines, 6th August, 1892.
2693. THE NATIONAL TYPOGRAPHIC COMPANY (assignees), 2nd five years of No. 27,483, from the 20th day of August, 1892. Improvements in Type Matrices, &c., and Mechanism for Distributing the same, 8th August, 1892.
2694. JOHN CUSSONS STEELE, 2nd five years of No. 27,375, from the 9th day of August, 1892. Improvements in Road Planers, 8th August, 1892.
2695. JAMES GEORGE GALLEY, 3rd five years of No. 15,265, from the 8th day of August, 1892. Improvements on Rocking Fire Bars, 8th August, 1892.
2696. DAVID WILLIAM SUGG, 2nd five years of No. 27,395, from the 12th day of August, 1892. Improvements in the Construction of Gas Lamps, 11th August, 1892.
2697. ISRAEL KINNEY, 2nd five years of No. 27,458, from the 17th day of August, 1892. Improvements in Wire Matting, 13th August, 1892.
2698. DANIEL HARE WINTERS, 2nd five years of No. 27,543, from the 1st day of September, 1892. Improvements in Lever Knives for the Purpose of Cutting and Trimming Horses' Hoofs and Cutting Wire and Horse Nails and other Materials, 13th August, 1892.
2699. JOHN NEWTON BRIGGS, 2nd five years of No. 27,437, from the 16th day of August, 1892. Improvements in Apparatus for planing Cakes of Ice for Storing, 15th August, 1892.
2700. GEORGE ROSS, 2nd five years of No. 27,455, from the 17th day of August, 1892. Improvements in Sulky Plows, 16th August, 1892.
2701. PHILIP NOONAN, 2nd five years of No. 27,614, from the 10th day of September, 1892. Improvements in Railway Track Systems, 17th August, 1892.
2702. JAMES T. WALSH and CHARLES B. McDONALD, 2nd five years of No. 27,440, from the 16th day of August, 1892. Improvements in the Art of Making Sheet Metal Cans used for Packing Meats, Vegetables, &c., 16th August, 1892.
2703. JOHN TACKABERY, 3rd five years of No. 15,487, from the 19th day of September, 1892. Improvements on Animal Powers, 20th August, 1892.
2704. JAMES S. JOHNSON, 2nd five years of No. 27,541, from the 1st day of September, 1892. Improvements on Running Gear for Sleighs, 22nd August, 1892.
2705. HUGH GARMENY TURLEY, 2nd five years of No. 27,712, from the 3rd day of October, 1892. Composition of Matter to be used for the Cure of Horses, 24th August, 1892.
2706. JAMES HALE SEWALL, 2nd five years of No. 28,117, from the 13th day of November, 1892. Improvements in Hose Couplings, 24th August, 1892.
2707. PHILIP DYER and WILLIAM ABERNETHY, 2nd five years of No. 27,535, from the 1st day of September, 1892. Improvements in Farm Gates, 20th August, 1892.

TRADE MARKS

Registered during the month of August, 1892, at the Department of Agriculture—
Copyright and Trade Mark Branch.

4390. WILLIAM DOW & CO., of Montreal, Que. Ales and Porters, 1st August, 1892.
4391. WILLIAM DOW & CO., of Montreal, Que. Ales and Porters, 1st August, 1892.
4392. WILLIAM DOW & CO., of Montreal, Que. Ales and Porters, 1st August, 1892.
4393. NORMAN GENTLE, of North Sydney, N.S. Biscuit, Crackers, Bread, Cake, &c., 1st August, 1892.
4394. GORDON & CO., of 132 Goswell Road, London, England. Spirituous Liquors and Cordials, 2nd August, 1892.
4395. THOMAS HALL, of 8 George Street, Edinburgh, Scotland. Decorative Material, consisting of Embossed Paper Pulp, finished either with pulp or canvas face, to be used for walls, ceilings, friezes and other surfaces, 2nd August, 1892.
4396. THE MANUFACTURERS' LIFE INSURANCE COMPANY, of Toronto, Ont. Trade Mark to be used by the Registrants in their business as a Life and Accident Insurance Company, 4th August, 1892.
4397. THE TASMANIAN EUCALYPTUS OIL COMPANY, of Hobart, Tasmania, Australasia, and London, England. Eucalyptus Oil and Extract of Eucalyptus Oil, 4th August, 1892.
4398. F. REDDAWAY & CO., of Pendleton, Manchester, England. General Trade Mark, 5th August, 1892.
4399. JOSEPH GOULET, de Montréal, Qué. Cigares, 6 Août, 1892.
4400. PERRIN FRERES & CO., of Grenoble, France. Gloves, 8th August, 1892.
4401. THOMAS HENRY HAMILTON, JOSEPH D. ARMSTRONG and WILLIAM ROBERT GREATREN, of Peterborough, Ont., trading as The Peterborough Medicine Co. Medicine, 11th August, 1892.
4402. CHEMISCHE FABRIK AUF ACTIEN, of Berlin, Germany. Ammonia Derivatives, 11th August, 1892.
4403. MARVIN W. COBB, of Fredonia, New York, U.S.A. A local Anesthetic for the painless extraction of teeth, 13th August, 1892.
4404. GANONG BROTHERS, LIMITED, of St. Stephen, N.B. Confectioneries, 10th August, 1892.
4405. WILLIAM HARRISON & SONS, of St. Thomas' Works, Stockport, Chester Co., England. Hats, Caps, &c., 18th August, 1892.
4406. A. CARRIER & FILS, of Levis, Que. Flour, 19th August, 1892.
4407. THE ENTERPRISE MANUFACTURING COMPANY OF PENNSYLVANIA, of Philadelphia, Penn., U.S.A. Meat Choppers, 24th August, 1892.
4408. McKESSON & ROBBINS, of New York, N.Y., U.S.A. Medical Compounds and Articles for administering the same, 26th August, 1892.
4409. BROCKVILLE WRINGER COMPANY, of Brockville, Ont. Tinned Meat Choppers, 26th August, 1892.
4410. SAMUEL BLACKSTOCK, of London, Ont. Remedy for Purifying the Blood, 27th August, 1892.
4411. S. ALLCOCK & COMPANY, of the Standard Works, Redditch, County of Worcestershire, England. Fishing Tackle of all kinds, 29th August, 1892.
4412. ONTARIO CHEMISTS' MANUFACTURING COMPANY, LIMITED, of Hamilton, Ont. Drugs, Medicines and Toilet Articles, 29th August, 1892.
4413. EDWARD LIVINGSTON PERRY, of Patterson, New Jersey, U.S.A., and WILLIAM GREEN WINANS, of New York, N.Y., U.S.A. Packing, 31st August, 1892.
4414. EDWARD LIVINGSTON PERRY, of Patterson, New Jersey, U.S.A., and WILLIAM GREEN WINANS, of New York, N.Y., U.S.A. Gaskets, 31st August, 1892.
4415. J. RATTRAY & COMPANY, of Montreal, Que. Cigars, 31st August, 1892.
4416. PERRIN FRERES & CO., of Grenoble, France. Gloves, 31st August, 1892.
4417. PERRIN FRERES, &c. (*ut supra.*)

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6551. SIGHTS AND SHRINES OF MONTREAL WITH MAP AND INDEX. F. E. Grafton & Sons, Montreal, Que., 1st August, 1892.
6552. LOVELL'S MONTREAL DIRECTORY, 1892-93. John Lovell & Son, Montreal, Que., 2nd August, 1892.
6553. FATHER OF MERCY. Song. Words by A. Horspool. Music by Alfred Rawlings. I. Suckling & Sons, Toronto, Ont., 2nd August, 1892.
6554. TERRY DENVER. Story which is now being preliminarily published in separate articles in "Pen and Scissors" of Toronto, Ont. (Temporary Copyright.) Annie Letitia Watson, Toronto, Ont., 2nd August, 1892.
6555. SEVEN YEARS APPRENTICESHIP IN A WOOLLEN MILL, which is now being preliminarily published in separate articles in "The Canadian Journal of Fabrics," Montreal. (Temporary Copyright.) Emerson Bristol Biggar, Montreal, Que., 4th August, 1892.
6556. TORONTO CALLED BACK FROM 1892 TO 1847, by Conyngham Crawford Taylor, Toronto, Ont., 5th August, 1892.
6557. LA LOI DE LA CESSION DE BIENS 1892. Par Simon Napoleon Parent, LL.L., Québec, Qué., 5 août, 1892.
6558. TABLEAU MIRACULEUX DE LA BONNE STE. ANNE, dont l'original repose dans l'église de la Bonne Ste. Anne de Beaupré (carte de visite photo). Jules Ernest Livernois, Québec, Qué., 5 août, 1892.
6559. TABLEAU MIRACULEUX DE LA BONNE STE. ANNE, dont l'original repose dans l'église de la Bonne Ste. Anne de Beaupré (photo 5 x 8). Jules Ernest Livernois, Québec, Qué., 5 août, 1892.
6560. TABLEAU MIRACULEUX DE LA BONNE STE. ANNE, dont l'original repose dans l'église de la Bonne Ste. Anne de Beaupré (photo 8 x 10). Jules Ernest Livernois, Québec, Qué., 5 août, 1892.
6561. RELIQUE DE SAINTE ANNE ET SON RELIQUAIRE. (Fragment d'un bras de Ste. Anne) (photo 5 x 8). Jules Ernest Livernois, Québec, Qué., 5 août, 1892.
6562. RELIQUE DE SAINTE ANNE ET SON RELIQUAIRE. (Fragment d'un bras de Ste. Anne) (photo 8 x 10). Jules Ernest Livernois, Québec, Qué., 5 août, 1892.
6563. THE BANK STAMP POSTAL SYSTEM. A Direct and Economic Trading, Collecting and General Agency. (Card.) George Tomkins, Toronto, Ont., 8th August, 1892.
6564. THE POSTAL BANK CHEQUE STAMP GENERAL AGENCY SYSTEM. (Card.) George Tomkins, Toronto, Ont., 9th August, 1892.
6565. PICTURESQUE PRINCE EDWARD COUNTY. (Book.) By Helen M. Merrill, Picton, Ont., 9th August, 1892.
6566. JELFS' INDEX TO STATUTE LAW, 1892. Geo. Frederick Jelfs, Hamilton, Ont., 10th August, 1892.
6567. L'AMI DES SALONS, par Mlle. L. Nitouche. 2eme Edition. G. A. & W. Dumont, Montréal, Qué. 10 août, 1892.
6568. AMOROSA WALTZ, by Ed. St. Quentin. I. Suckling & Sons, Toronto, Ont., 11th August, 1892.
6569. SOUVENIR DES NOCES D'OR DE SON EMINENCE LE CARDINAL TASCHEREAU (photo). Jules Ernest Livernois, Québec, Qué., 11 août, 1892.
6570. COMING THRO' THE DYE. Words by "Scotty." Tune, "Coming thro' the Rye." Robert Parker, Toronto, Ont., 13th August, 1892.
6571. WILL YOU FOLLOW ME MY DARLING. Song. Words by Eugene Courtenay. Music by Charles Bohner. Whaley, Royce & Co., Toronto, Ont., 13th August, 1892.
6572. MEMOIRE POUR LE LAVAGE DU LINGE (cahier). Prosper Larose, Québec, Qué., 17 août, 1892.

6573. KEY TO PHRENOLOGY, by Prof. Wm. Seymour, Toronto, Ont., 17th August, 1892.
6574. HUTTEMEYER'S CLASSIFIED BUSINESS DIRECTORY OF MONTREAL, 1892-93. George Christopher Huttemeyer, Montreal, Que., 18th August, 1892.
6575. TENDRES CHOSÉS. Poesies Canadiennes. Par Dr. R. Chevrier, Ottawa, Ont., 17 août, 1892,
6576. GLIMPSES OF THE PAST IN THE RED RIVER SETTLEMENT, 1805-1836. From letters of Mr. John Pritchard. Wm. A. Burman, Middle Church, Man., 22nd August, 1892.
6577. LOVELL'S MONTREAL CLASSIFIED BUSINESS DIRECTORY, 1892-93. John Lovell & Son, Montreal, Que., 23rd August, 1892.
6578. THE CENT STAMP STOCK PAYMENT SYSTEM, (pamphlet). The House and Land Investment Company of Ontario, Limited, Toronto, Ont., 24th August, 1892.
6579. NOTES AND VOCABULARY, by E. J. McIntyre and Fred. H. Sykes, *re*. "Les Frères Colombe," by Georges de Peyrebrune; and "La Fee," by Octave Feuillet. The Copp, Clark, Co., Ld., Toronto, Ont., 26th August, 1892.
6580. SELECT POEMS OF WILLIAM WORDSWORTH. Edited with notes, by M. F. Libby, B. A. The Copp, Clark, Co., Ld., Toronto, Ont., 26th August, 1892.
6581. PRIMARY LATIN BOOK, by Adam Carruthers, B. A., and J. C. Robertson, B. A. William Briggs, Toronto, Ont., 26th August, 1892.
6582. GRIP, AUGUST 27TH, 1892. The Grip Printing and Publishing Co., Toronto, Ont., 26th August, 1892.
6583. L'HOTEL DIEU DU SACRÉ-CŒUR ET DES MALADES, (photo). Louis Napoleon C. de Beaumont, Québec, Qué., 26 août, 1892.
6584. SOUVENIR DU JUBILE DE SON EMINENCE LE CARDINAL TASCHHREAU ET DE LA SOCIÉTÉ ST. JEAN BAPTISTE, (photo). Louis Napoleon C. de Beaumont, Québec, Qué., 26 août, 1892.
6585. FIRST LATIN BOOK. For the use of High Schools, by J. Henderson, M. A., and J. Fletcher, M. A. The Copp, Clark, Co., Ld., Toronto, Ont., 27th August, 1892.
6586. EUREKA: THE BAPTISM AND THE CHURCH OF THE NEW TESTAMENT SOUGHT AND FOUND, by Rev. T. H. Carey, Essex, Ont., 27th August, 1892.
6587. THE BOSTON SWING. Round Dance, by Prof. John F. Davis, Toronto, Ont., 29th August, 1892.
6588. LA PANTOMIME. A Fancy Polka. New Dance by Prof. John F. Davis, Toronto, Ont., 29th August, 1892.
6589. LA PETITE PAVANE. New Dance by Prof. John F. Davis, Toronto, Ont., 29th August, 1892.
6590. MAYPOLE DANCE. A Rustic Sketch for the Pianoforte, by Sydney Smith. The Anglo-Canadian Music Publishers' Association, L'd, London, England, 29th August, 1892.
6591. MANUEL DE L'INDUSTRIE LAITIÈRE AU CANADA, par E. MacCarthy. Eusèbe Senecal & fils, Montréal, Qué., 29 Août, 1892.
6592. ROYAL MILITARY COLLEGE CLUB OF CANADA REFERENCE BOOK. Ernest Frederick Würtele, Québec, Qué., for the Royal Military College Club of Canada, 29th August, 1892.
6593. INTRODUCTION NOTES AND APPENDIX, by Fred. H. Sykes, to "The Sketch Book" of Geoffrey Crayon, by Washington Irving. The Copp, Clark Co., L'd, Toronto, Ont., 31st August, 1892.

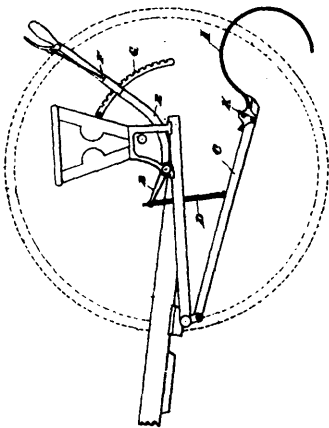
THE CANADIAN PATENT OFFICE RECORD.

ILLUSTRATIONS.

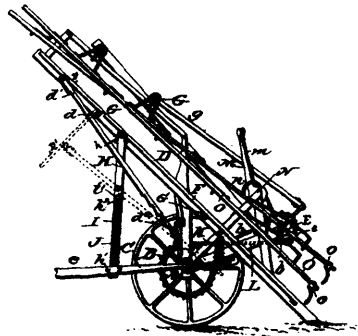
Vol. XX.

AUGUST, 1892.

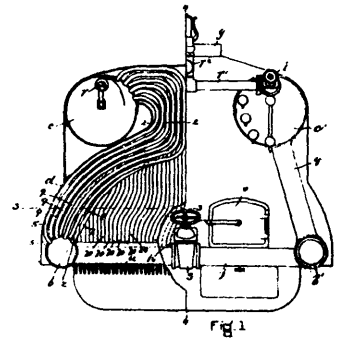
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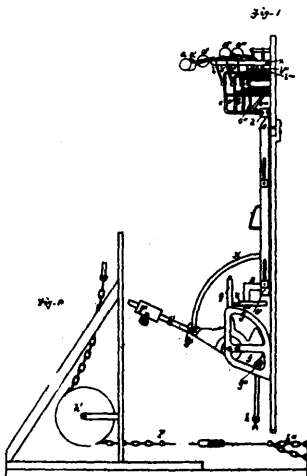
39587 Sylvester's Cultivator.



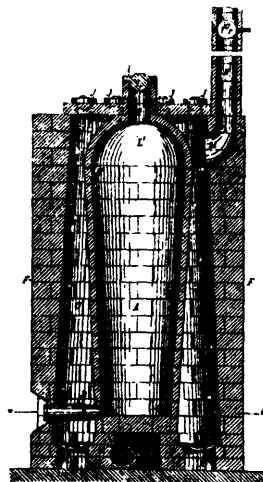
39588 Jewett's Hay Loader.



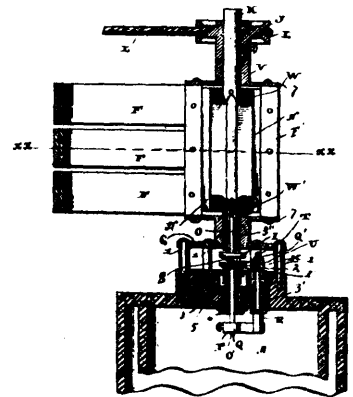
39589 Mosher's Steam Generator.



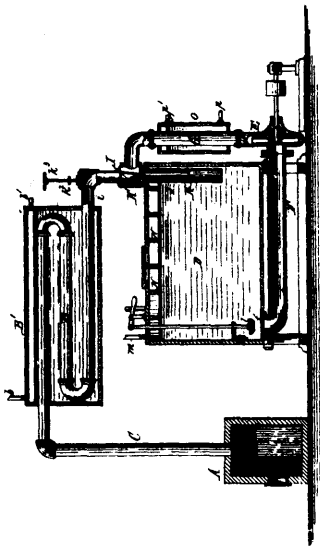
39590 Belet's Target.



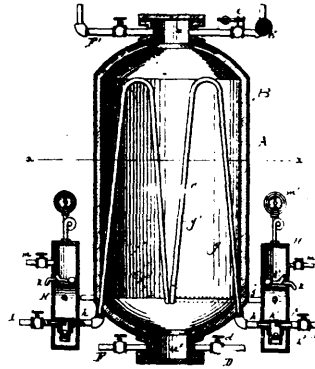
39591 Alsugay's Furnace and Apparatus for
Extracting Metals from Ores.



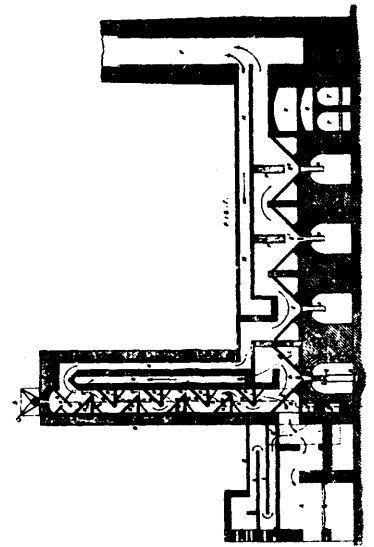
39592 Woolley's Magneto-Electric Ignitor.



39593 Howell's Apparatus for making Bi-sulphide of Lime.



39594 Howell's Pulp Digester.



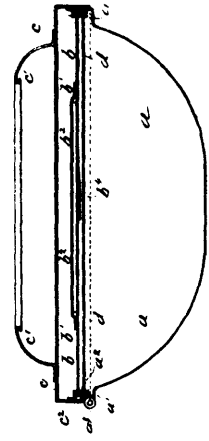
39595 Fauvel's Furnace and method for treating refractory Ores.



39596 Guilleaume's Electric Cable.



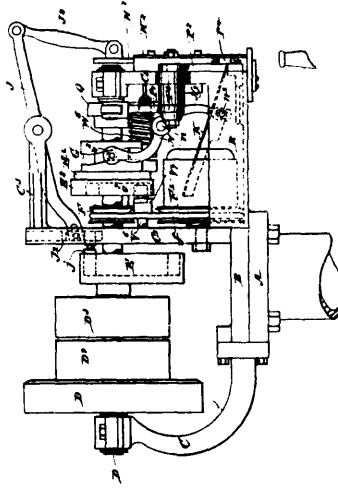
39597 Grasser's Cultivator.



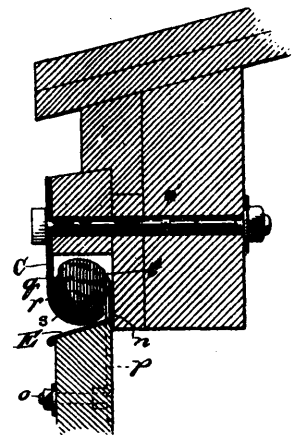
39598 Phillips' Bed Pan.



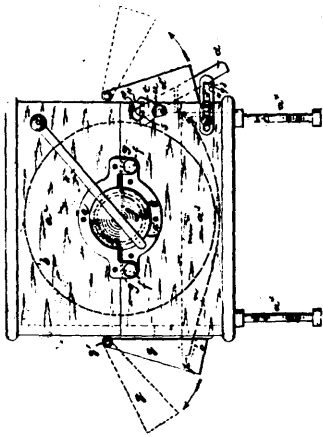
39599 Trebilcock's Lifter and Lock for Skylights.



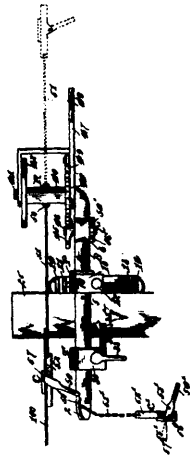
39600 Cutter's Shoe Slugging Machine.



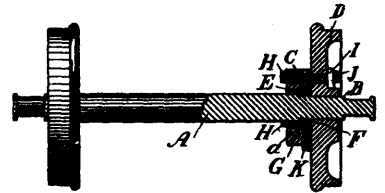
39601 Pullman's Door Hanger.



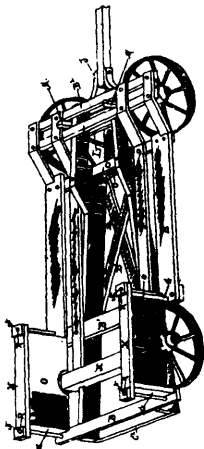
39602 Atwater's Ice Cream Freezer.



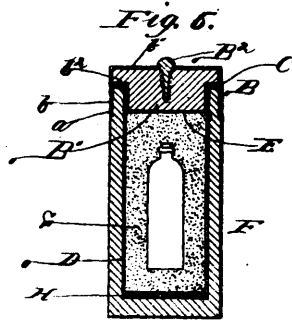
39603 Rohr's Wire Stretcher.



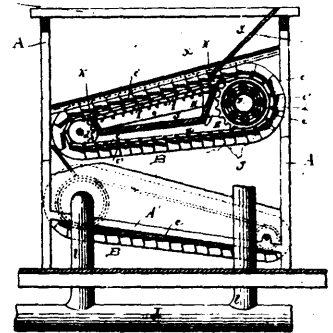
39604 Willard's Car Axle.



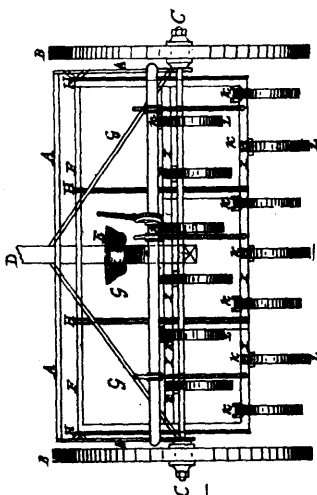
39605 Hoy's Hay Rack.



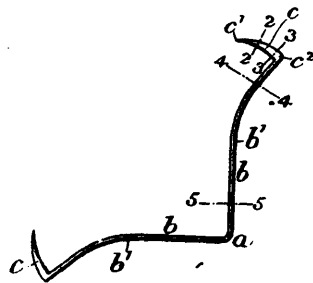
39606 Johnson's Mailing Case.



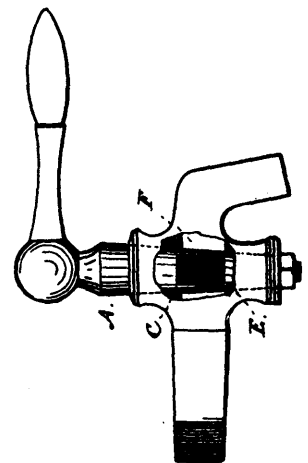
39607 Mey's Grain Drier.



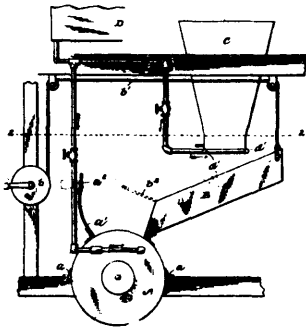
39608 Coulthard's Spring Tooth Cultivator.



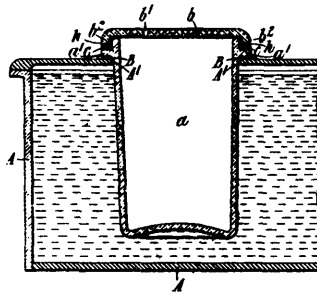
39609 Scobie's Claw Clip.



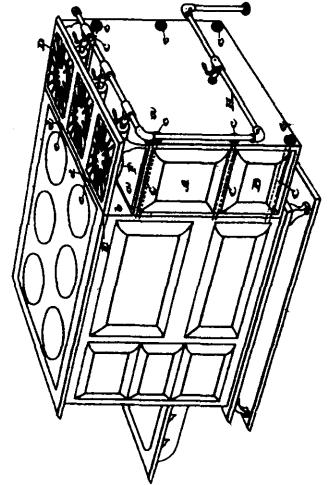
39610 Luse's Filtering Faucet.



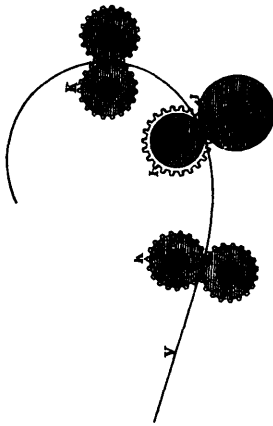
39611 Miller's Lime Slaking Machine.



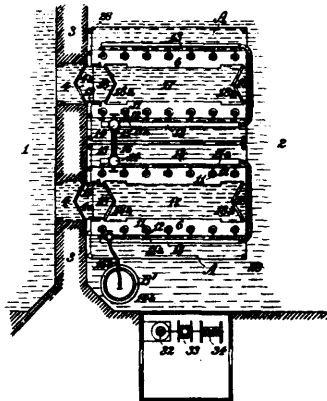
39612 Ryland's Receptacle for Preserved Meat, etc.



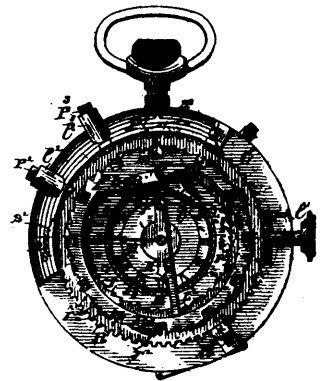
39613 Bigley's Gas Attachment for Cooking Stoves.



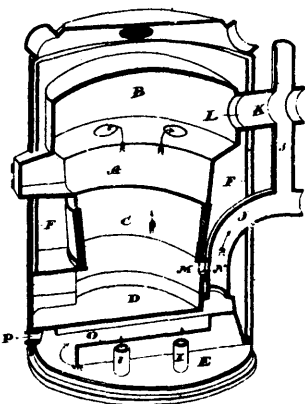
39614 Bradley's Art of Making Cylindrical Boxes from Veneer.



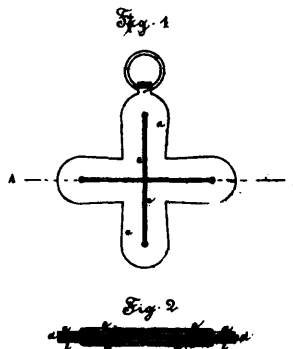
39615 Dutton's Balance Lock for Waterways.



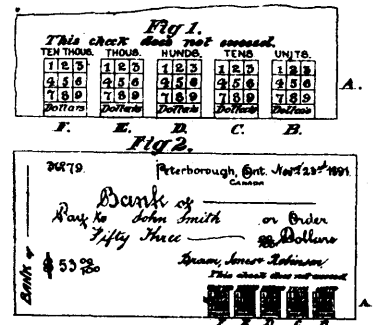
39616 Matthaei's Repeating Mechanism for Watches.



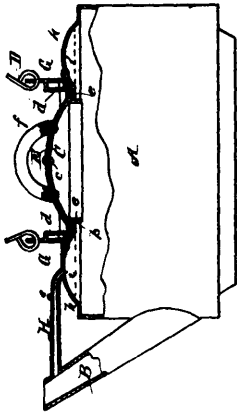
39617 Bigley's Heater.



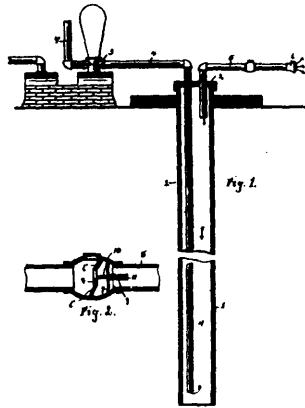
39618 Heskier's Device to be worn upon the person for obtaining voltaic effects.



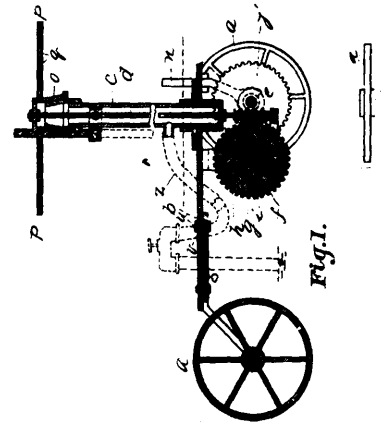
39619 Edwards' Means for preventing the changing of amounts in documents.



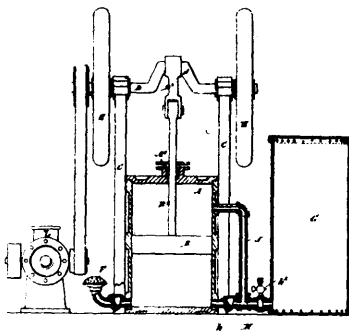
39620 Black and Natus' Tea Kettle.



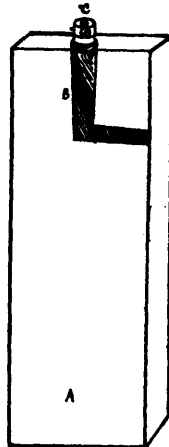
39621 Stouse's Process and Means for increasing the flow of Natural Gas.



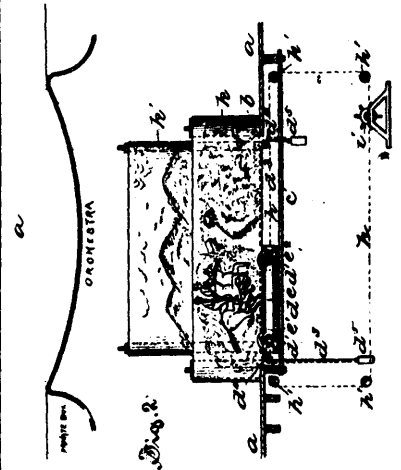
39622 Fellows' Lawn Sprinkler.



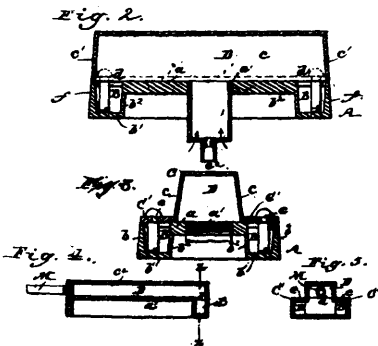
39623 Rohr's Air Compressor.



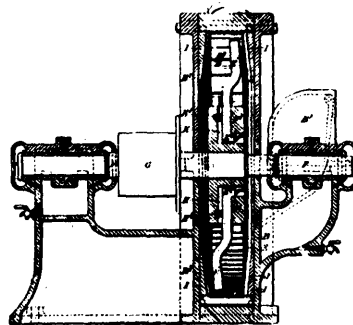
39624 Grimwood and Moore's Electric Battery.



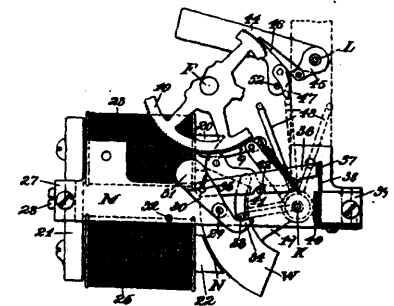
39625 Knell's Apparatus for producing illusory dramatic effects.



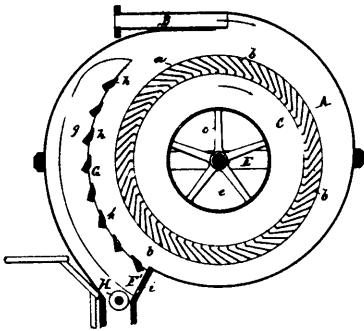
39626 Lesser's Gas Burner for Heating Purposes.



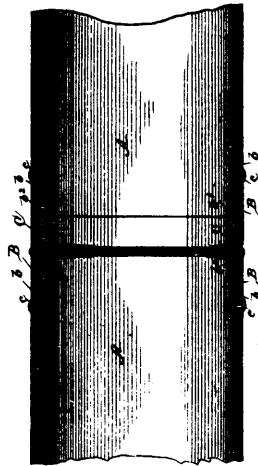
39627 Straker's Machine for Grinding, Crushing or Disintegrating Grain.



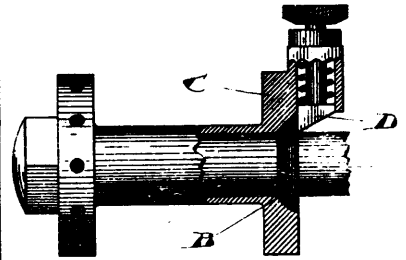
39628 Gregory's Electrically-Actuated Clock.



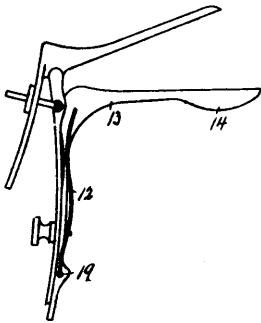
39629 Cockrell's Dust Collector.



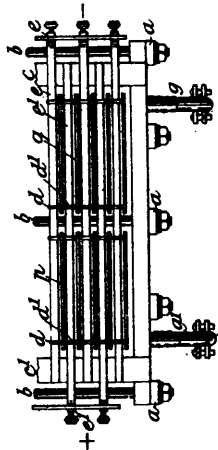
39630 Johnston's Stove Pipe Fastening.



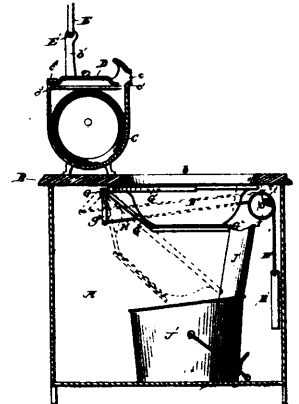
39631 Jacobi's Device for Holding a Wheel on its Axle.



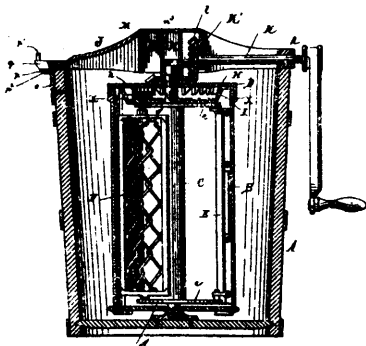
39632 Daily's Endoscopic Instrument.



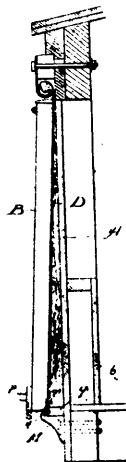
39633 Ravello's Apparatus for obtaining copper and other metals from solutions of their salts.



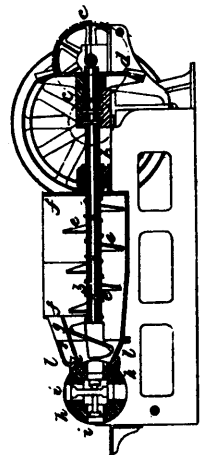
39634 Bond's Wash-stand.



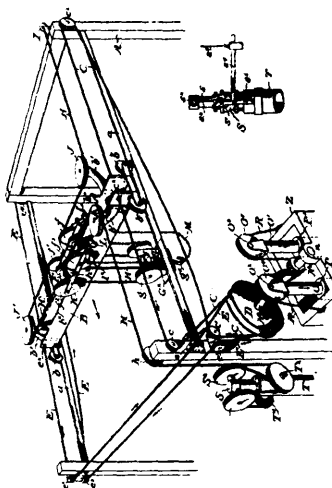
39635 Shepard and Adams' Ice Cream Freezer.



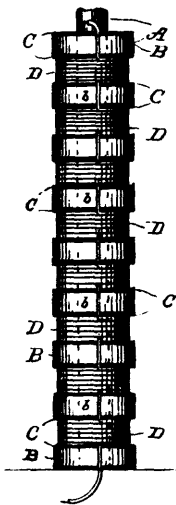
39636 Pullman's Car Door.



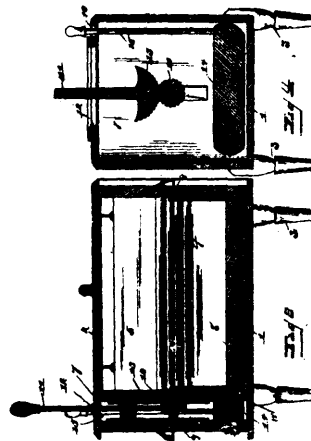
39637 Johnson's Machine for Manufacturing Brick.



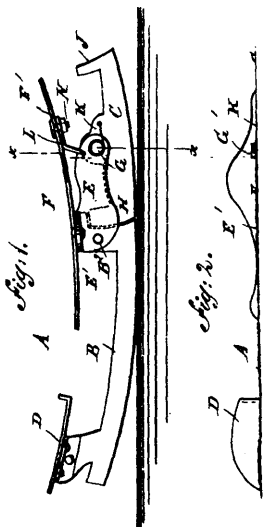
39638 Graham and Graves' Crane.



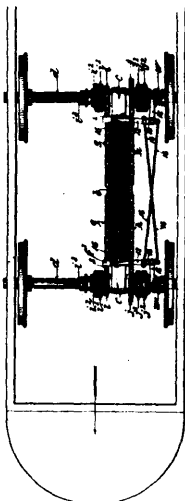
39639 Rich's Electrical Heater.



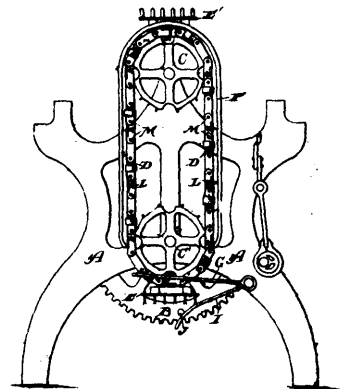
39640 Nash's Washing Machine.



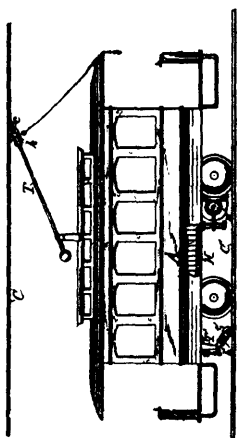
39641 McQuown's Skate.



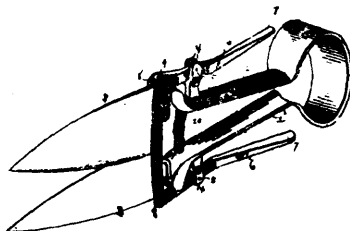
39642 Giffard's Arrangements and Mechanism for Stopping and Starting Tram Cars, etc.



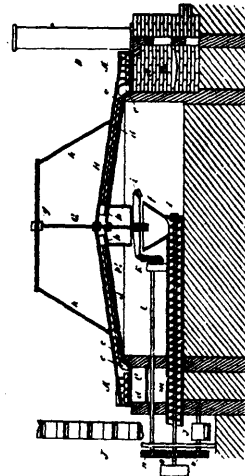
39643 Lowe's Egg Tray Machine.



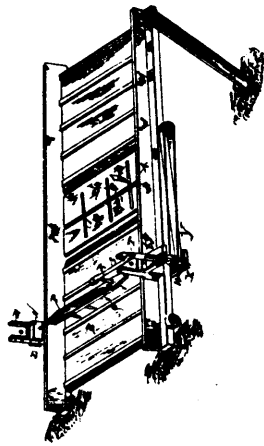
39644 Dewey's Electric Heating Apparatus for Railway Systems.



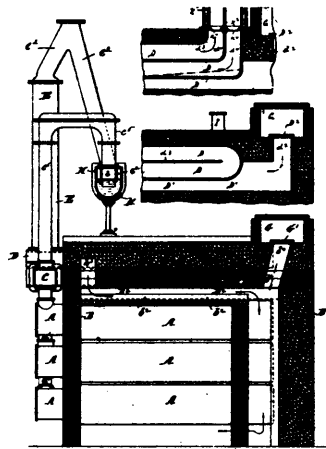
39645 Tolbert's Shears



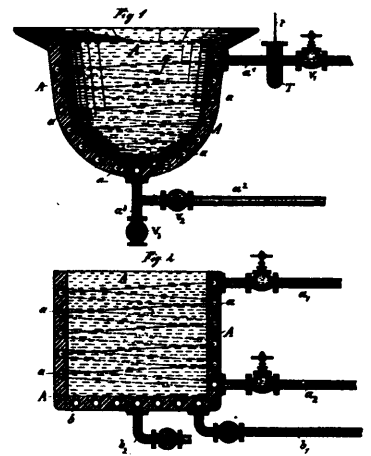
39646 Runciman's Apparatus for the Manufacture of Salt.



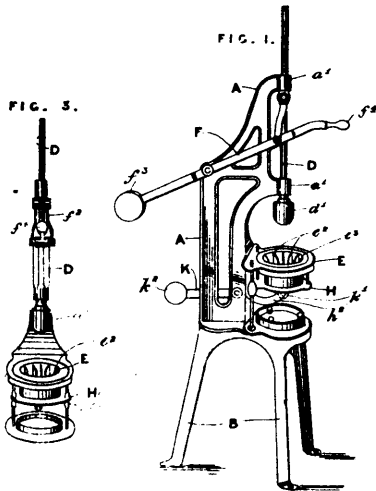
39649 Plowright's Band Cutter and Feeder.



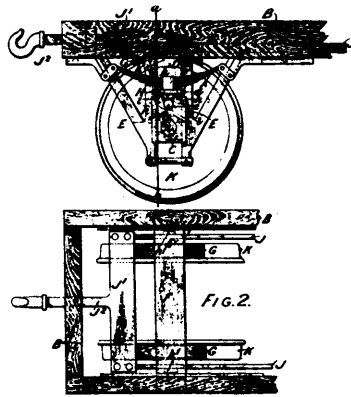
39650 Ferguson's Method for Manufacturing Gas.



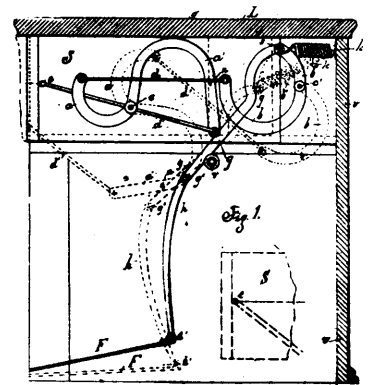
39651 Frederking's Vessel for Cooking, Smelting and Evaporating.



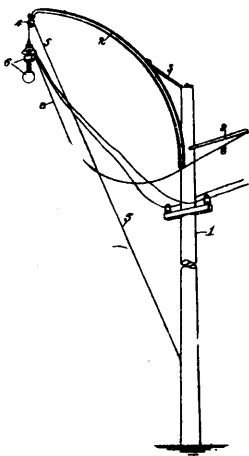
39652 House's Machine for Bashing, Notching and Stamping Bread.



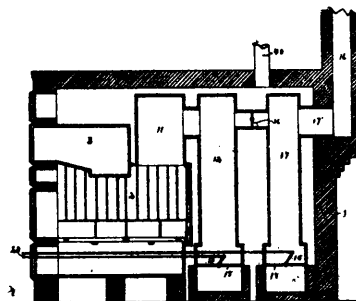
39653 Roberts and Wheeler's Brake Mechanism for Vehicles.



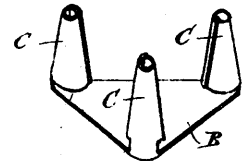
39654 Bray's Till Lock.



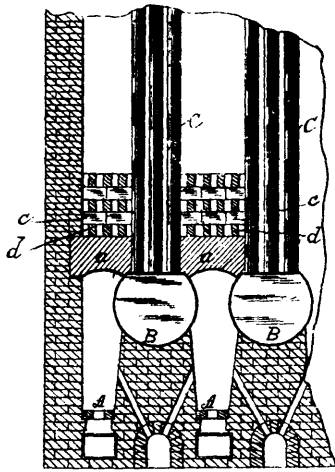
39655 Spanner's Electric Light Pole.



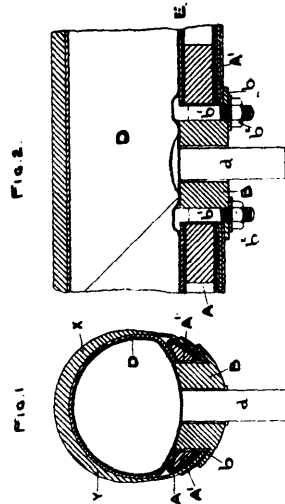
39657 Koehler's Hot Air Furnace.



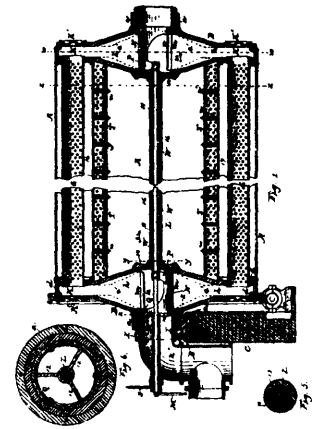
39658 Lesser's Cigar.



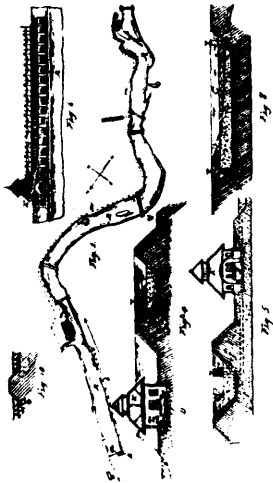
39659 Wheeler's Boiler Furnace.



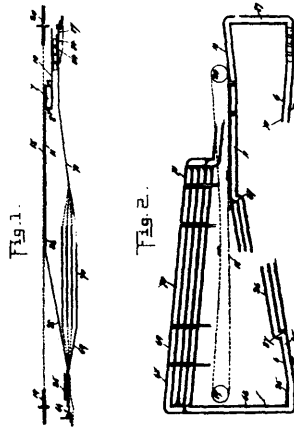
39660 Swindley's Wheel for Vehicles.



39661 Crocker's Filtering Machine.



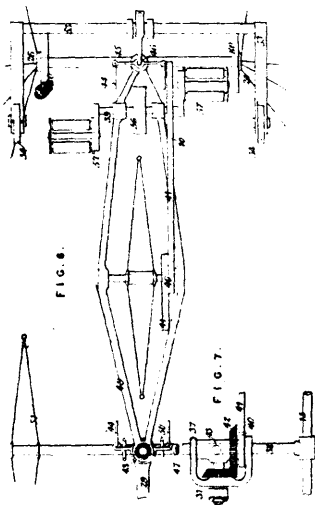
39662 Crocker's System of Filtering Water.



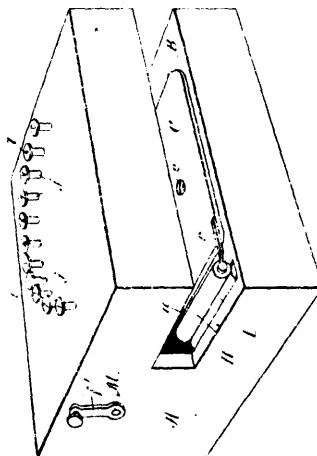
39663 Krehbiel's Plant for Manufacturing Capsules.



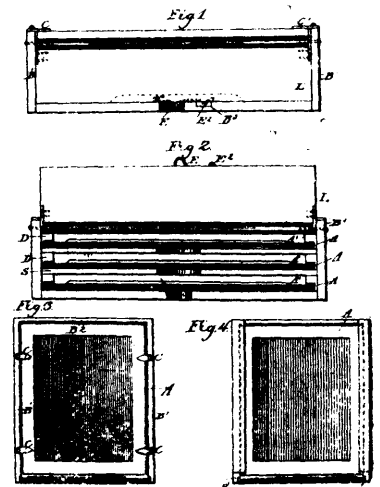
39664 Breiger's Bandage.



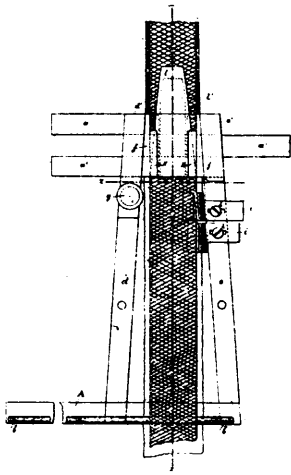
39665 Zimer's Aerial Navigating Machine.



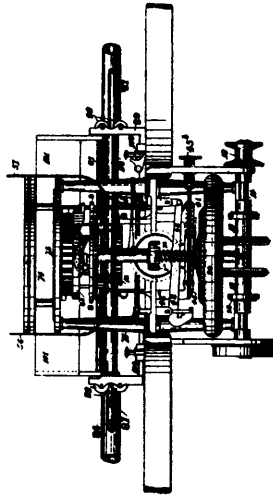
39666 Lane's Bank Punch.



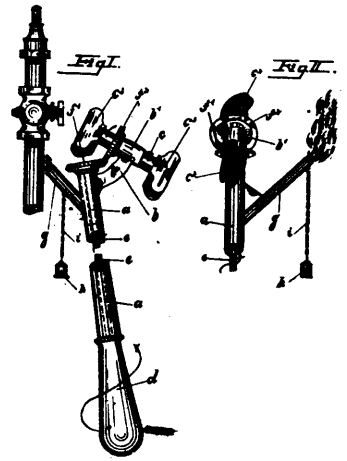
39667 Levy's Cabinet for Holding Duplicating Apparatuses.



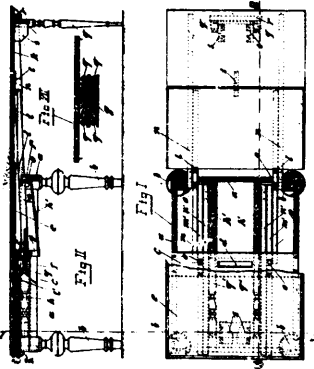
39668 Remy's Ribbon.



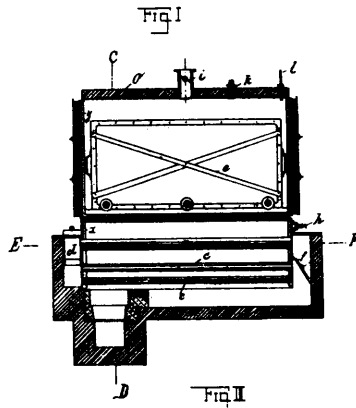
39669 Sherwood's Type Writer and Matrix Making Machine.



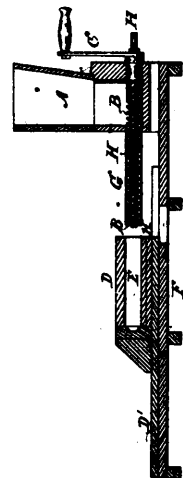
39670 Lowe's Apparatus for Opening and Closing Cocks.



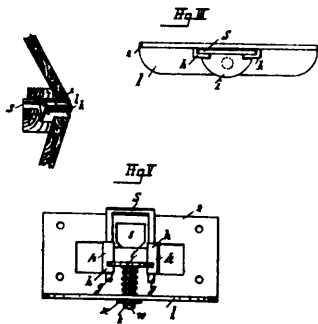
39671 Wiggers' Extension Table.



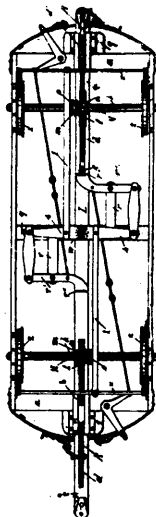
39672 André's Disinfecting Apparatus.



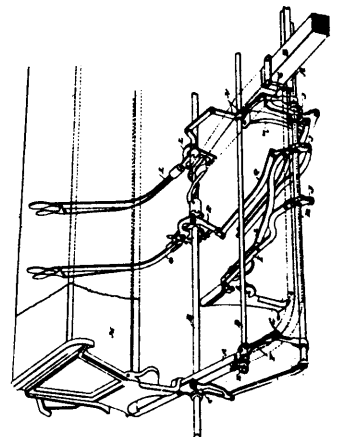
39673 Batchelor's Mould Filling Apparatus.



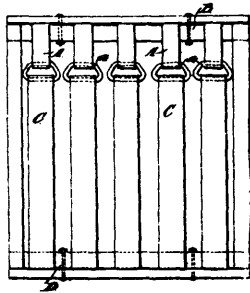
39674 Schmidt and Wolff's Apparatus for Securing the Lids of Coffins.



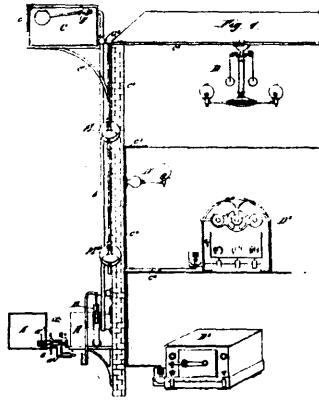
39675 Adler's Tramway Brake.



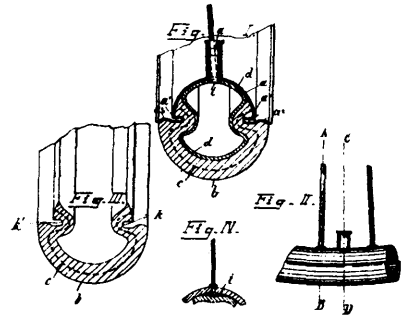
39676 Noxon's Seeding Machine.



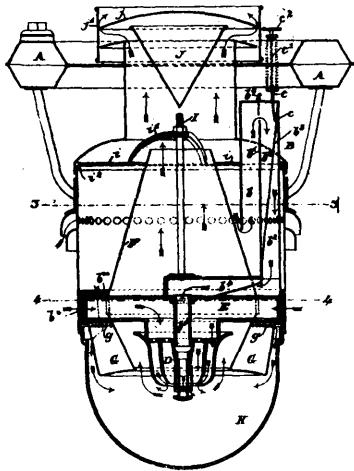
39677 Dimant's Spring Bottom for Beds, etc.



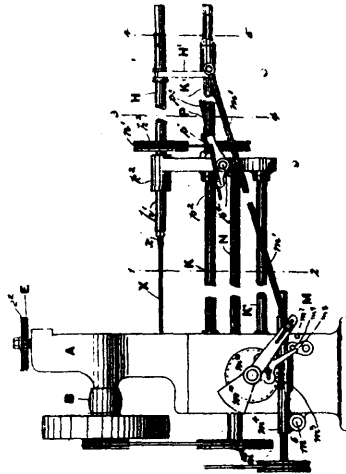
39678 Galopin's Apparatus for Regulating the Supply of Liquid Hydro-Carbon to Lamps.



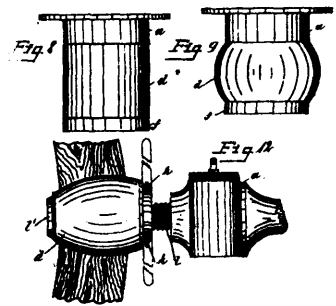
39679 Lehmann's Pneumatic Wheel Tyre.



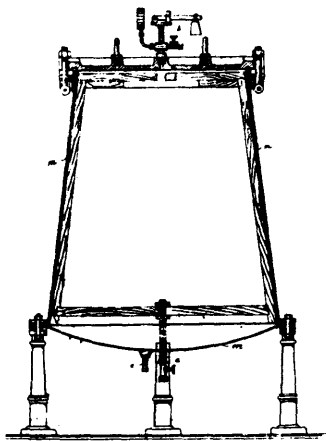
39680 Reid, Hanna, Holroyd and Wheat's Lamp.



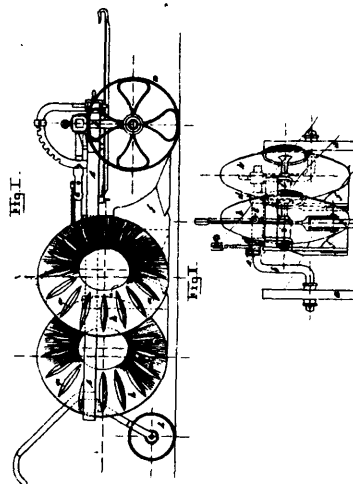
39681 Alpe's Machinery for Manufacturing Metal Spokes.



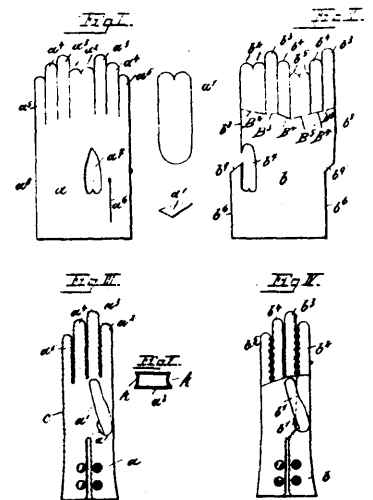
39682 Hiller's Bung.



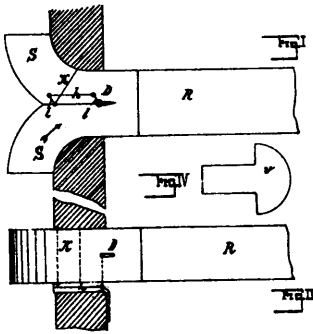
32683 Bruns' Sparking Wire.



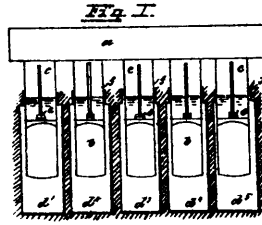
39684 Marth's Rotating Plow.



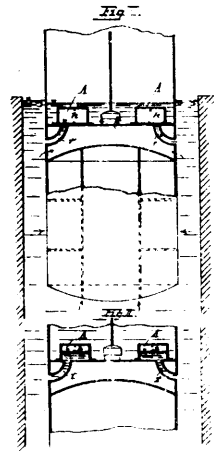
39685 Fischl's Glove.



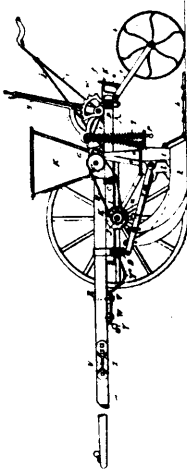
39686 Riedinger's Ventilator.



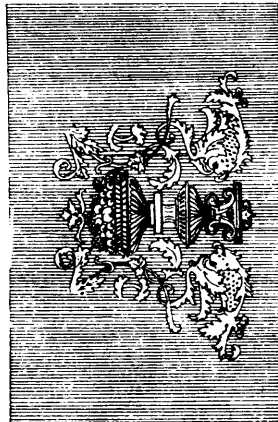
39687 Prusmann's Apparatus for Lifting or Lowering Heavy Bodies.



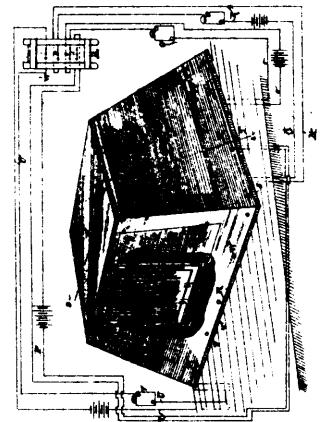
39688 Prusmann's Floating Apparatus.



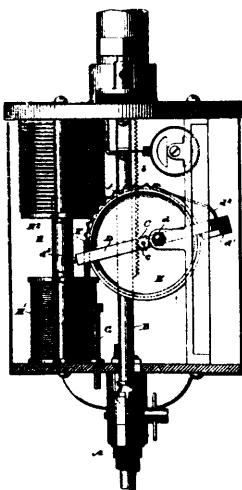
39689 Kissell's Grain Drill.



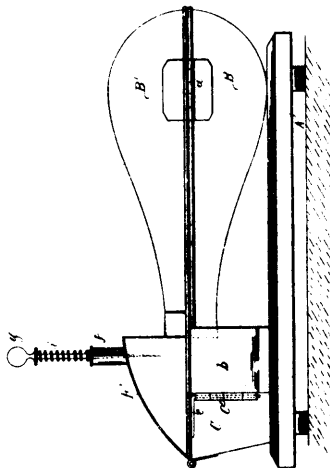
39690 Himmel's Method of Producing Fancy Figured Wooden Plates



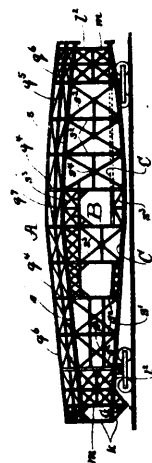
39691 Powell's Burglar Alarm.



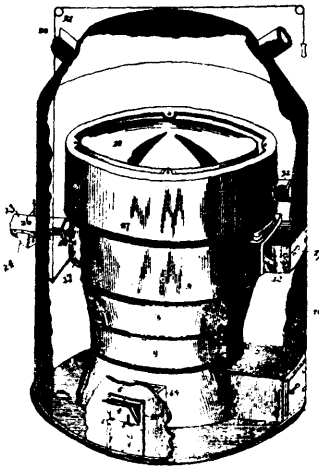
39692 Easton's Electric Lamp.



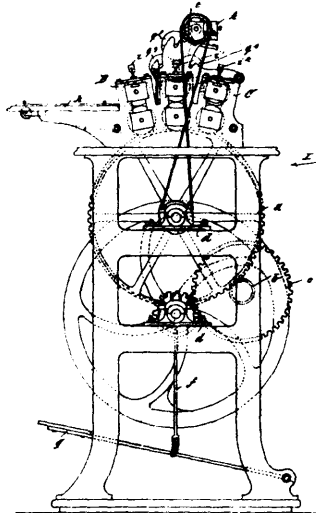
39693 Schonemann's Apparatus for Killing Poultry.



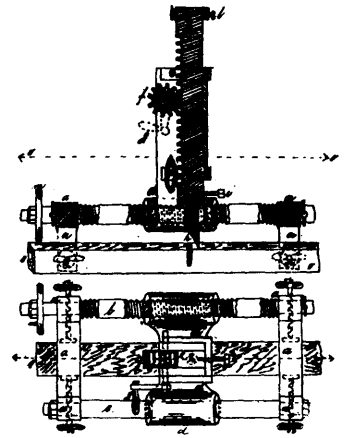
39694 Zurcher's Frame for Railway Cars.



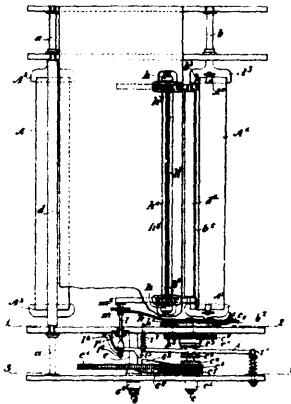
39695 Cowles' Hot Air Furnace.



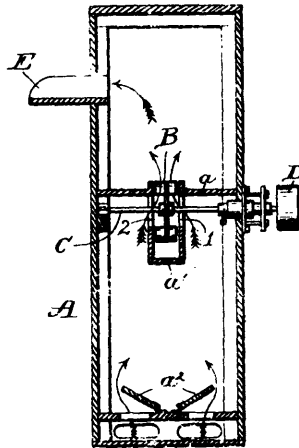
39696 Schwarz's Machine for Printing and Stamping Vignettes.



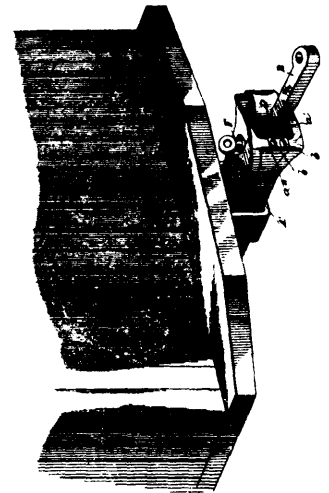
39697 Mueller's Apparatus for Cutting Grooves and Channels in Wood.



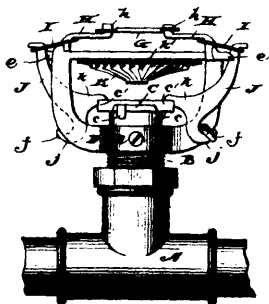
39698 Hahn's Machinery for Measuring, Winding and Cutting of Lengths of Cloth.



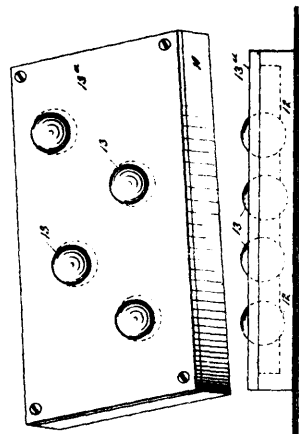
39699 Menge's Rotary Pump.



39700 Gaines' Car Coupler.



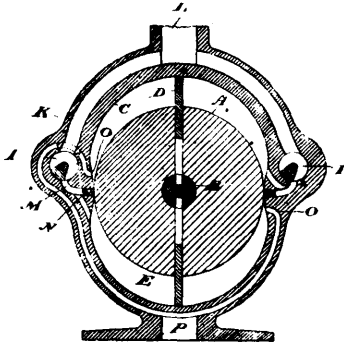
39701 Kersteter's Fire Extinguisher.



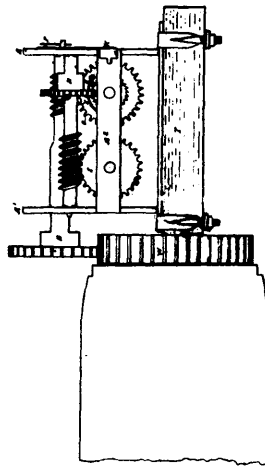
39702 Ashmead's Anti-friction Bearing.



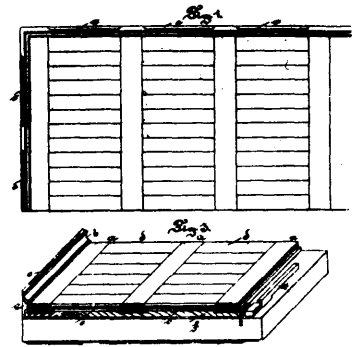
39703 Goodwin's Machine for Cutting, Trimming and Pruning Trees and Hedges



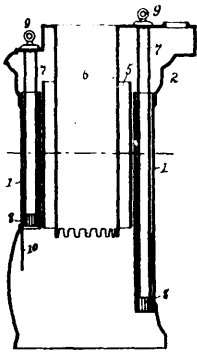
39704 Sewrey's Rotary Engine.



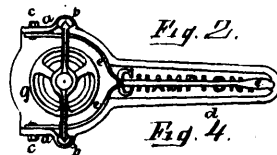
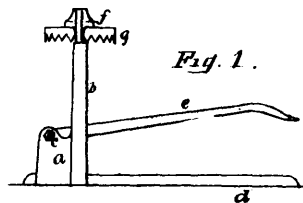
39705 Merry's Odometer.



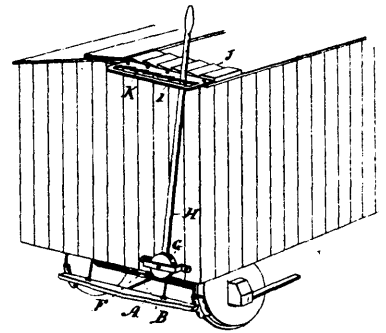
39706 Hetser's Floor.



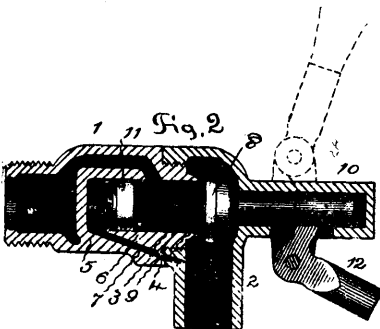
39707 Harris' Heater.



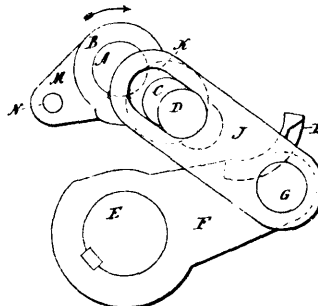
39708 Hungerford's Can Opener.



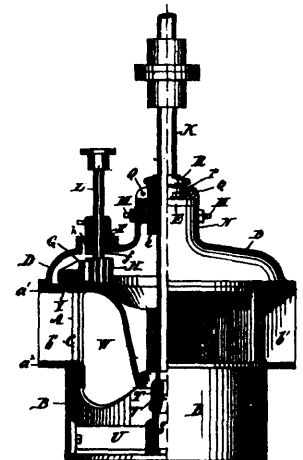
39709 Falls' Break Gear for Railway Cars.



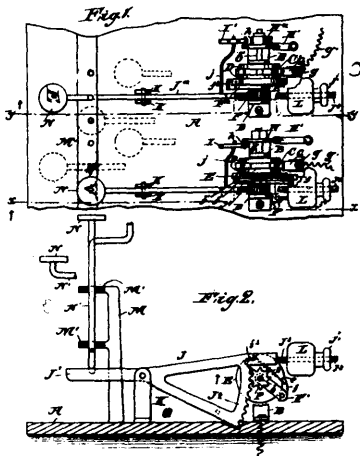
39710 Birkery's Valve.



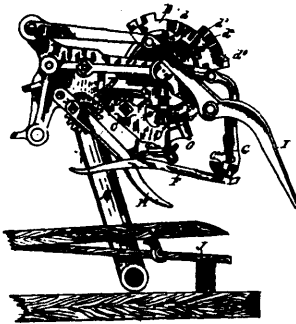
39711 Willox and Whittemore's Mechanical Movement.



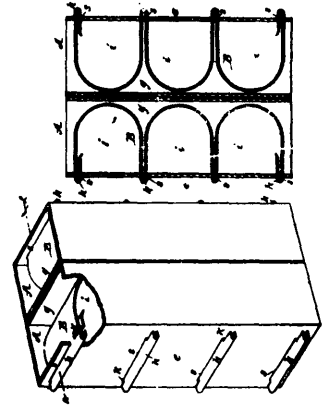
39712 Munro's Turbine.



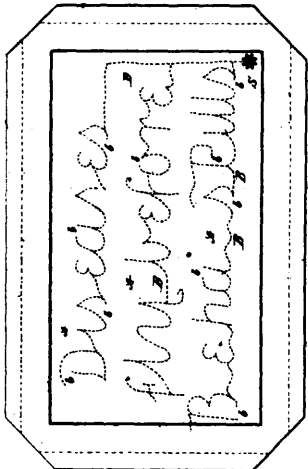
39713 Smith's Telegraphic Transmitter.



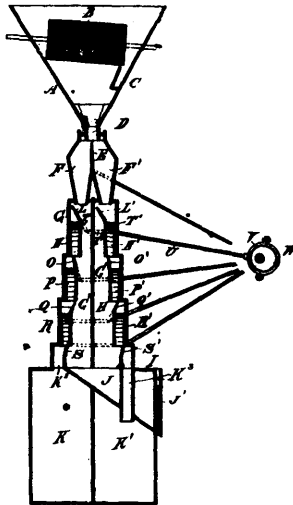
39714 Holmes' Grain Binder.



39715 Dale and Weightmann's Egg Carrying Package.



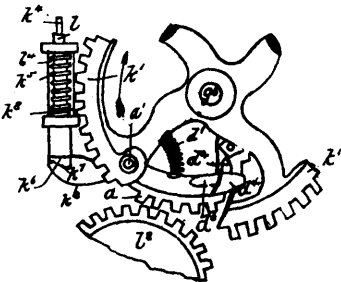
39716 Beecham's Paper with Hidden Designs, etc.



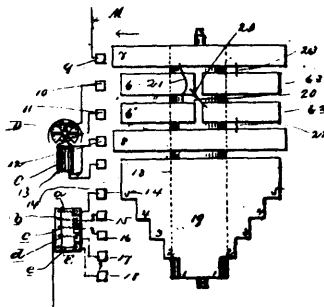
39717 Hawley's Sampling Device.



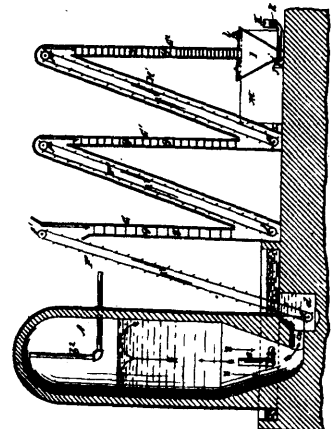
39718 Dyas and Marshall's Stamp and Envelope Moistener and Opener.



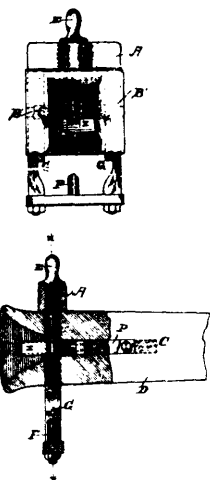
39719 Watrous' Grain Binder.



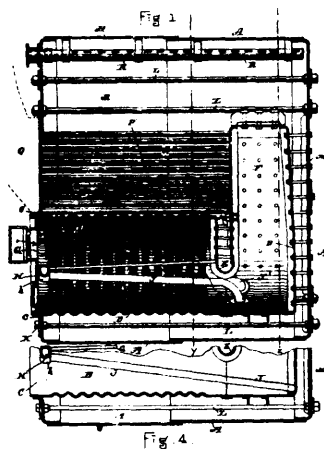
39720 Rae's Switch for Electric Locomotives.



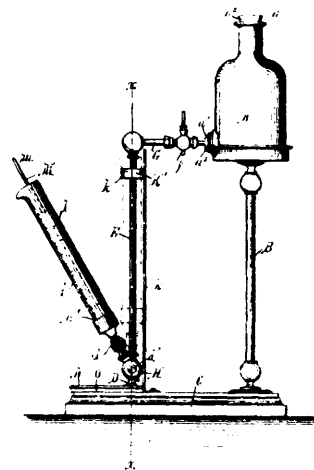
39721 Peck's Process and Apparatus for Making Salt.



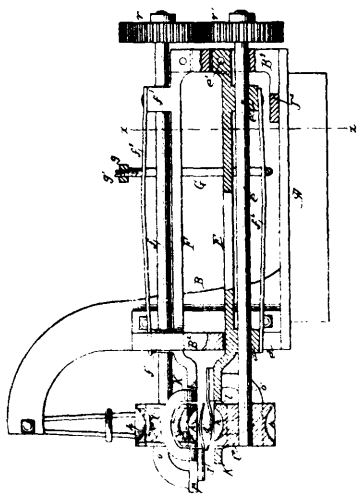
39722 Chandler's Car Coupler.



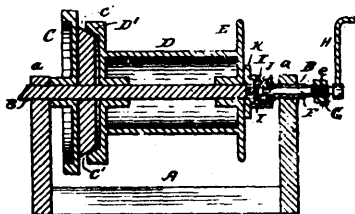
39723 Ayer's Steam Boiler and Furnace.



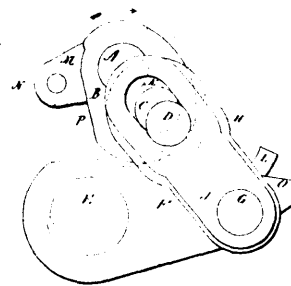
39724 Clement's Apparatus for Testing Liquids and Substances.



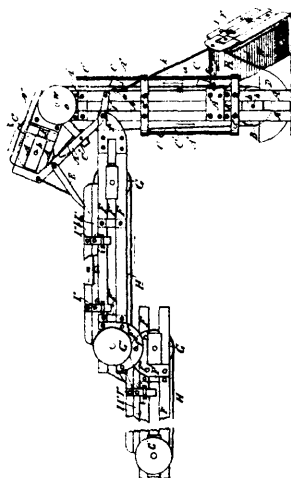
39725 Sprague's Machine for Cutting Green Corn Off the Cob.



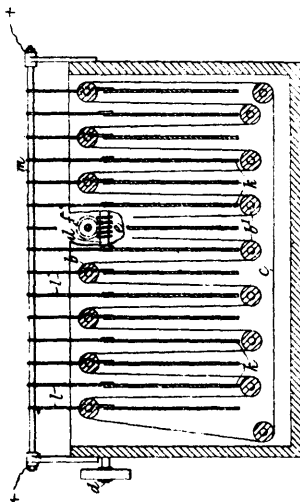
39726 Steele's Clutch Controller.



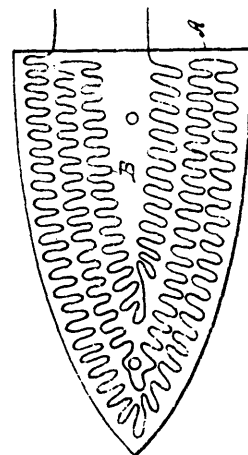
39727 Wilcox and Whittemore's Mechanical Movement.



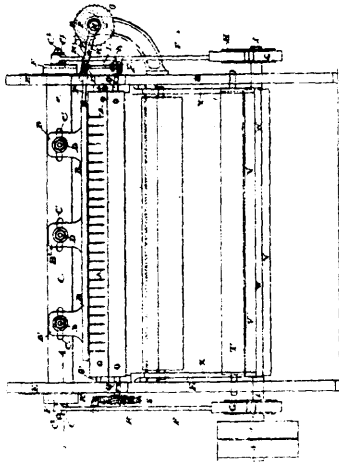
39728 Russell's Coal Elevating and Transporting Apparatus.



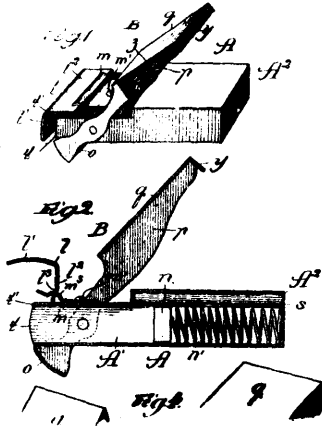
39729 Tavernier, Howell and Viarengo's Apparatus for Making Wire.



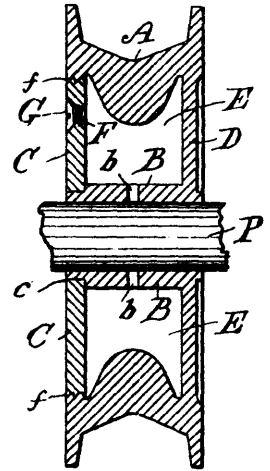
39730 Carpenter's Electro Heating Apparatus.



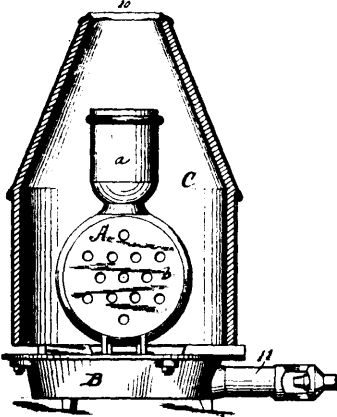
39731 Whipple's Machine for Making Fabrics.



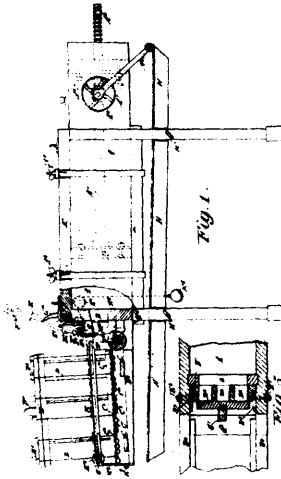
39732 Potter and Hubbard's Tobacco Case.



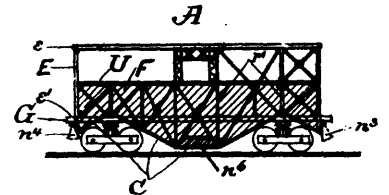
39733 Mullin's Trolley Wheel.



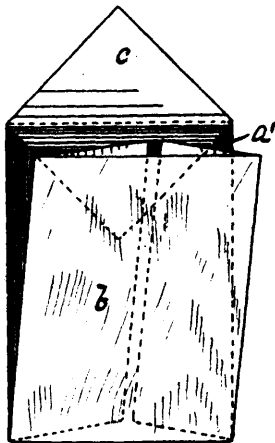
39734 Fenner's Crucible for Casting Dental Plates.



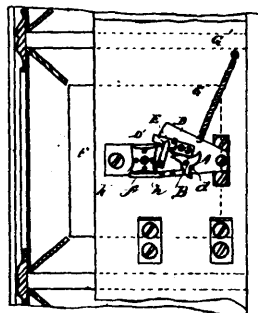
39735 Foster's Machine for Moulding Butter.



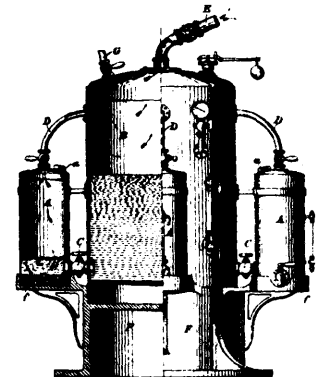
39736 Zuercher's Railway Car.



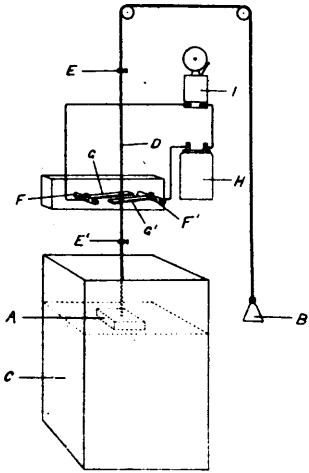
39737 Moss' Envelope.



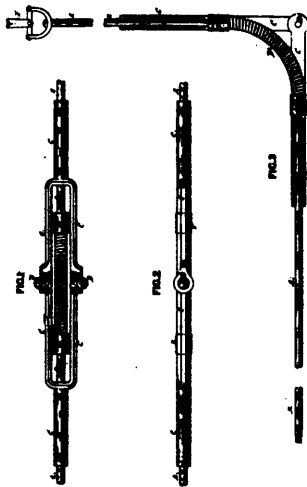
39738 Yule's Apparatus for Automatically Displaying Advertisements, etc.



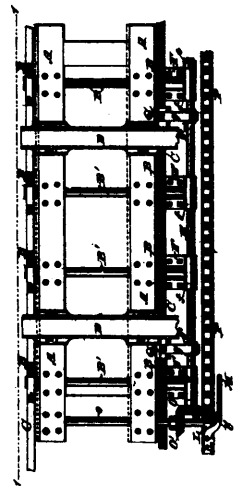
39739 Hawkins' Fluid for Generating Motive Power.



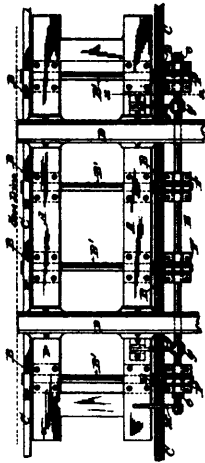
39740 Skelton's Electric Liquid Alarm.



39741 Howard's Joint for Flexible Shafting.



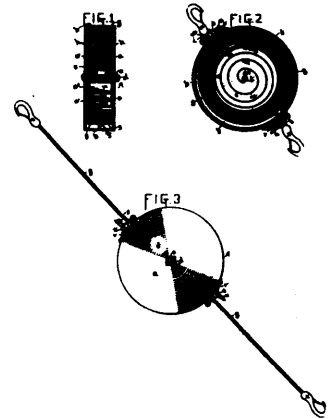
39742 Gowen's Offset for Sawmill Carriages.



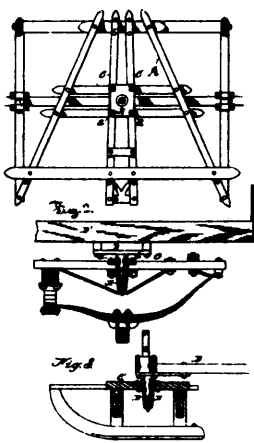
39743 Gowen's Offset for Sawmill Carriages.



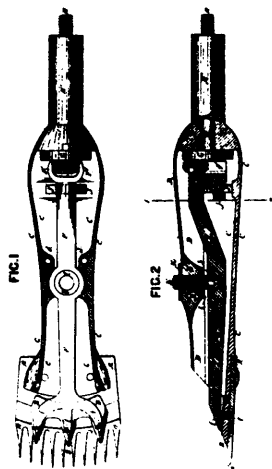
39744 Gowen's Offset for Sawmill Carriages.



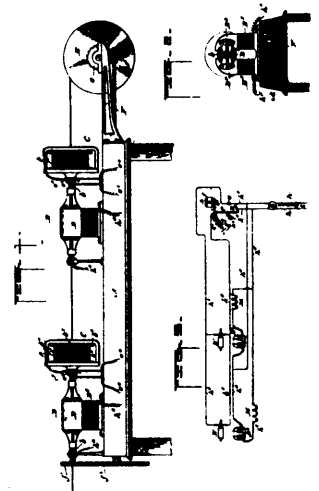
39745 Cole's Hitching Strap.



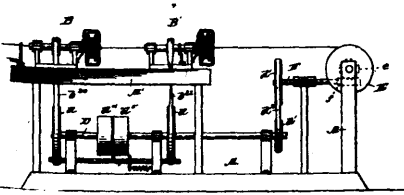
39746 St. John's Gear Connection for Vehicles.



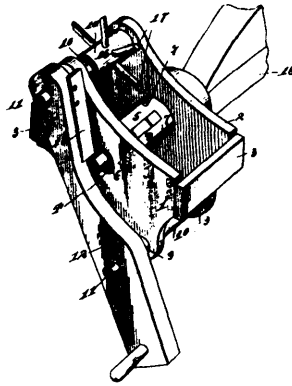
39749 Howard and Geddes' Sheep Shears.



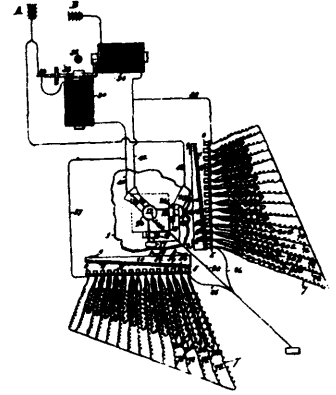
39750 Scott and Davis' Machine for Covering Wire etc.



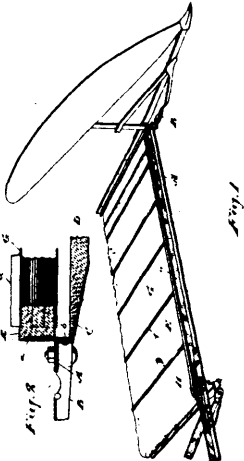
39751 Scott and Davis' Machine for Covering Wire, etc.



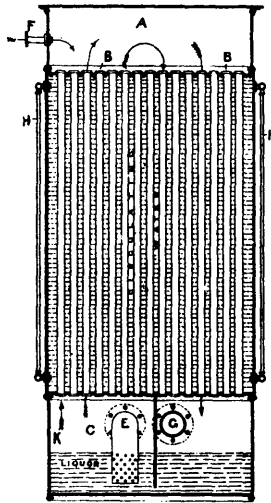
39752 Swegles' Axle Cutter.



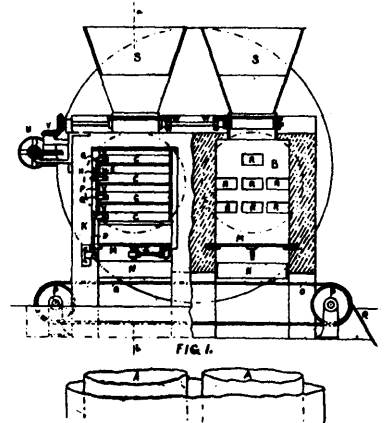
39753 Etheridge's Autographic Telegraph.



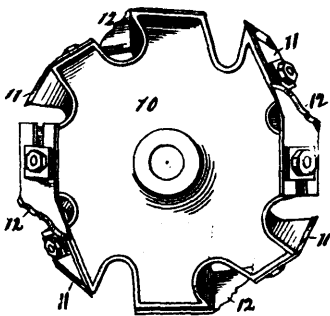
39754 Jones and Wedlake's Finger Bar for Harvesters.



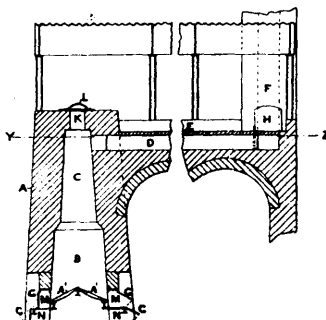
39755 Harris' and Stamford's Gas Condensing and Enriching Apparatus.



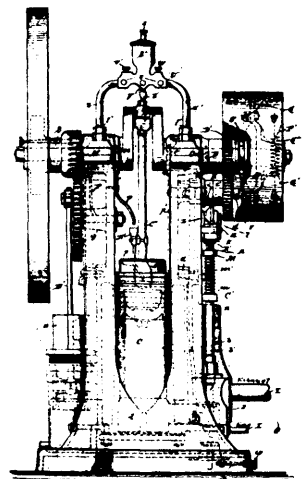
39756 Marsh's Apparatus for Firing and Heating Steam Boilers, etc.



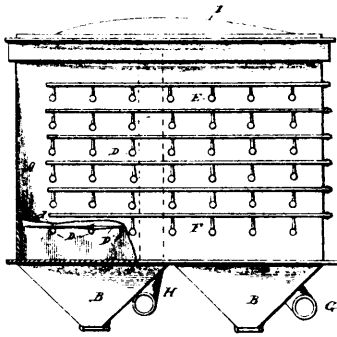
39757 Mattison's Chamfer Cutter and Lathe.



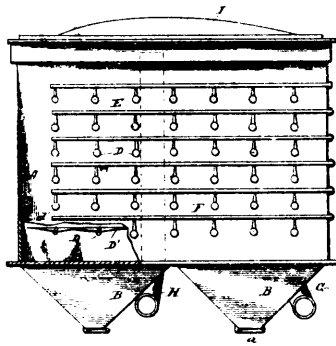
39758 Fajja's Kiln Drying Floor for Cement.



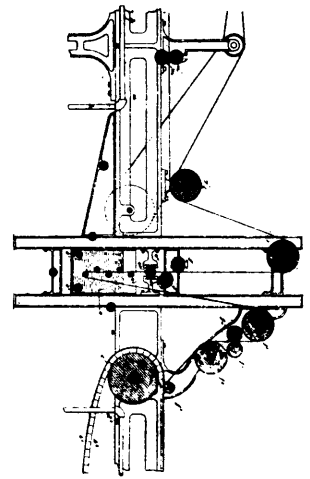
39759 Heckert's Gas Engine.



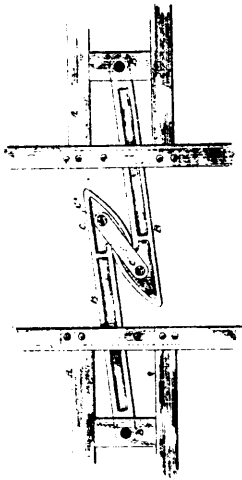
39760 Andrews' Gas.



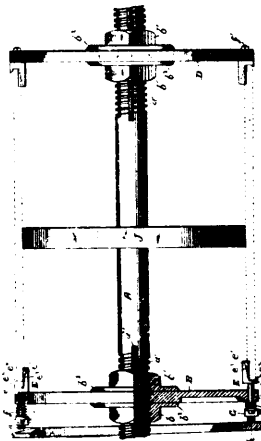
39761 Andrews' Gas



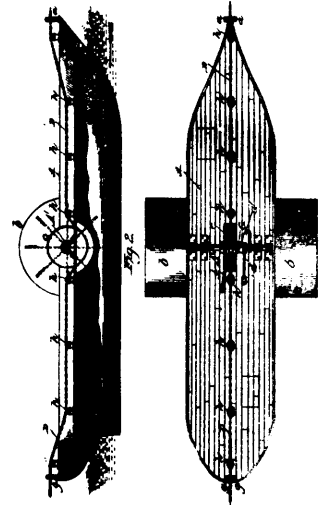
39762 Page and Bird's Machine for Sizing and Painting Cloth.



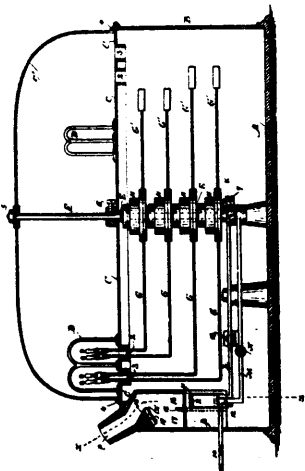
39763 Elliott's Draw-bar.



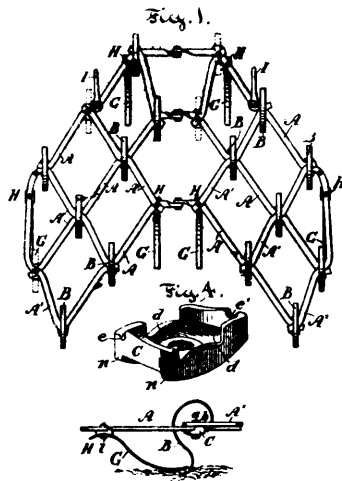
39764 Pleukharfs' Stave Making Machine.



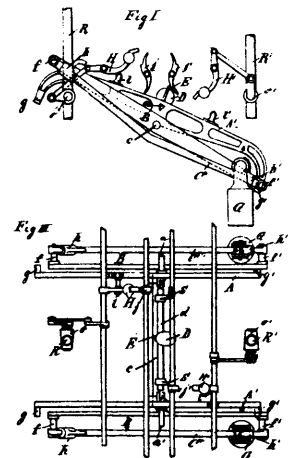
39766 Lotze's Cable Propeller.



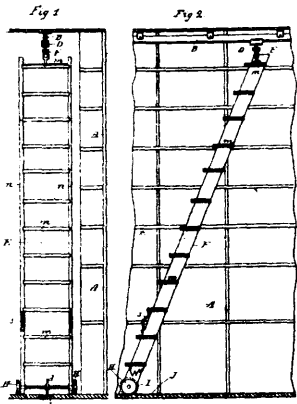
39767 Kennedy's Coin Actuated Device.



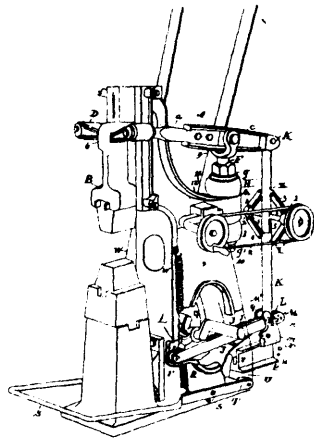
39768 Nellis' Harrow.



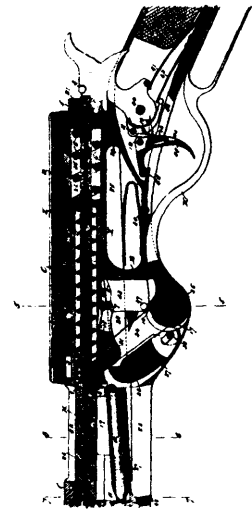
39769 Henning's Scale.



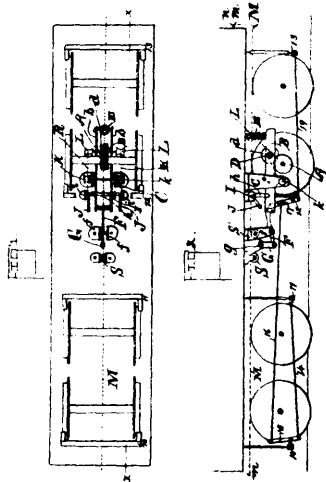
39770 Croissant's Step Ladder.



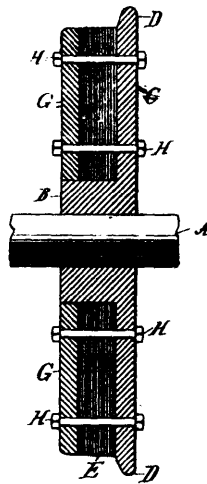
39771 Law's Power Hammer.



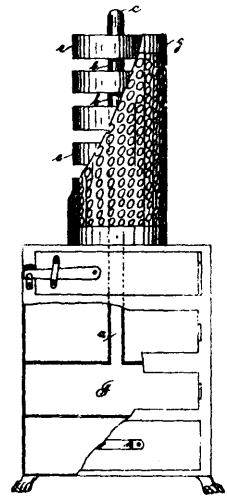
39772 Catlin's Gun.



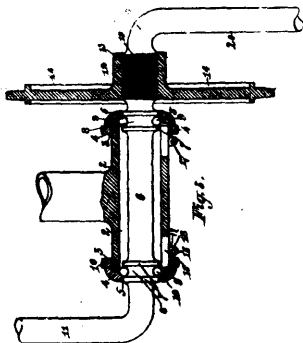
39774 Walsh's Car Brake.



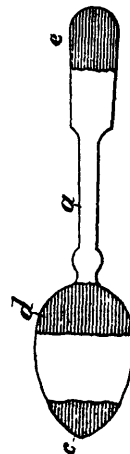
39775 Webber's Car Wheel.



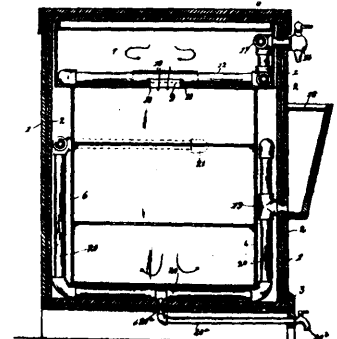
39776 Schulze's Heating Apparatus.



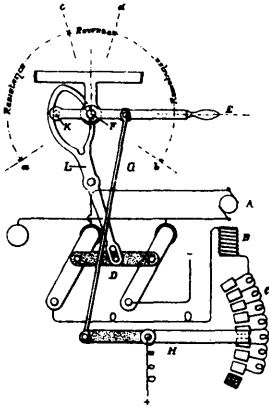
39777 Fane and Lavender's Velocipede.



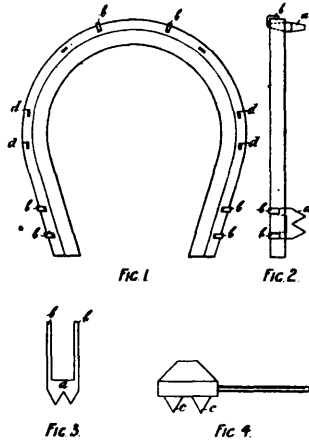
39778 Pleadwell's Plated Ware.



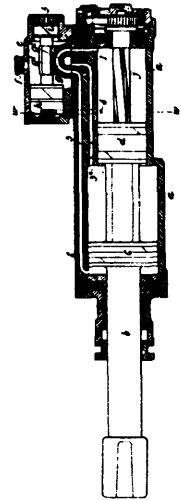
39779 Simmons' Refrigerator.



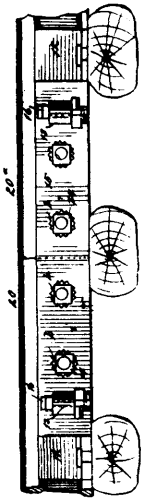
39780 Blackwell's Controlling Device for Electric Motors.



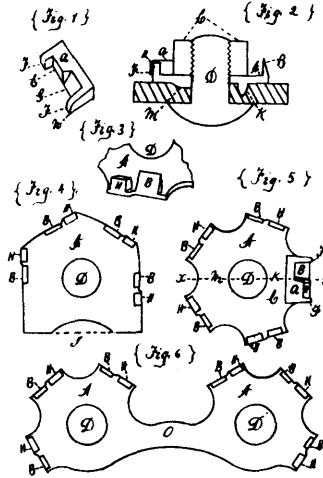
39781 Blake's Calk for Horse-shoes.



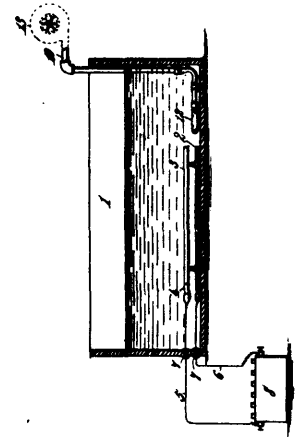
39782 Ogle's Drilling Machine.



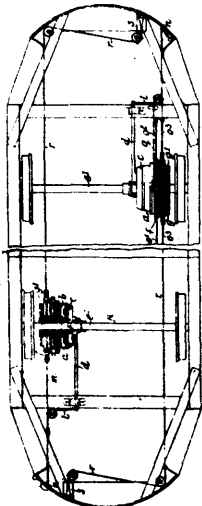
39783 Harris' Nut Lock.



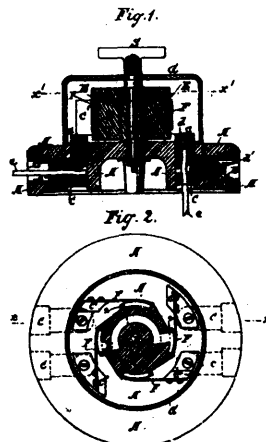
39784 Martin's Nut Lock.



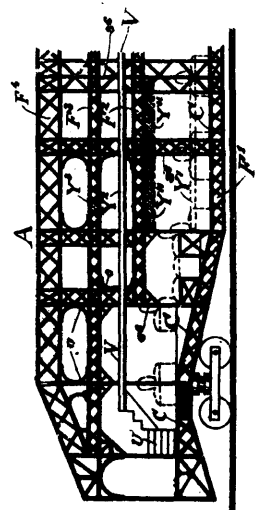
39785 Woolf's Process and Apparatus for Bleaching by Electrolysis.



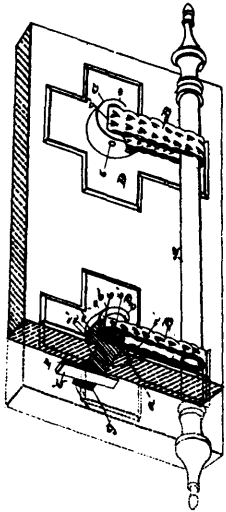
39786 Lee's Apparatus for Stopping and Starting Vehicles.



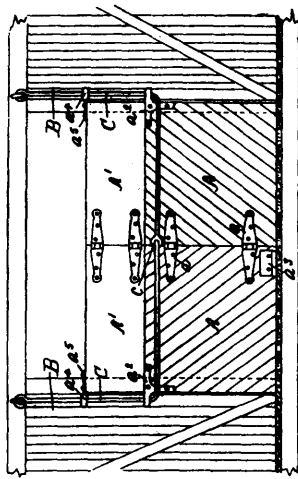
39787 Broadnax's Electric Switch.



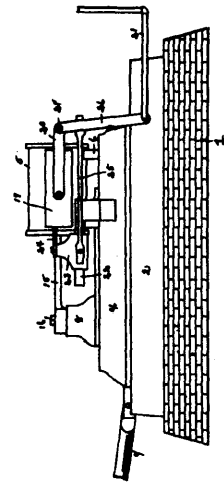
39788 Zurcher's Railway Car.



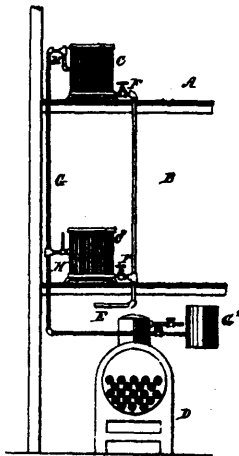
39789 Ripson's Handle for Caskets.



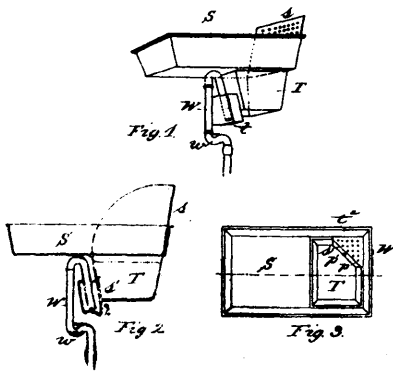
39790 Lyon's Door for Cars.



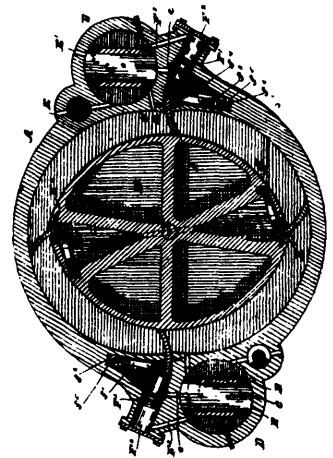
39791 Hummel and Bartholomew's Mechanical Movement.



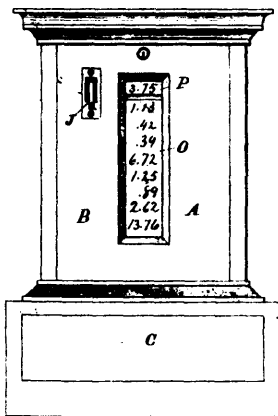
39792 Skiffington and Paul's Steam Heating System.



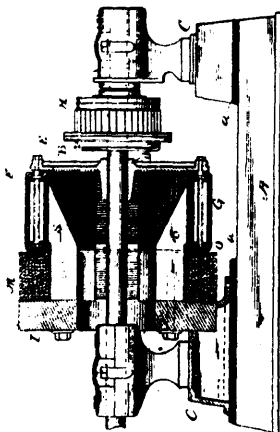
39793 Putnam's Sink.



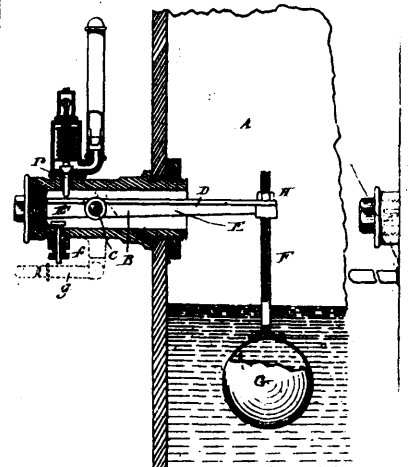
39794 Payne's Rotary Reversible Steam Engine.



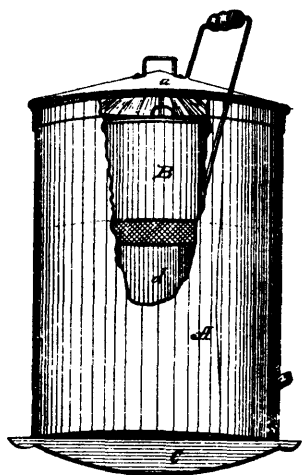
39795 Stone's Cash Recorder.



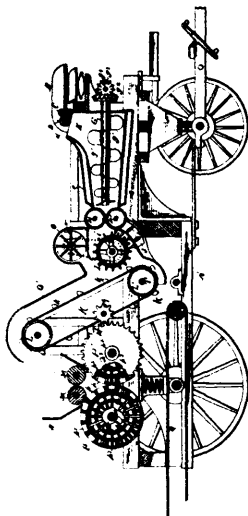
39796 Entz's Dynamo Electric Machine.



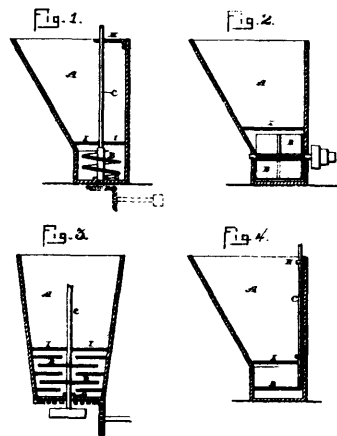
39797 Murrie's Feed Water Regulator and Low Water Alarm for Steam Boilers.



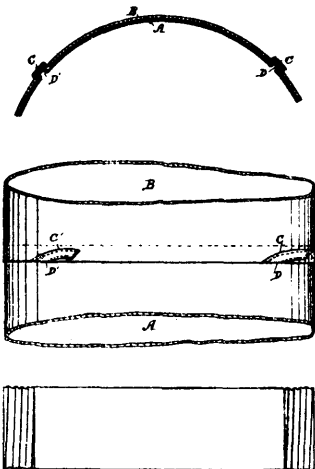
39798 Magee's Sifter for Coal and Ashes.



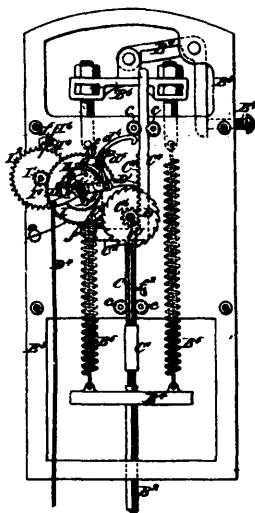
39800 Smith's Apparatus for Making Artificial Fuel.



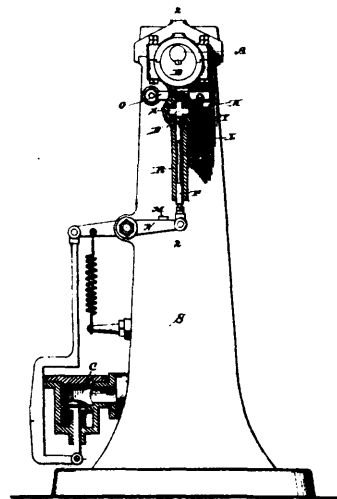
39801 Thompson's Pottery Dipping Tube.



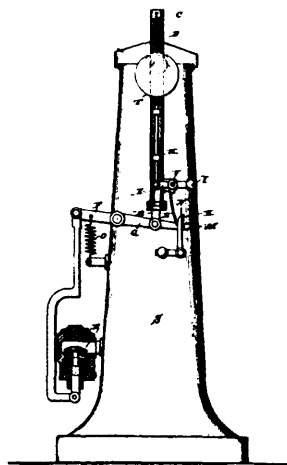
39803 Hallowell's Sheet Iron Stove, Water and other Pipe.



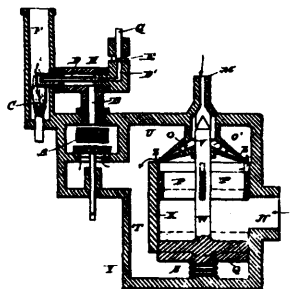
39804 Lancaster's Weighing Machine.



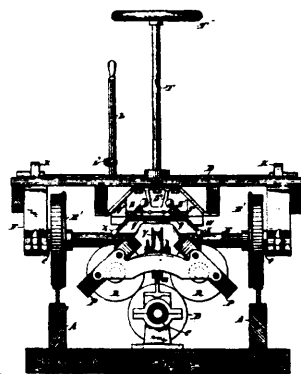
39805 Willmer's Apparatus for Intermittent Motion.



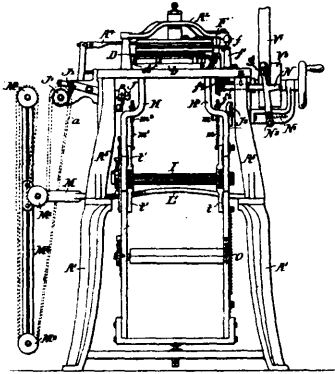
39806 Willmer's Governor for Power Engines.



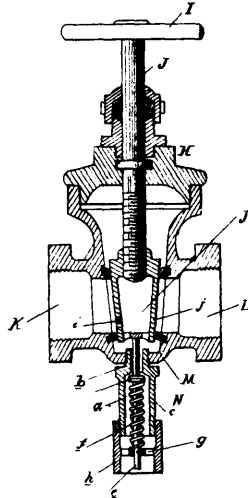
39807 Korting's Ignitor for Gas Engines.



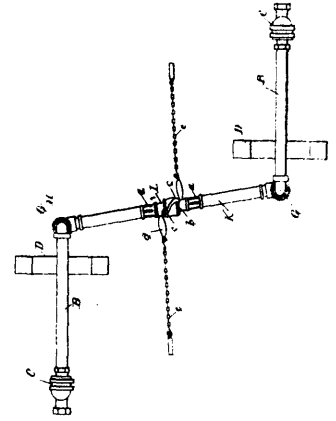
39808 Judson's Street and other Railway.



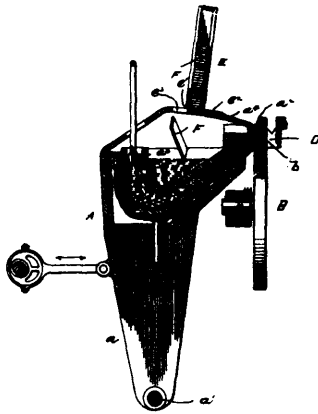
39809 Ballou's Knitting Machine.



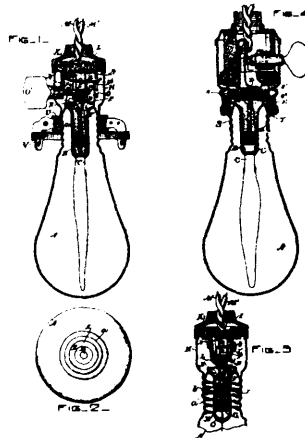
39810 McElroy's Valve for Train Pipes.



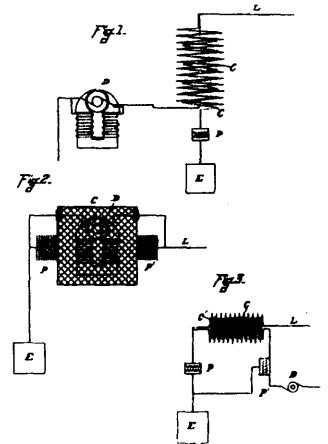
39811 McElroy's Car Heating Apparatus.



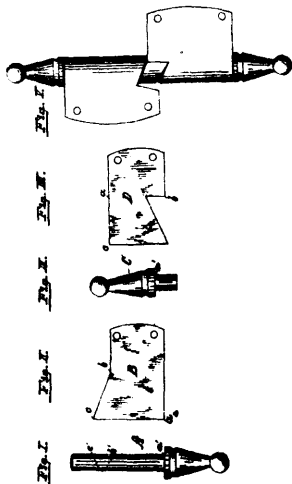
39813 Dodge's Linotype Machine.



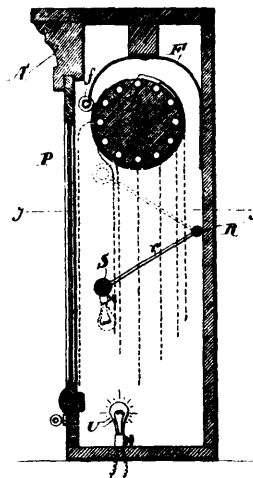
39814 Thomson's Incandescent Electric Lamp.



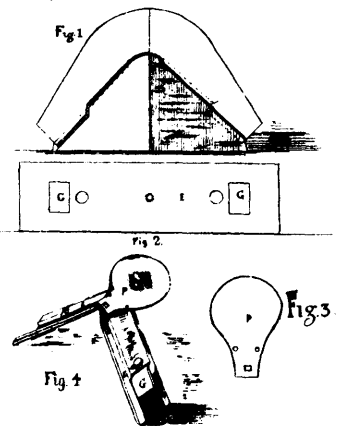
39815 Thomson's Lightning Arrester.



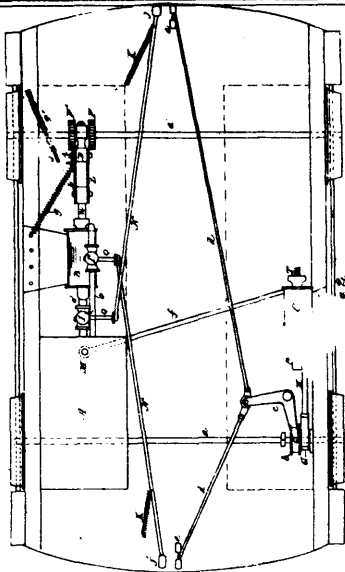
39816 Berthold's Door Hinge.



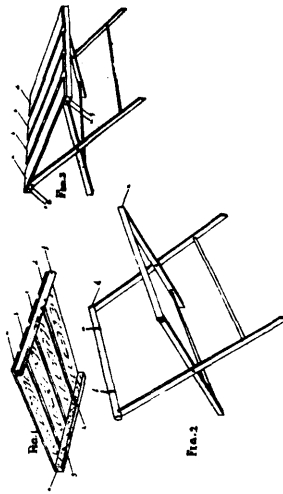
39817 Jenkins' Exhibiting Apparatus.



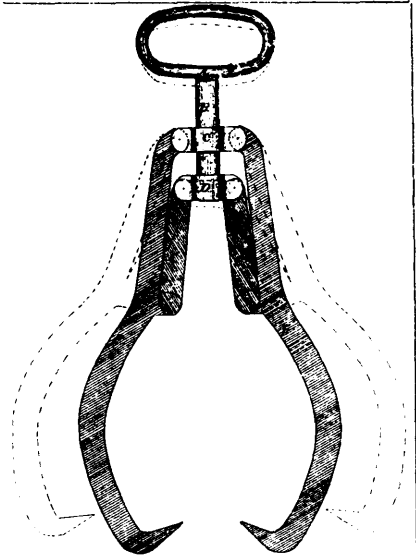
39818 Bustin's Machine for Making Harness Saddle-tree.



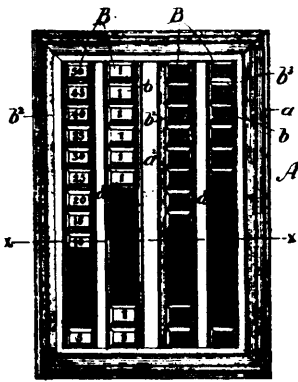
39819 Vernon and Temple's Car Starter.



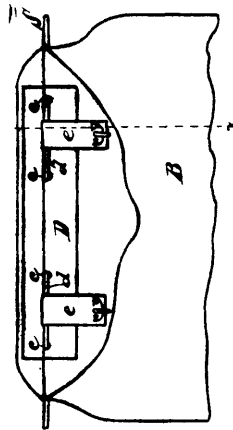
39820 Loudon's Folding Chair.



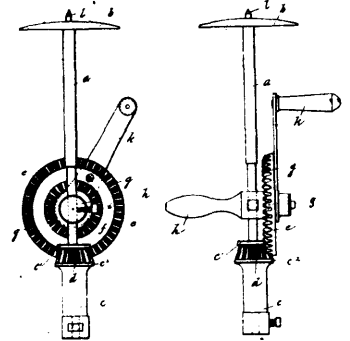
39821 Goodman's Tongs for Lifting and Handling Ice, etc.



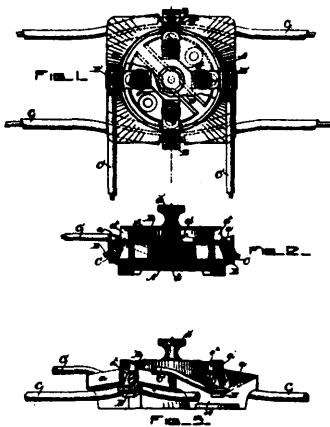
39822 Smith's Game Counter.



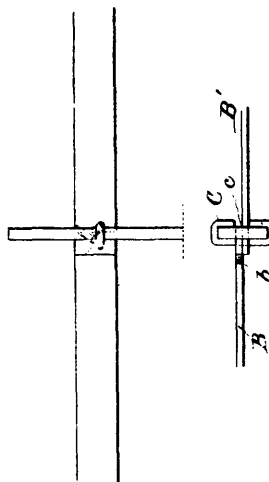
39823 Paige's Moth Proof Bag.



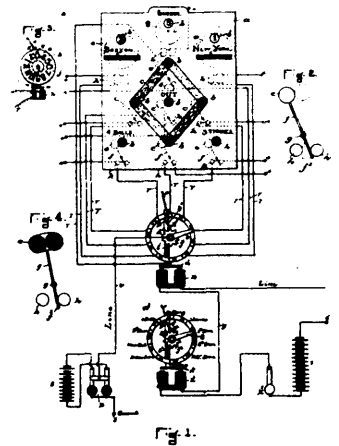
39824 Tattersall's Breast Drill and Brace.



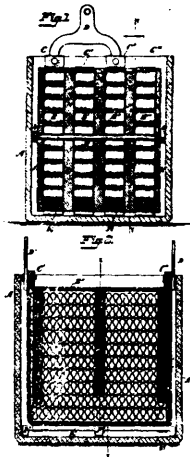
39825 Ekstrom's Ceiling Block.



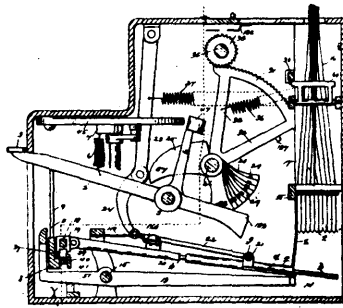
39826 Bonnaffon's Fence.



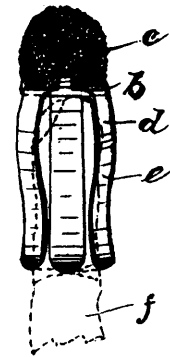
39827 Luce's Apparatus for Electrically Reporting Events.



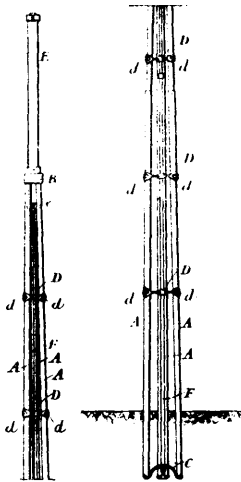
39828 Sorley's Storage Battery.



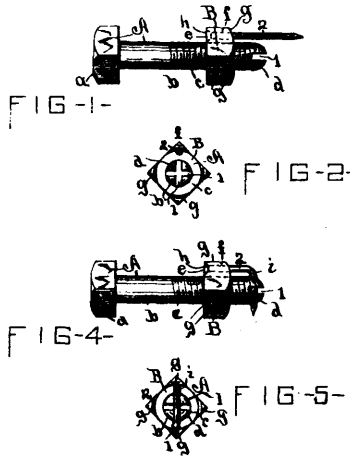
39829 Treat's Cash Register.



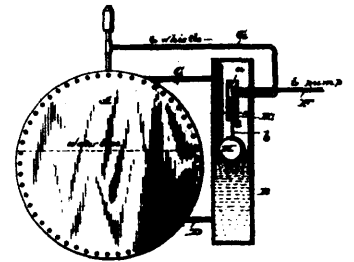
39830 Gartner's Gum Moistener.



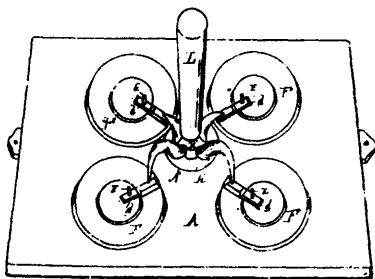
39831 Pitt's Pole.



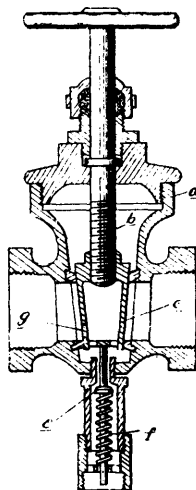
39832 Miles and Farr's Nut Lock.



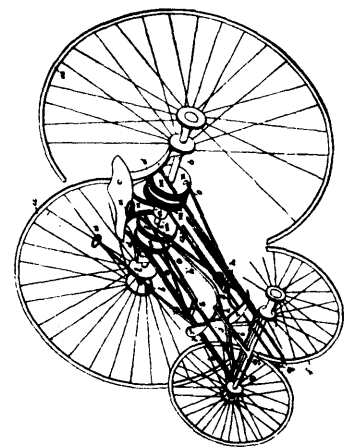
39833 Copeland's Water Regulator for Boilers.



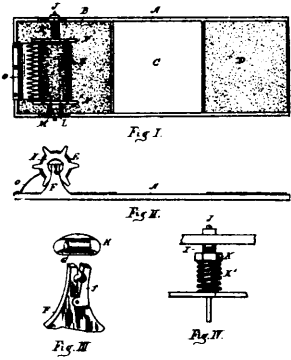
39834 Wright's Pattern Board.



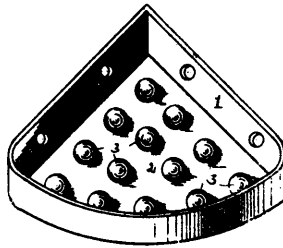
39835 McElroy's Car Heating Apparatus.



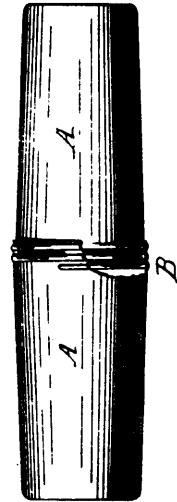
39836 Belyea's Velocipede.



39837 Eggert's Door Mat.



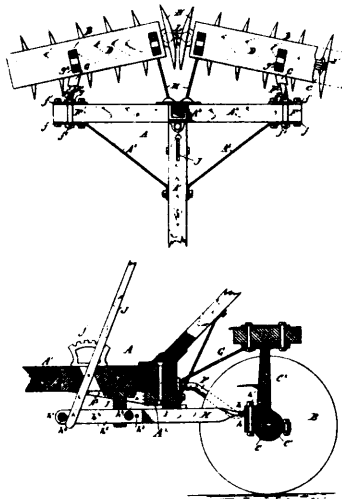
39838 Smith's Receptacle for Feeding Grain to Live Stock.



39839 Butterfield and Batchelor's Cartridge Case.



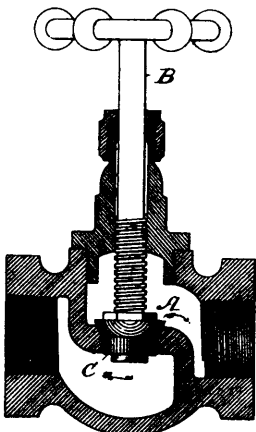
39840 Butterfield and Batchelor's Cartridge Case.



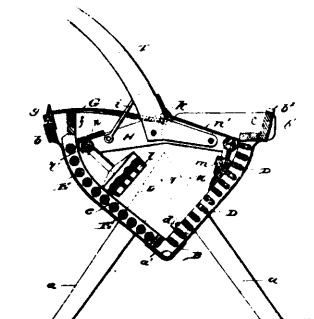
39841 Glass' Disk Harrow.



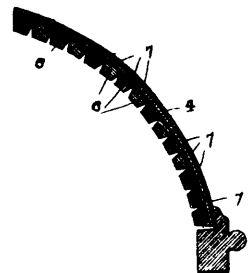
39842 Turner's Clothes Pin.



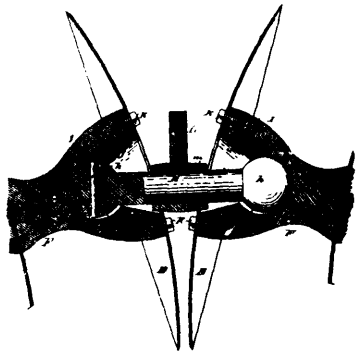
39843 Draper's Valve.



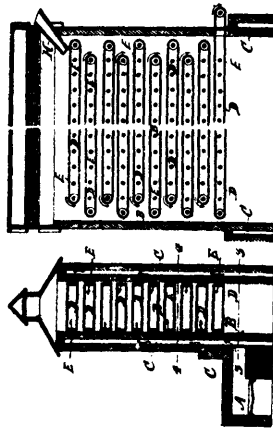
39844 Smith's Washing Machine.



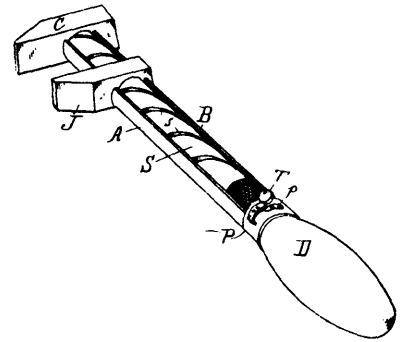
39845 Joseph and Hein's Cover for Fresh.



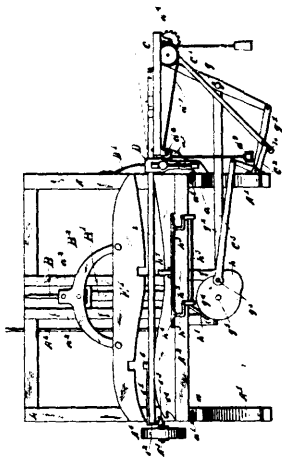
39846 Glass' Disk Harrow.



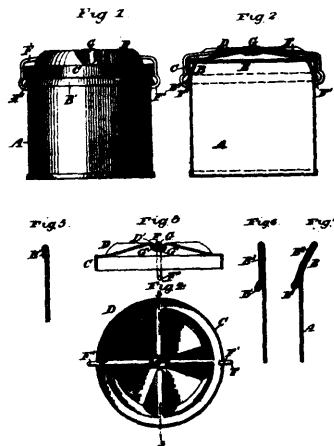
39847 Koyl's Drying Apparatus.



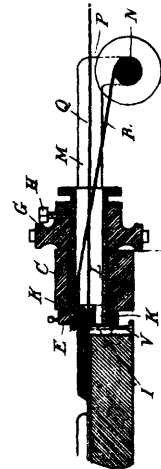
39848 Lovell's Wrench.



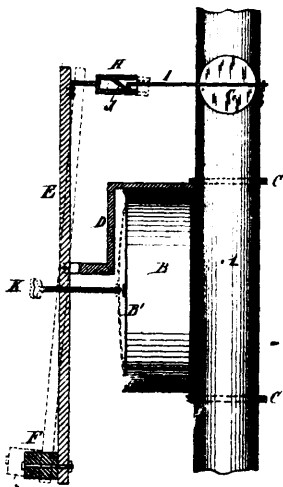
39849 Booker's Bending Machine.



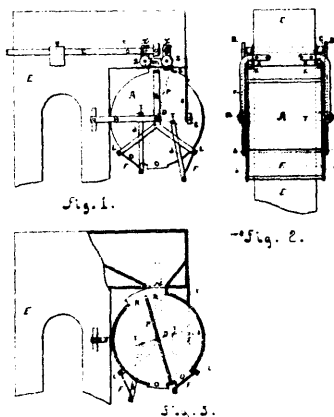
39850 Palmer's Sheet Metal Can.



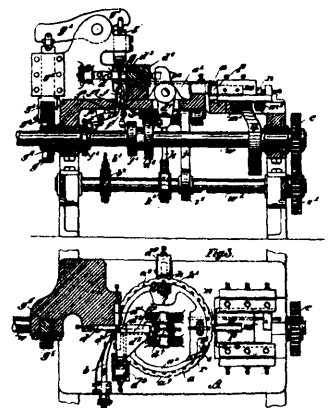
39851 Cadwell's Machine for Weaving Wire and Slat Fabric.



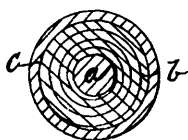
39852 Gerred's Stove Pipe Draft Regulator.



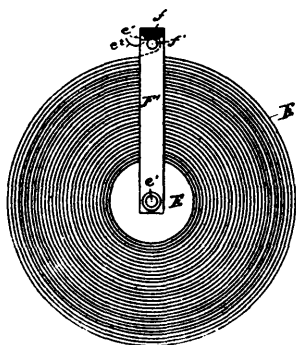
39854 Forsyth's Grain Scales.



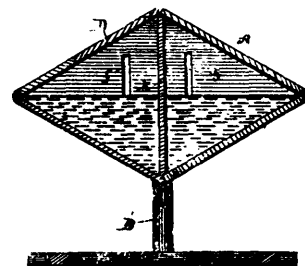
39855 Nilsson's Machine for Making Nails.



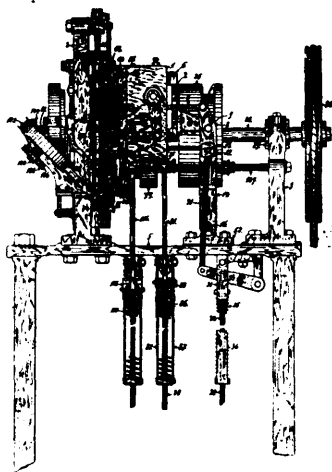
39856 Locke's Axle or Shaft.



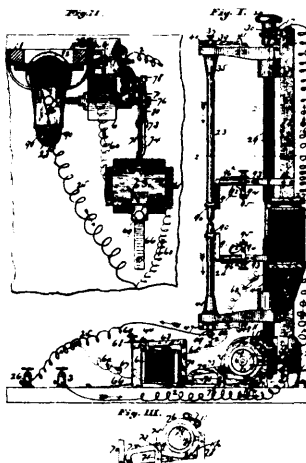
39857 Carr's Strap and Hoop for Boxes and Packages.



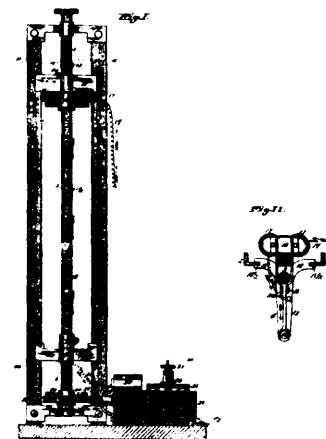
39858 Hoyt's Churn.



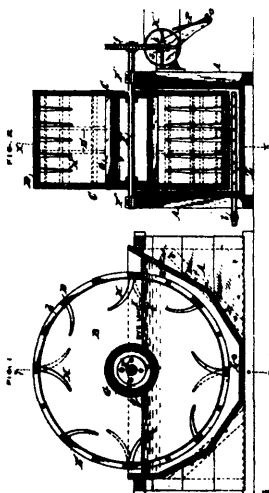
39859 Avery's Lasting Machine.



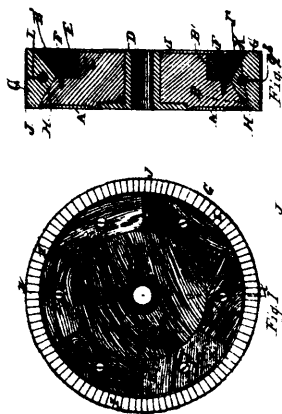
39860 Atwood's Arc Lamp.



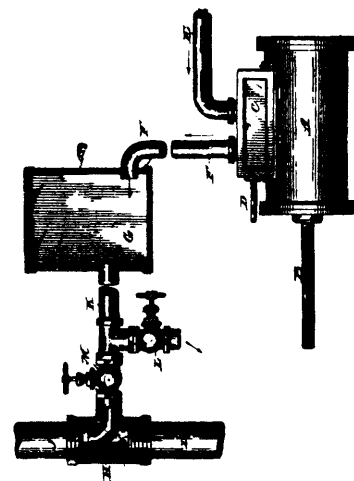
39861 Atwood's Arc Lamp.



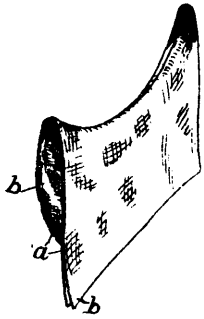
39862 Delshanty's Apparatus for Dyeing and Scouring.



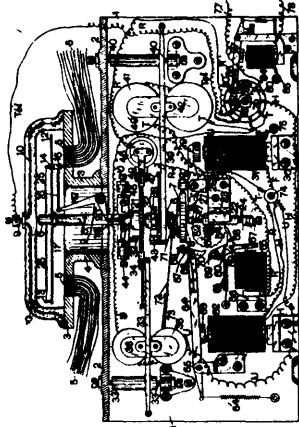
39863 Colburn's Polishing Wheel.



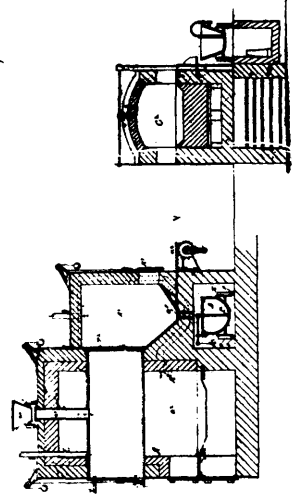
39864 Fould's Receiver for Exhaust Steam.



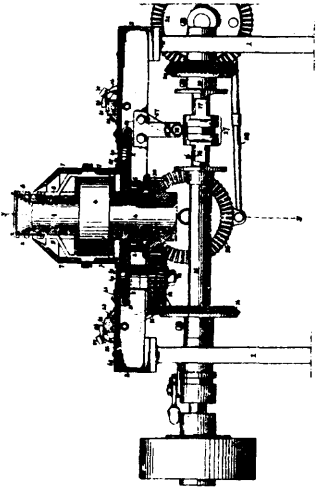
39865 Gaillard's Dress Shield.



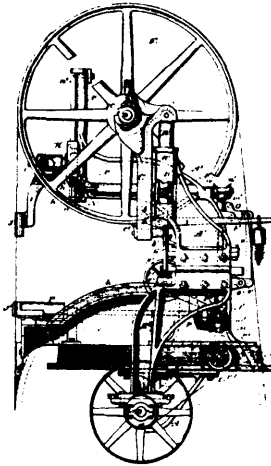
39866 Strowger's Telephone and other Electrical Exchange.



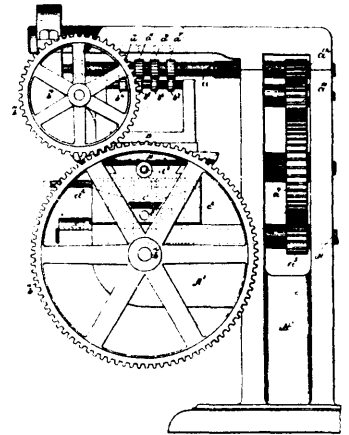
39867 Lancaster's Method for Making Steel and Iron.



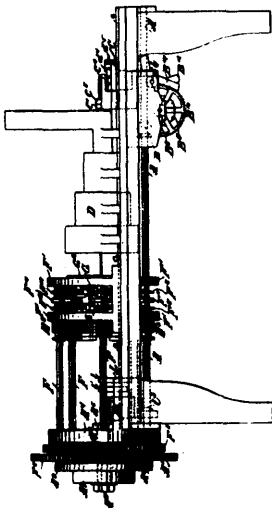
39868 Wrightson and Holt's Knitting Machine.



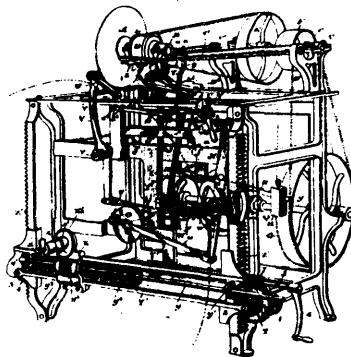
39869 Cunningham's Band Sawmill.



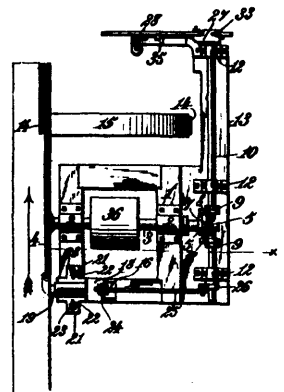
39870 Trask's Milling Machine.



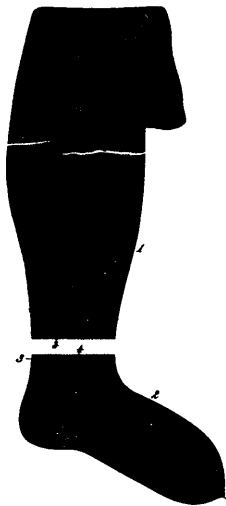
39871 Kinder's Apparatus for Making Solid Link Chains.



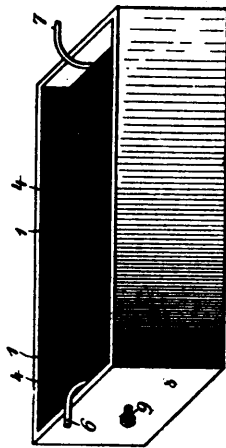
39872 House's Saw Filing Machine.



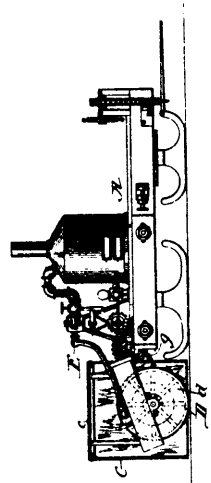
39873 Andersen's Band and Circular Sawmill.



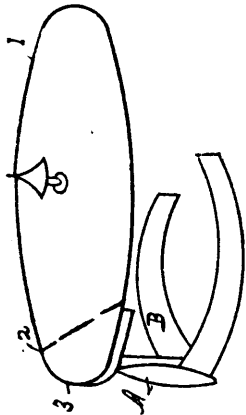
39874 Preston's Stocking.



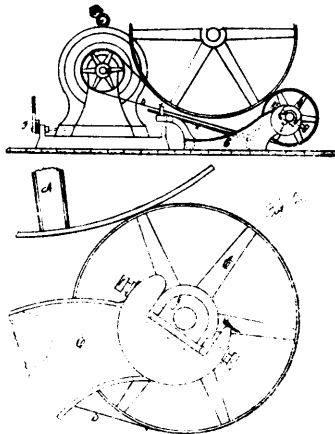
39875 Edgerton's Secondary Battery.



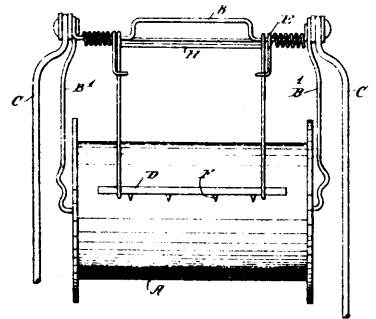
39877 Glover's Traction Engine.



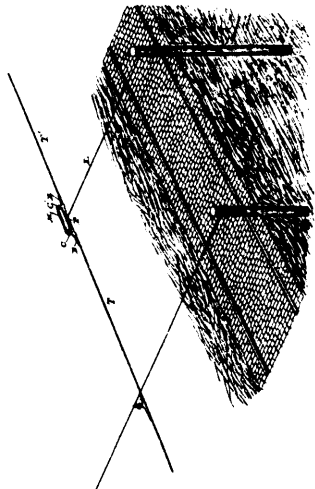
39878 Mockler's Spring Cover for Cups, etc.



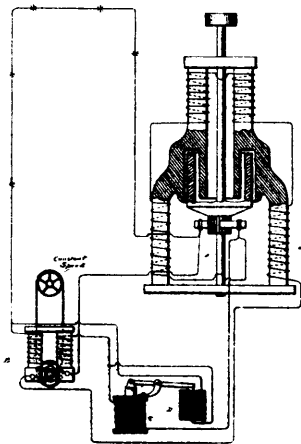
39879 Laird's Device for Transmitting Power.



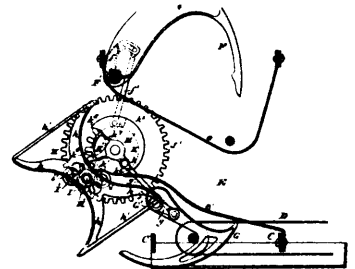
39880 Holmes' Twine Reel or Holder.



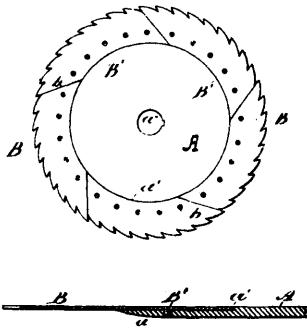
39881 Thomson's Section Insulator and Lightning Arrester for Electric Railways.



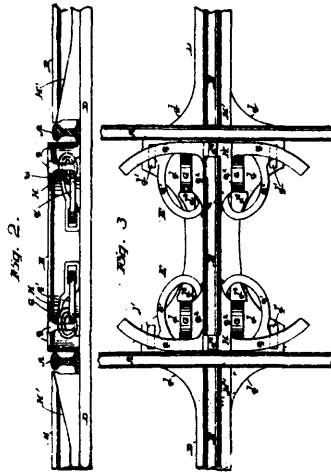
39882 Clark's Regulator for Dynamo Electric Machines.



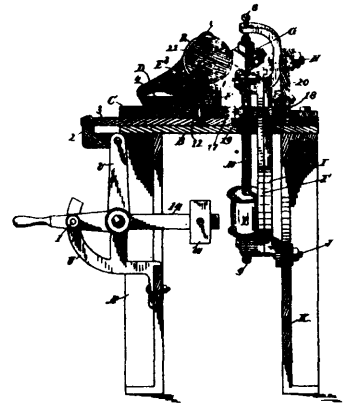
39884 Davis' Grain Binder.



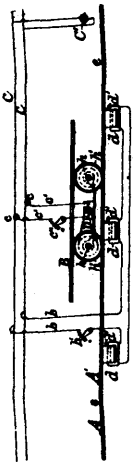
39885 Cassidy's Circular Saw.



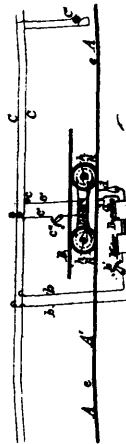
39886 Artell's Railway Crossing.



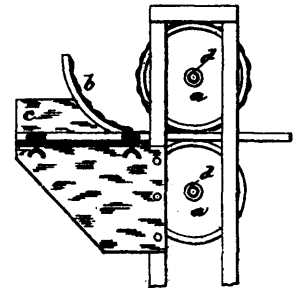
39887 Brochu's Lathe.



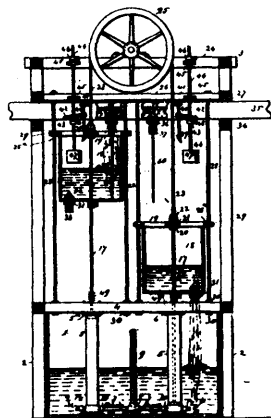
39888 Dewey's Electro Magnetic Traction Increasing System for Railways.



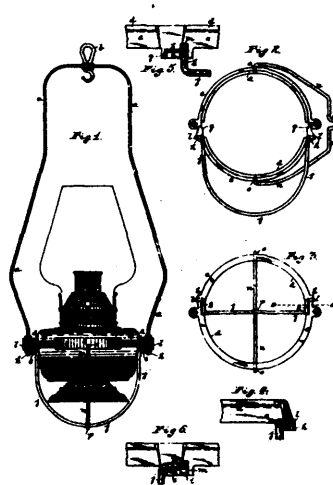
39889 Dewey's Electric Traction Increasing System for Railways.



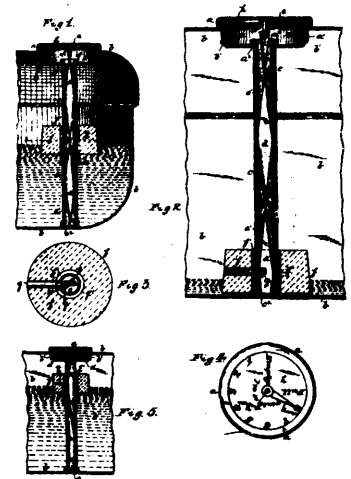
39890 Ludwig's Machine for Bending and Embossing Wood.



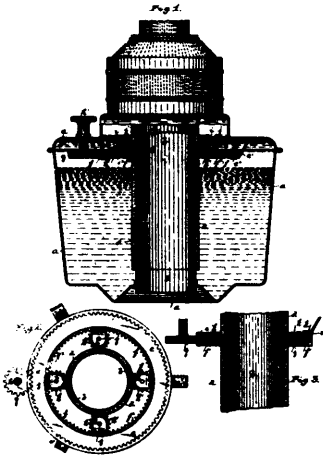
39891 Garrett's Hydraulic Motor.



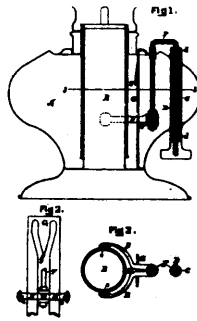
39892 Hipwell's Lamp Hanger.



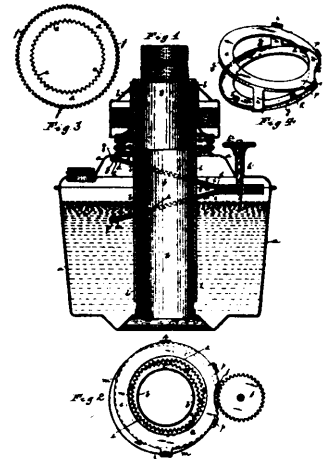
39893 Hipwell's Liquid Measure Indicator



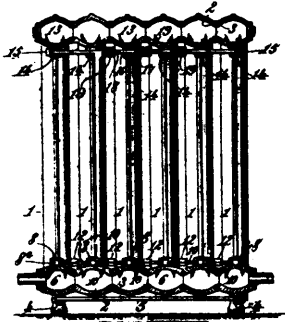
39894 Hoerle's Wick-raising Device for Central Draft Lamps.



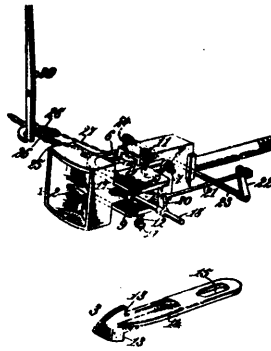
39895 Hoerle's Wick-raising Device for Central Draft Lamps.



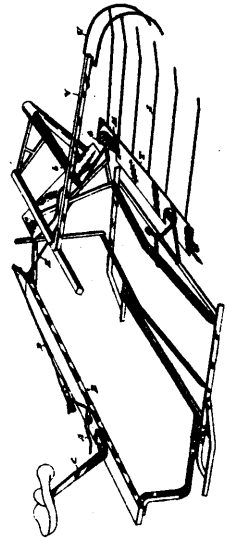
39896 Hipwell's Lamp



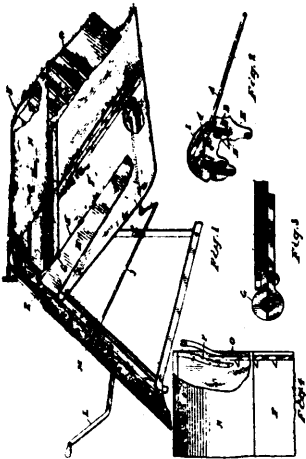
39897 Holland's Radiator.



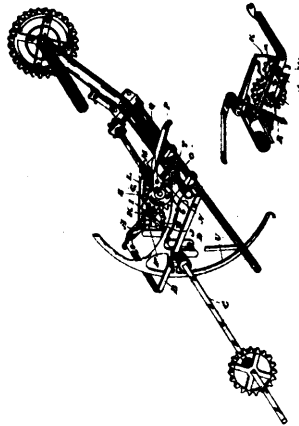
39898 Schaeffer's Car Coupler.



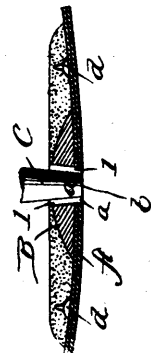
39899 Jones and Wedlake's Sheaf Carrier for Grain Binders.



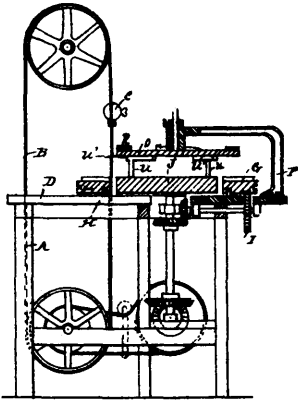
39900 Jones and Wedlake's Grain Binder.



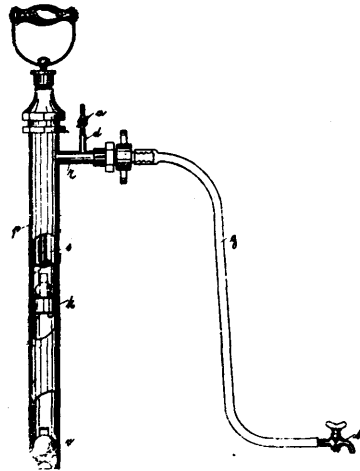
39901 Jones and Wedlake's Grain Binder.



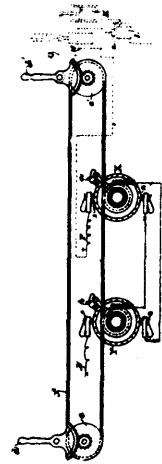
39902 Rogers' Buffer.



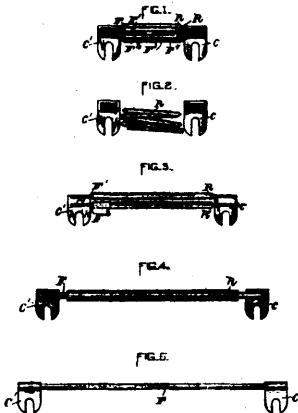
39903 Harley's Band Saw Machine.



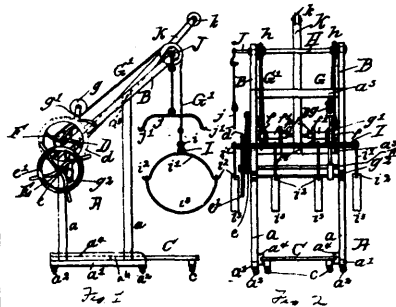
39904 Schulze's Apparatus for Raising Liquids.



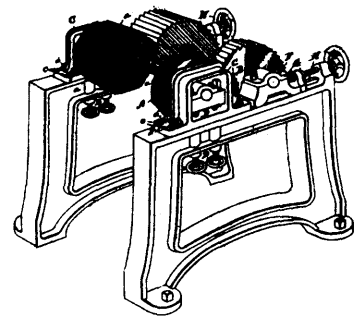
39905 Bentley's Electro-Motive Force Regulator.



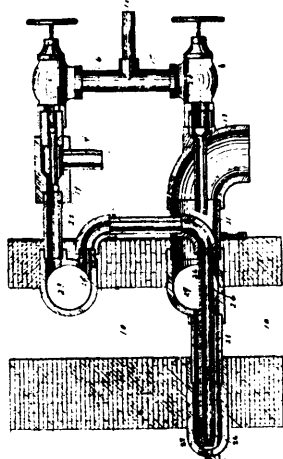
39907 Rice's Fuse.



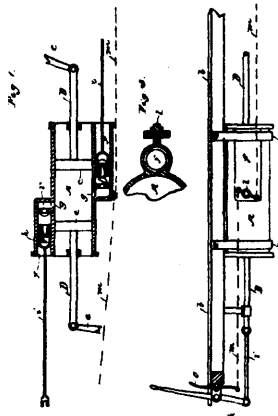
39908 Thrower's Appliance for Handling Invalids.



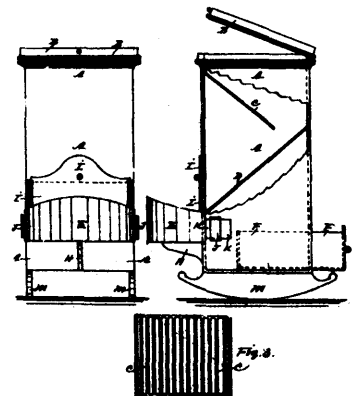
39909 Jones' Grinding Mill.



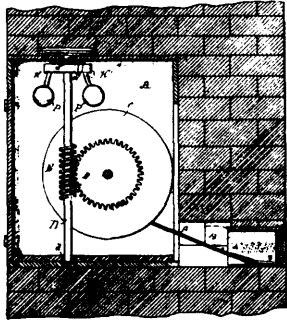
39910 Ferguson's Burner and Furnace for Hydro-Carbon.



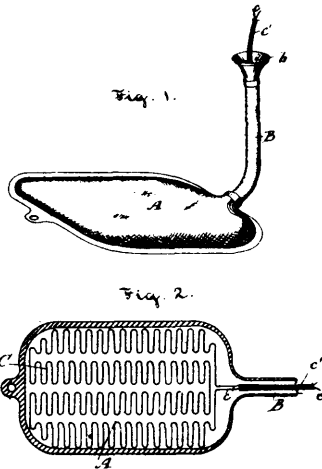
39911 Kiskadden's Car Brake.



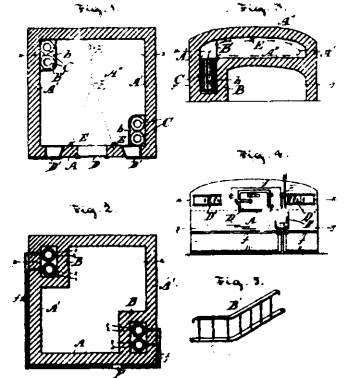
39912 Hunt's Sifter for Cinders.



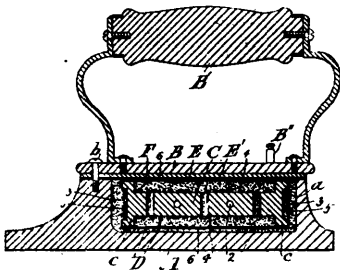
39914 Sansoucy's Fire Escape.



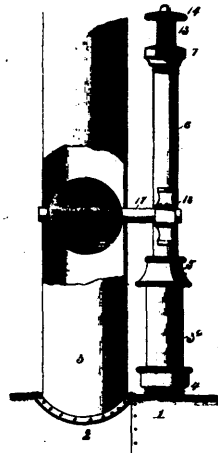
39915 Ahearn's Electric Warming Bottle.



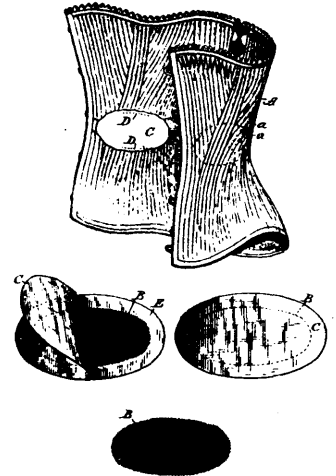
39916 Ahearn's Electric Oven.



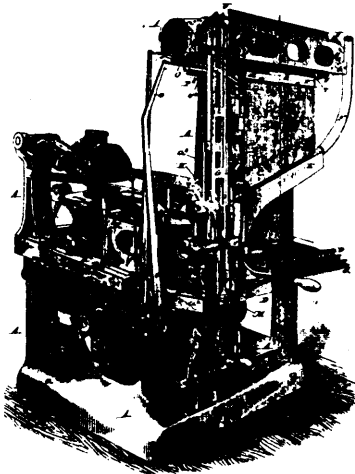
39917 Ahearn's Electric Flat Iron.



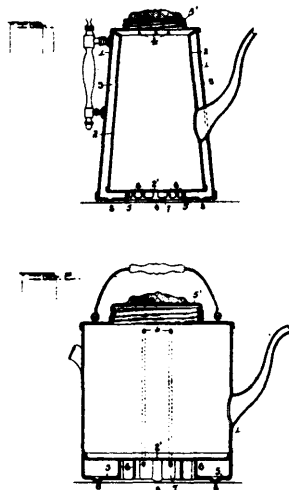
39918 Levey's Regulator for Steam Furnaces.



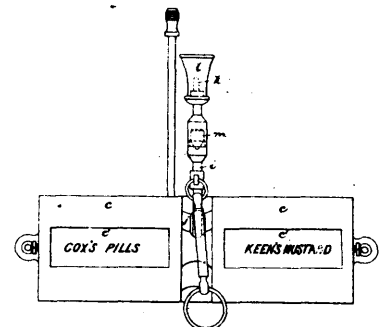
39919 Pearle's Corset Supporter.



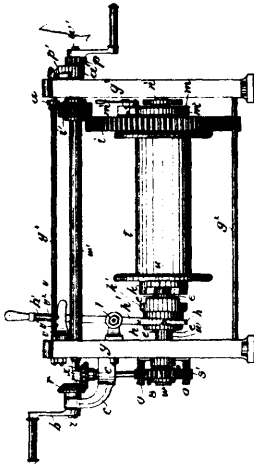
39920 Mergenthaler's Machine for Forming Type Bars, Matrices, etc.



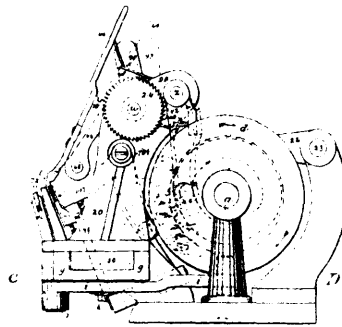
39921 Anderson's Cooking Vessel.



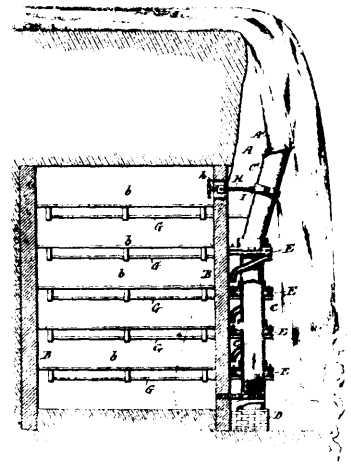
39922 Neuhaus Cigar Lighting and Advertising Apparatus.



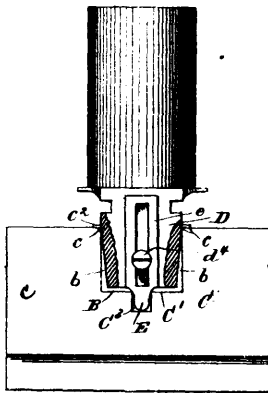
39923 Uhlig's Winch.



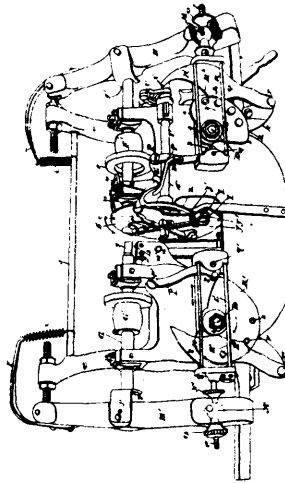
39925 Briggs' Rough-rounding and Channelling Machine.



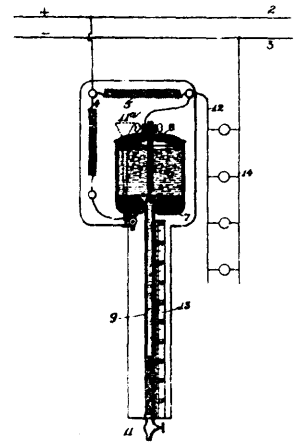
39926 Hamilton's Apparatus for Utilizing the Force of Water Falls.



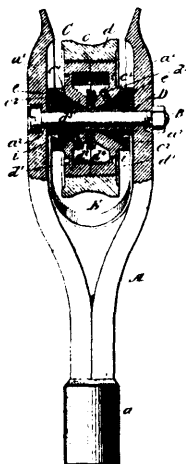
39927 Kenehan's Die for making Belt Fasteners.



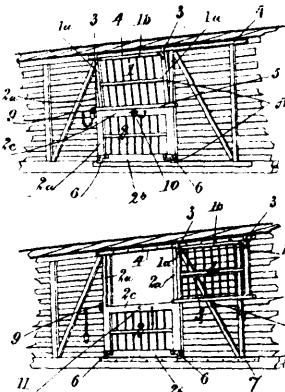
39928 Shantz's Machine for Turning Buttons.



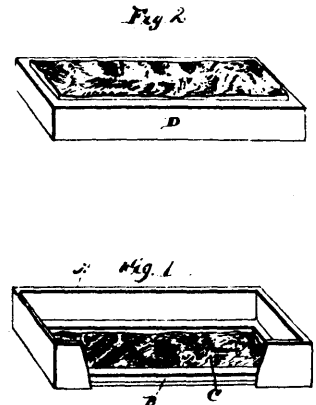
39929 McKenna and Weed's Electrolytical Electrometer.



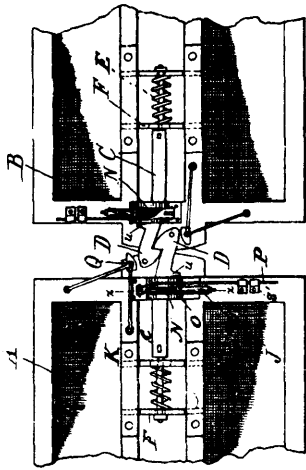
39930 Tousley's Trolley for Electric Railway Cars.



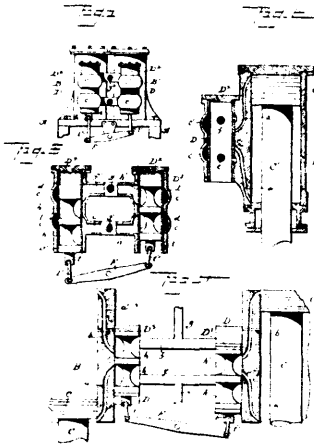
39931 Wilson's Door for Freight Cars.



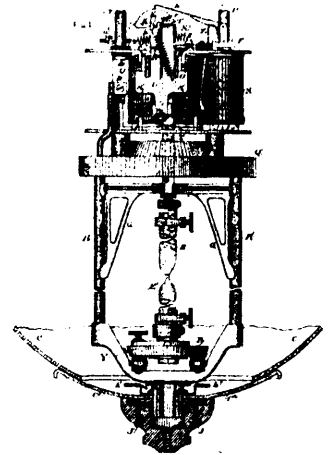
39932 Stevens' Artificial Stone



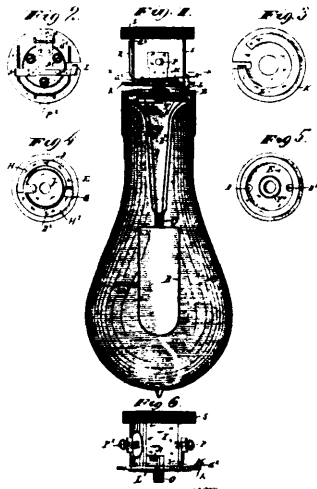
39933 Beauséjour's Car Coupler.



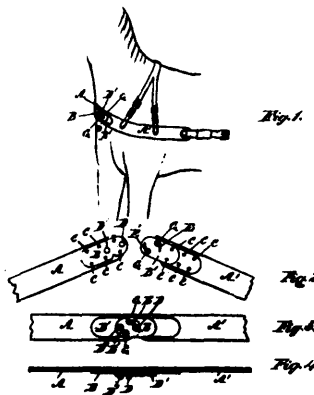
39934 Curtiss' Steam Engine.



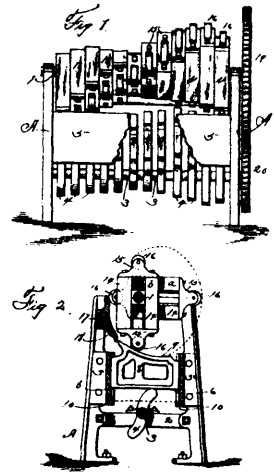
39935 Thomson's Electric Arc Lamp.



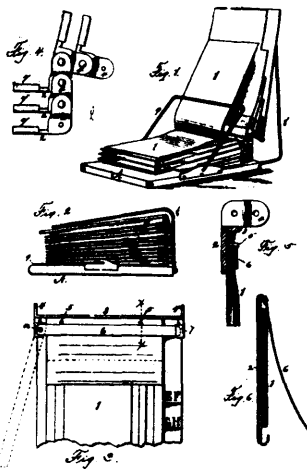
39936 Thomson's Incandescent Lamp.



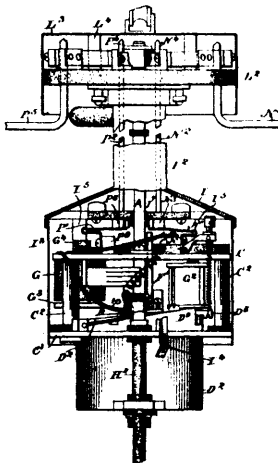
39937 Tambs' Breast Collar Coupling.



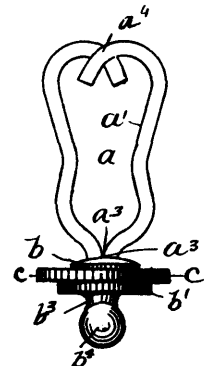
39938 Drew's Motor.



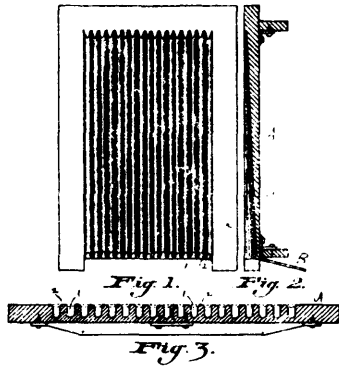
39939 Putney's Bill File.



39940 Hockhausen's Electric Arc Lamp.



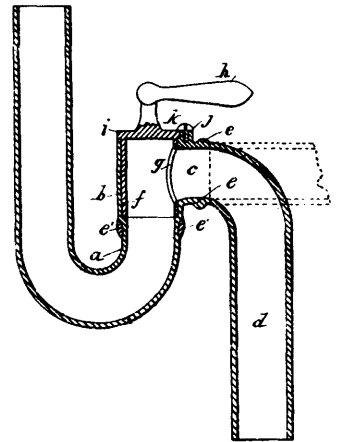
39941 Stuker's Bottle Stopper.



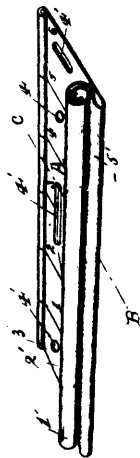
39942 Coben's Drip Board for Sinks.



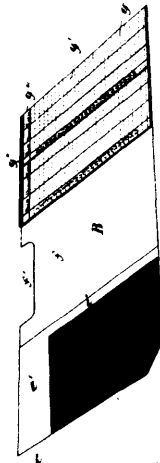
39943 Kennedy's Pen Holder.



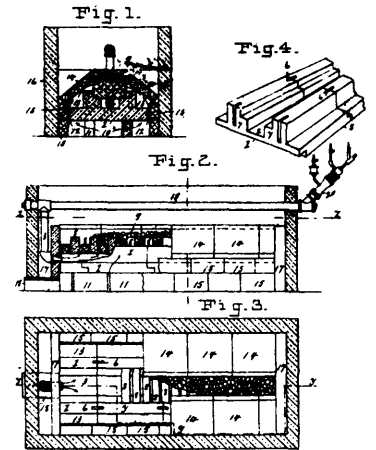
39945 Dubois' Plumber's Trap.



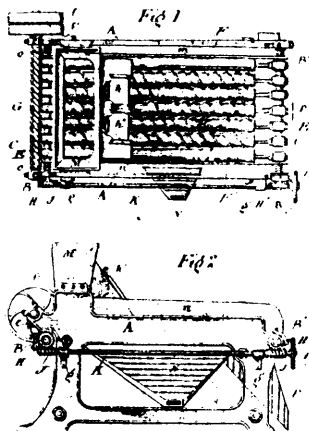
39946 Oliver's Paper Holder.



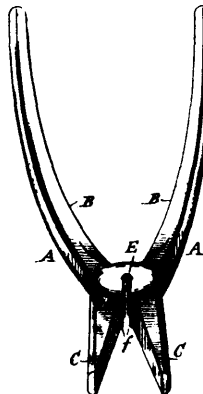
39947 Oldfield's Duplicating Cheque Book



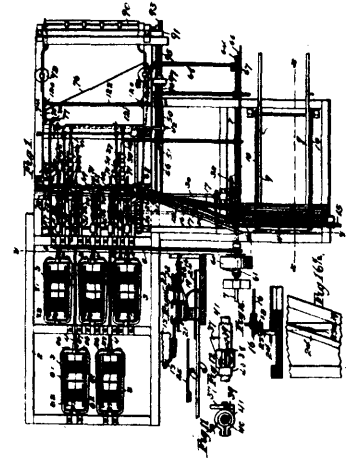
39948 Rogers' Gas Burner for Furnaces.



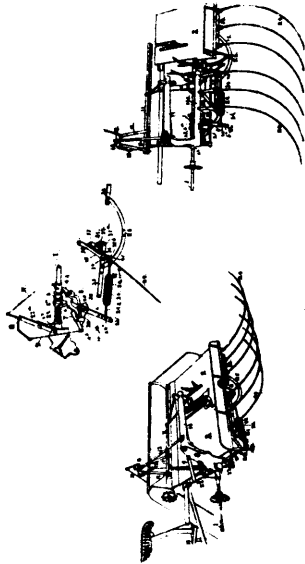
39949 Lampitt's Machine for Separating, Cleaning, Grading and Sorting Grain.



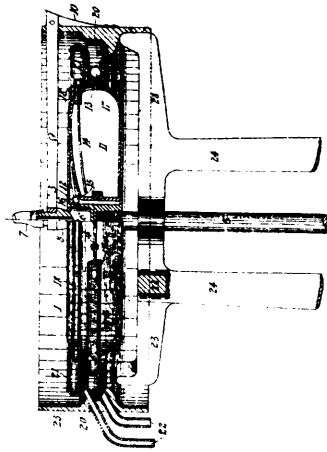
39951 Root's Cutting Pliers.



39952 Shattuck's Fence Machine.



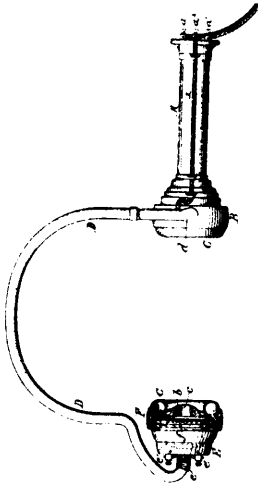
39953 Feeny's Sheaf Carrier for Harvesters.



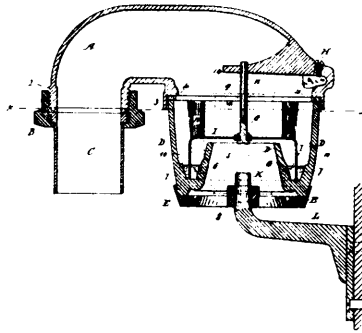
39954 Cole's Apparatus for Separating Cream from Milk.



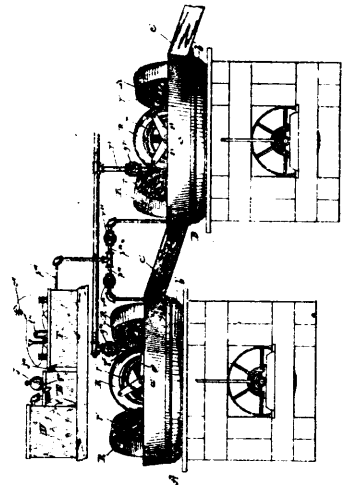
39955 Brown's Furnace for Roasting Ore.



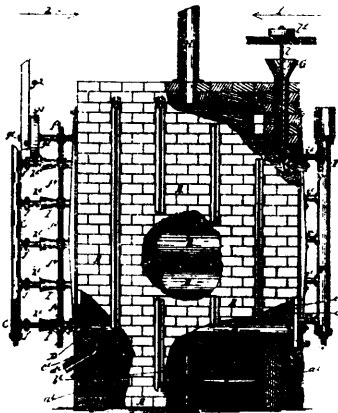
39956 Hess' Telephone Receiver.



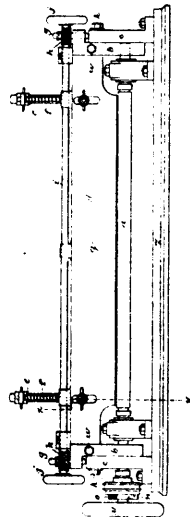
39957 McClellan's Air Valve for Drain Pipes.



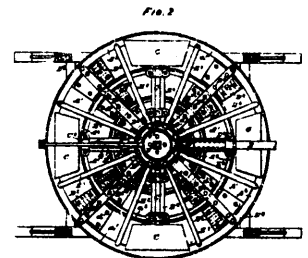
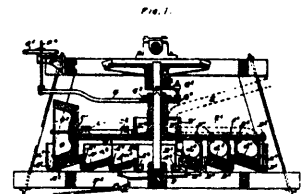
39958 Wiswell's Apparatus for Recovering and Amalgamating Metals.



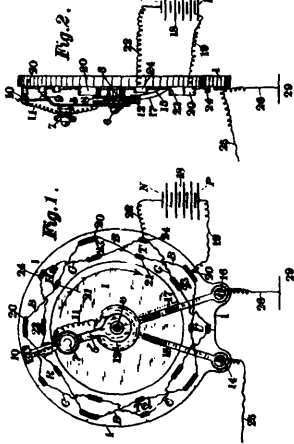
39959 Wiswell's Ore Roasting or Calcining Furnace.



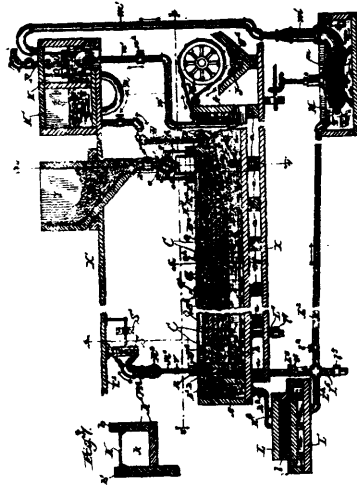
39960 Cresswell and Heslop's Apparatus for Feeding Paper to Printing Presses.



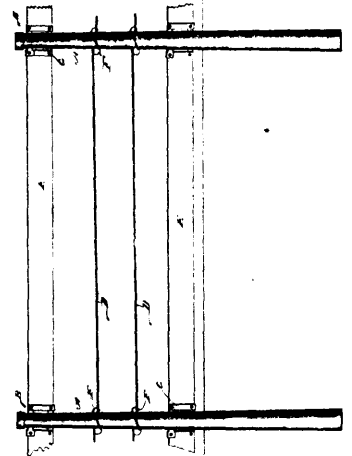
39961 Roberts and Belden's Grinding and Amalgamating Pan.



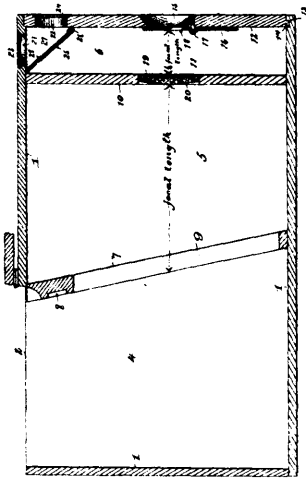
39964 Strowger's Indicating Electric Switch and Current Reverser.



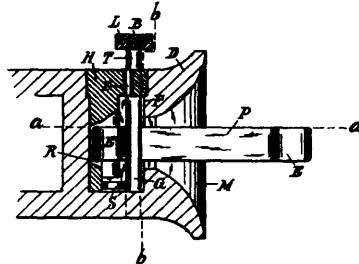
39965 Hebron and Everson's Ore Concentrator.



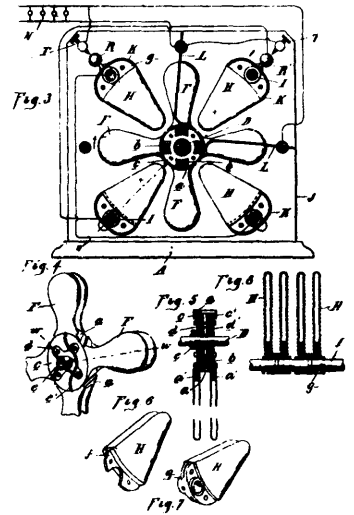
39966 Rosback and Band's Fence.



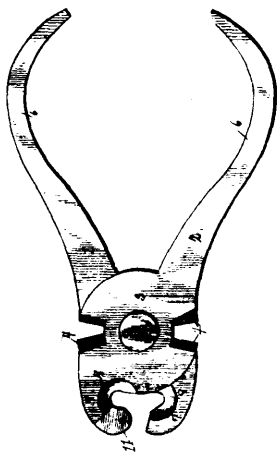
39967 L'Estrange's Photographic Camera.



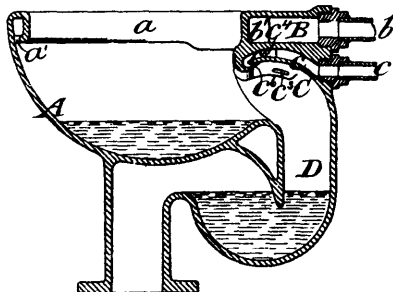
39968 Sweet and Ellison's Car Coupler.



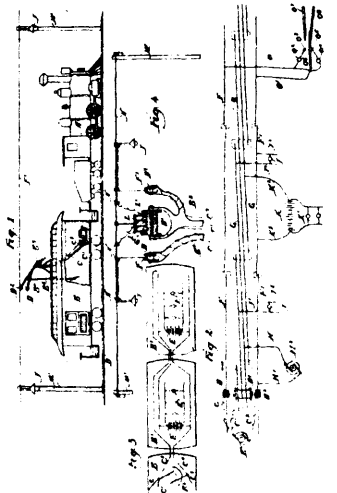
39969 Henry's Electrical Generator.



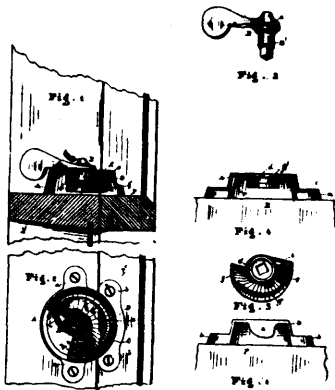
39970 Moody's Fastener for Fuse Caps.



39971 Beckman's Bowl for Water Closets.



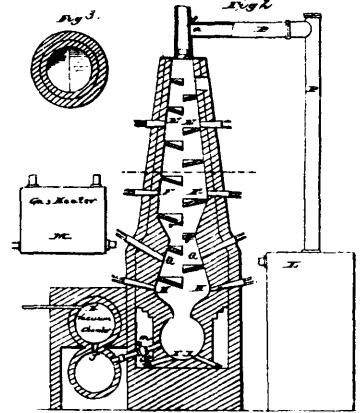
39972 Leonard's System of and Appliances for Lighting Moving Trains Electrically.



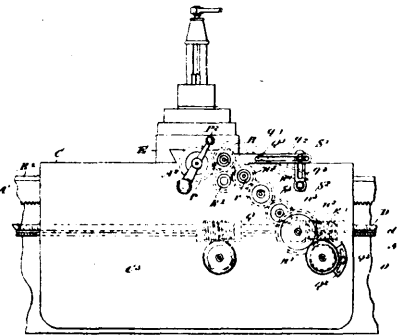
39973 Koenen's Sash Lock.



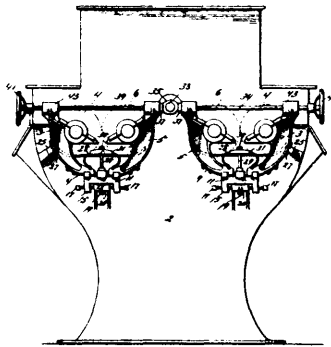
39974 Walters' Method of Producing Artificial Graining on Wood.



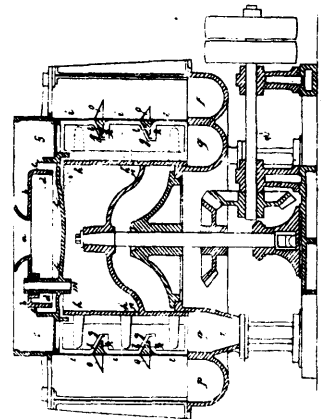
39975 McCarty's Apparatus for Making Steel Direct from the Ore.



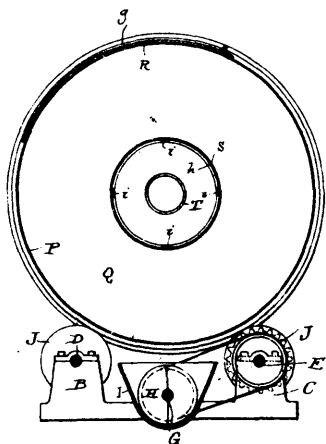
39976 Currie's Taper Attachment for Lathes.



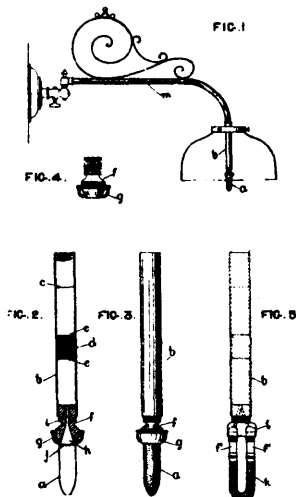
39977 Willford's Roller Mill.



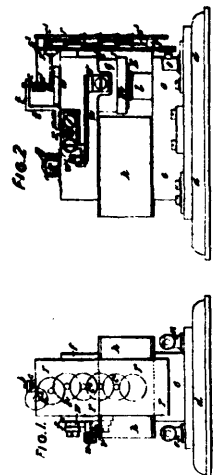
39978 Ziegler's Rotary Disintegrator and Separator for Fibrous Material.



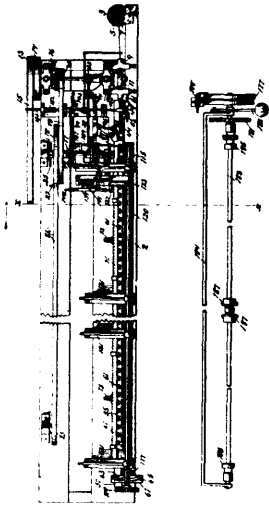
39979 Ports's Method of Drying Malt.



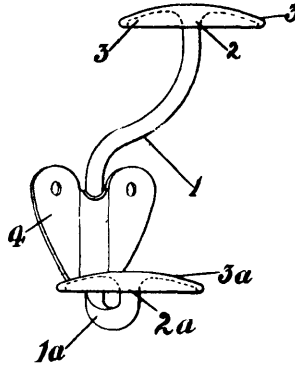
39980 Statley's Incandescent Burner for Hydro-Carbon Gas.



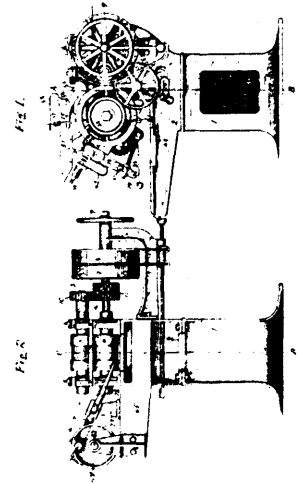
39981 Teague's Meter for Electricity.



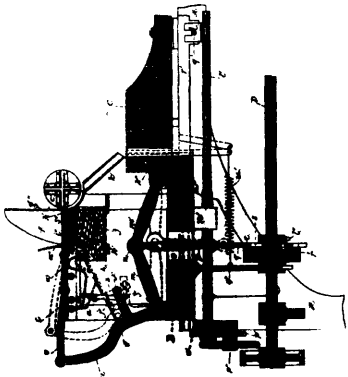
39982 White and Lloyd's Apparatus for Weaving Coiled Wire Fabric.



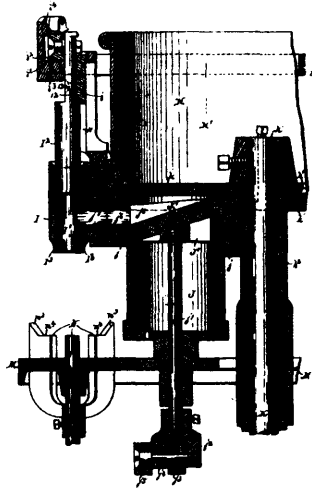
39983 Moody's Hat and Coat Hook.



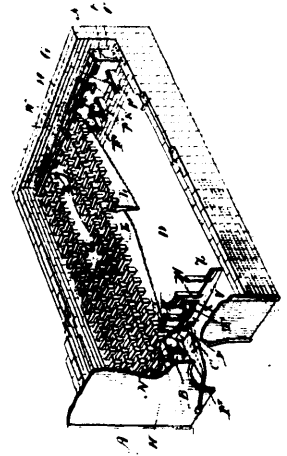
39984 Stevens' Machine for Making Paper Bags.



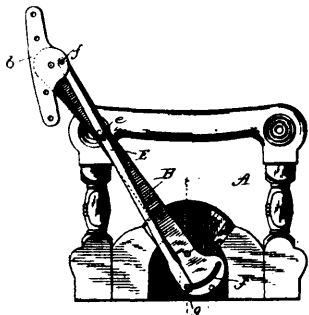
39985 Knight's Paper Box Machine.



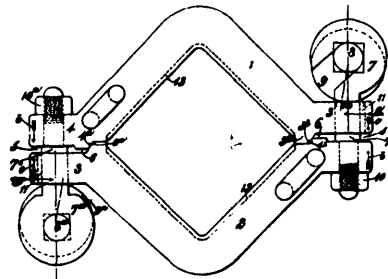
39986 Merrell and Soule's Canning Machine.



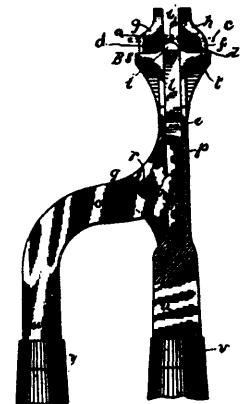
39987 Norgrove's Grate Bar.



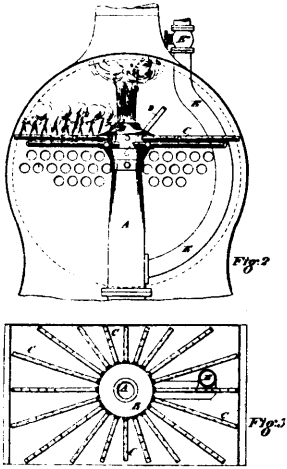
39988 Bushnell and Dryer's Car Seat



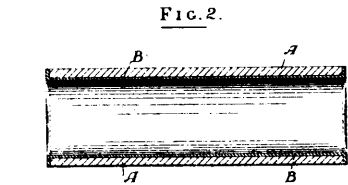
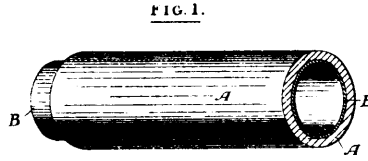
39990 Hodgson and Hill's Method of Constructing Ingot Moulds.



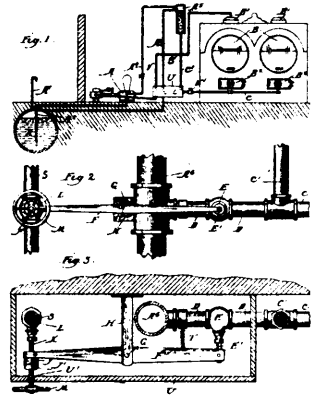
39991 Jewett's Tool for Joining Wire Fence Strands.



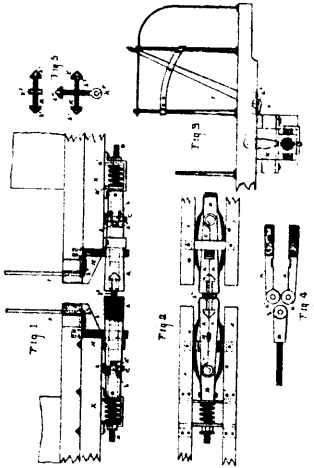
39992 Anderson and Naylor's Spark Extinguisher and Smoke Consumer.



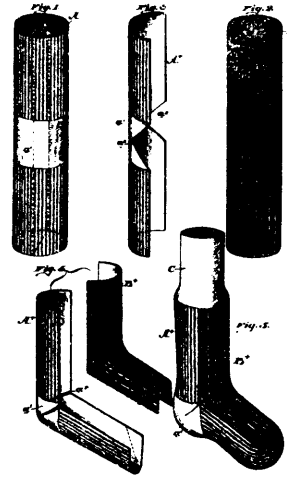
39993 Walker and Shaw's Tube.



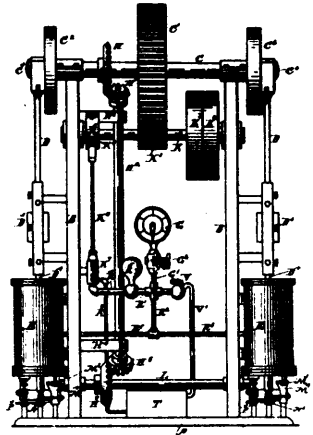
39994 Wright's Device for Feeding Fluid Fuel.



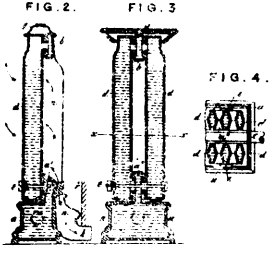
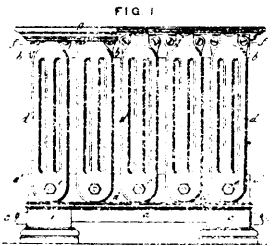
39995 Stark's Car Coupler.



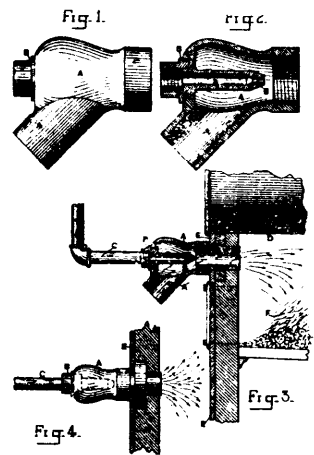
39996 West's Hosiery.



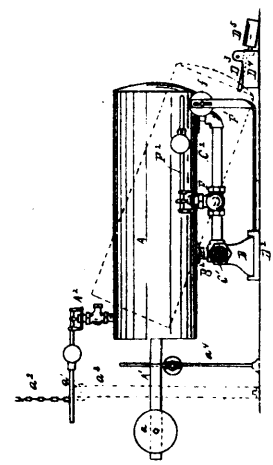
39997 Berrenberg's Vacuum Pump.



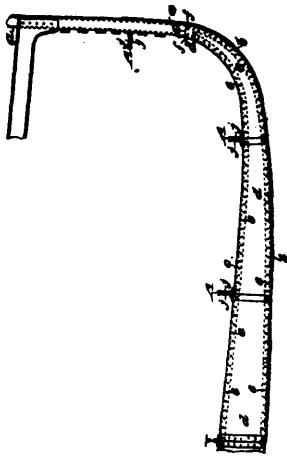
39998 Cannon's Radiator.



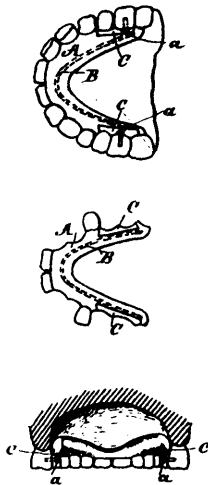
39999 Smith's Casing for Furnace Air Injectors.



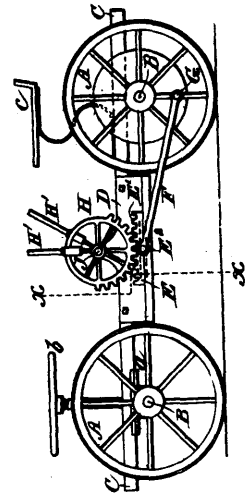
40000 Morehead's Steam Trap.



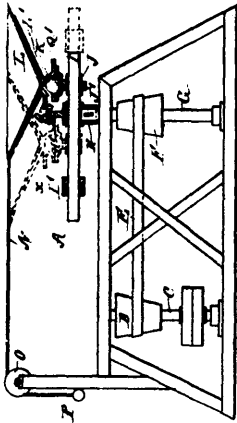
40001 Stuart's Method of Constructing Ships, &c.



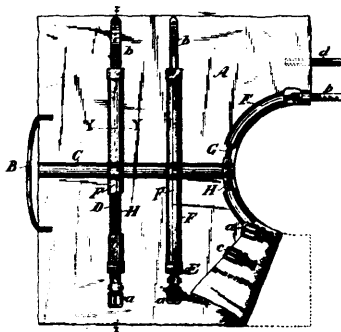
40002 McHenry's Artificial Teeth.



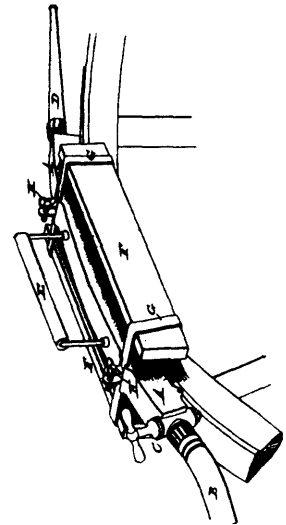
40003 Minnix's Motor for Vehicles and Boats.



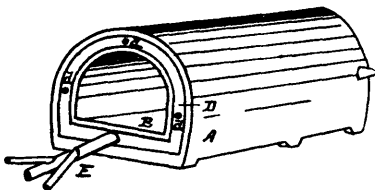
40004 Hammond and Gordon's Ore Concentrator.



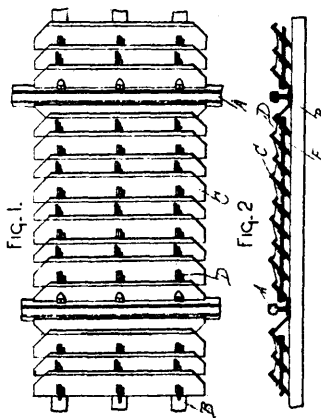
40005 Sisson's Horse Blanket.



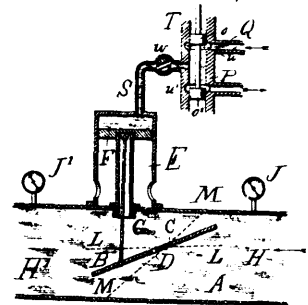
40006 Cook's Vehicle cleaning Device.



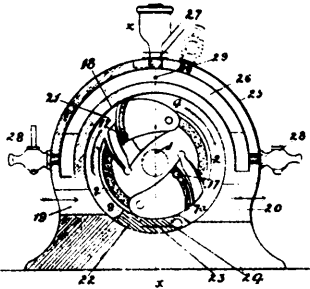
40007 Land's Muffle Furnace.



40008 Wolhaupter's Cattle Guard for Railways.



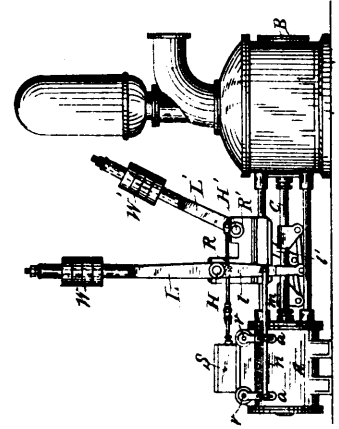
40009 Furiakovics' Apparatus for Regulating the Power and Speed of Turbines.



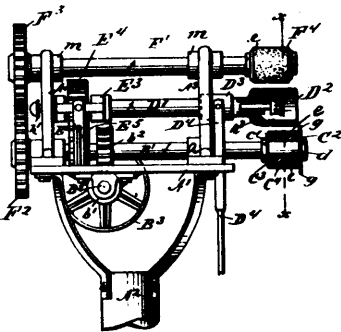
40010 Ward's Rotary Engine.



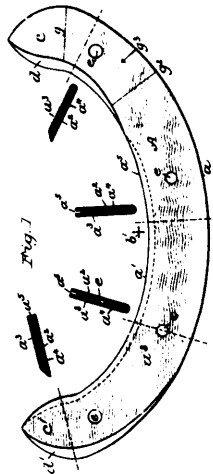
40011 Jones' Wood Screw.



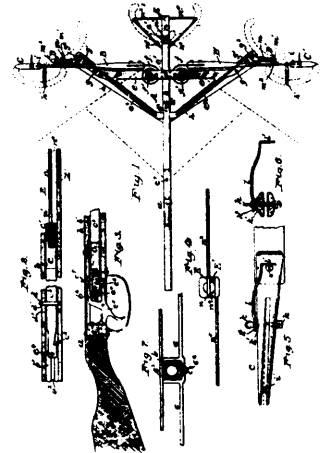
40012 d'Auria and Roberts' Steam Pumping Engine.



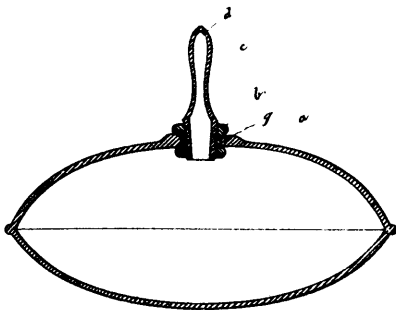
40013 White's Ironing and Polishing Machine.



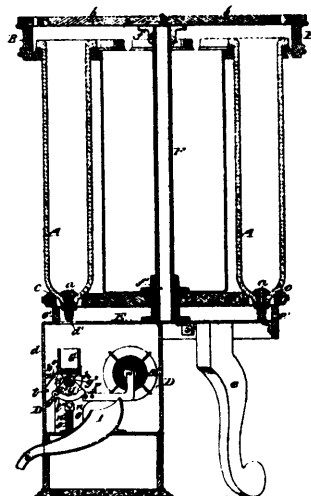
40014 Emerson's Boomerang.



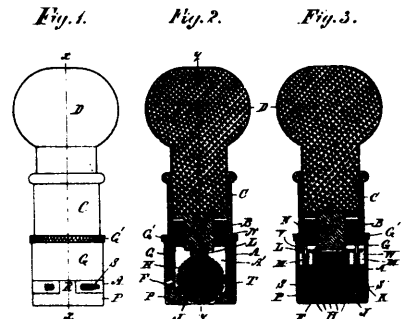
40015 Emerson's Boomerang Gun.



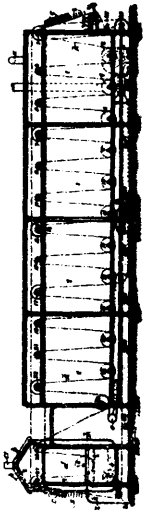
40016 Lalonde's Syringe.



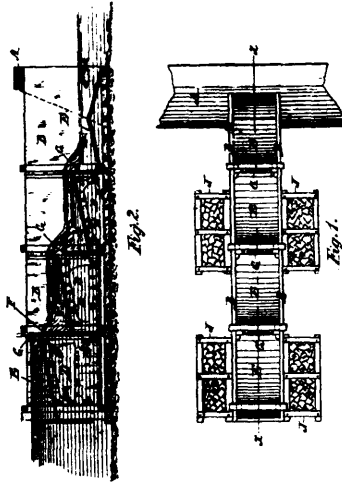
40017 Fowler's Apparatus for Dispensing Liquids.



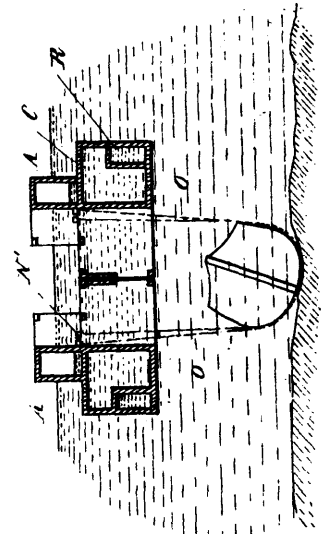
40018 Pritchard's Hand-dating Stamp.



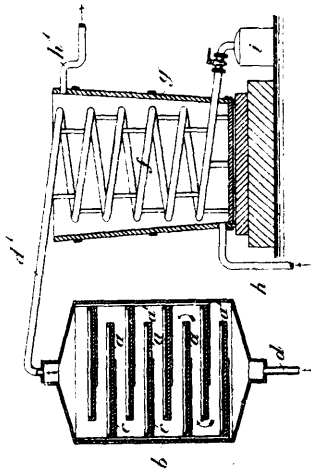
40019 Schnurch's Apparatus for Drying and Steaming Dyed Cotton Yarn.



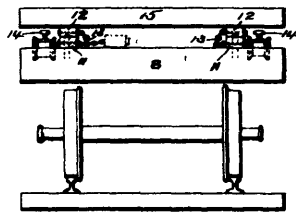
40020 Bower's Fish Way.



40021 Brown's Device for Raising Sunken Vessels.



40022 Eckstein's Apparatus for Making Imitation Glass.



40023 Hurley's Track laying Apparatus.

Fig. 1.

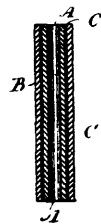
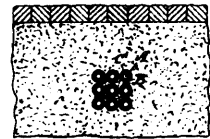
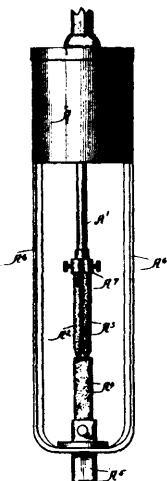


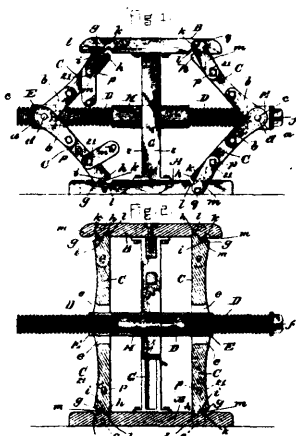
Fig. 2.



40025 Gilman's Underground Conduit for Electric Wires or Cables.



40026 Parmly's Electric Arc Lamp.



40029 Hooker and Hatch's Lifting Jack.

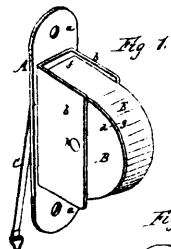
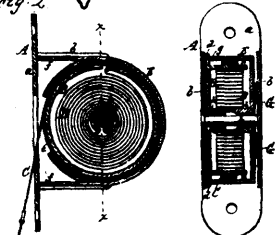


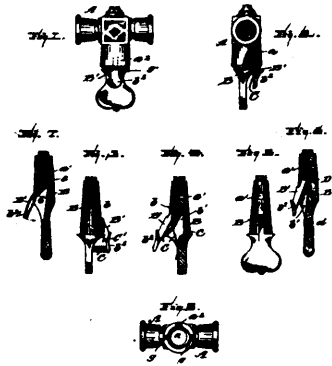
Fig. 1.

Fig. 2.

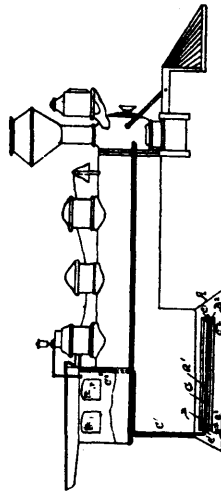
Fig. 3.



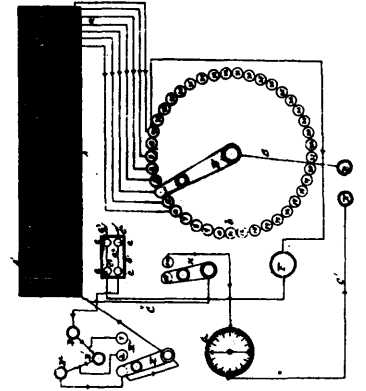
40030 Rose's Sash Balance.



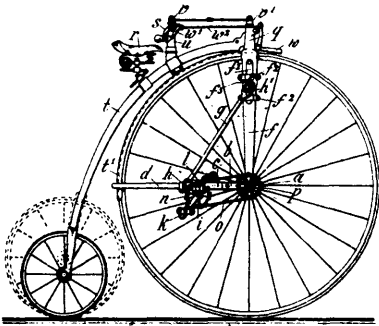
40031 Clark's Safety Gas Cock.



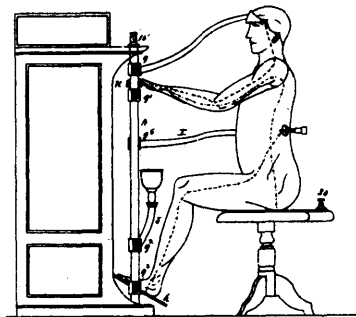
40032 Leadbeater's Steam and Air Injector.



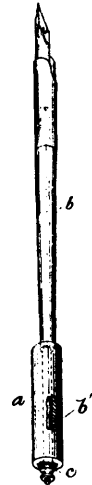
40033 Voelkner's Ampere Volt Potential Controller.



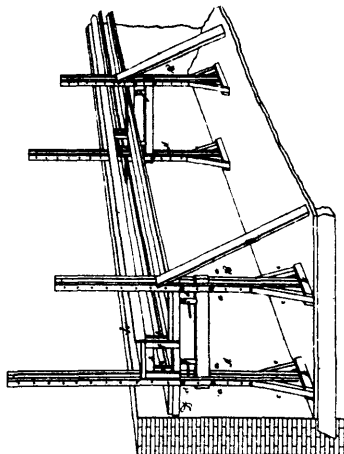
40034 Orbach's Bicycle.



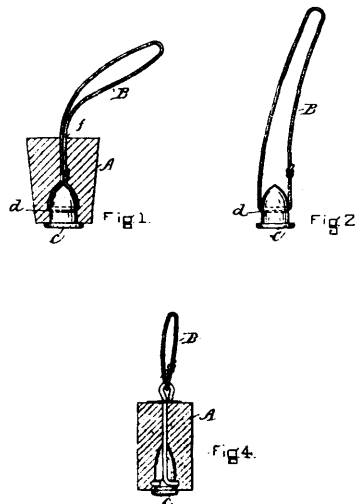
40035 Chambers' Electrical Medical Apparatus.



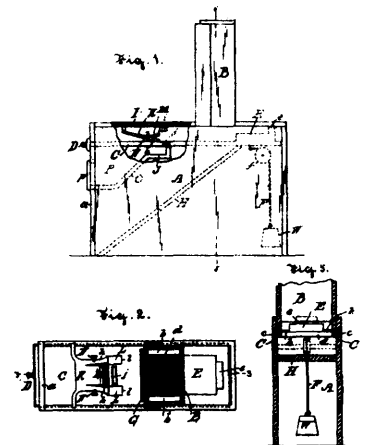
40036 Eulenfeld's Penholder and P'lotter.



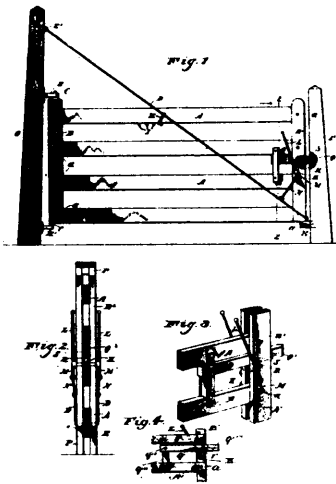
40037 Dodge's Stagings.



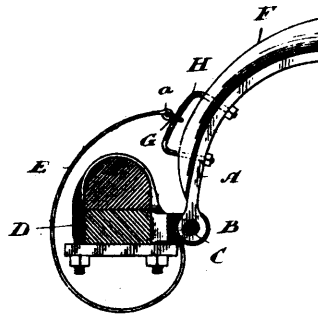
40038 Atwood's Bottle Stopper.



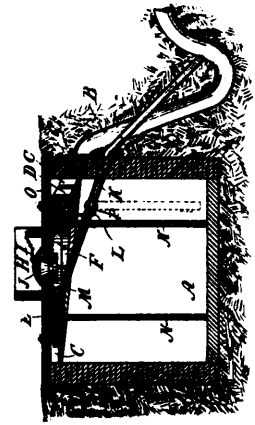
40039 Kirkham's Vending Apparatus.



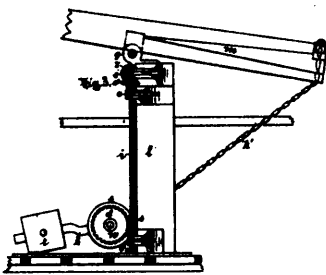
40040 Chambers' Gate.



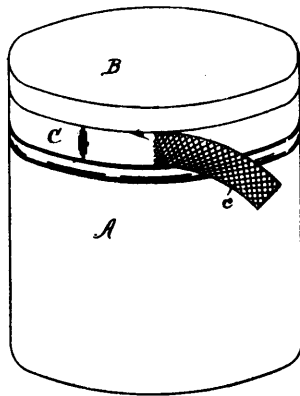
40041 Batty's Thill Coupler.



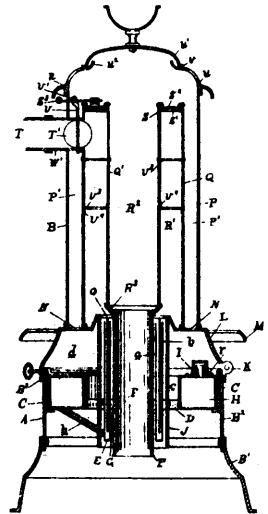
40042 Hershberger's Catch Basin for Sewers.



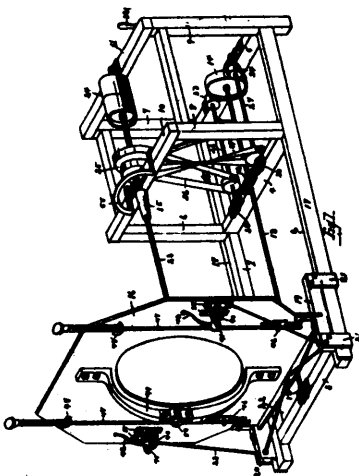
40043 Uhlig's Hand Winch for Ship Masts.



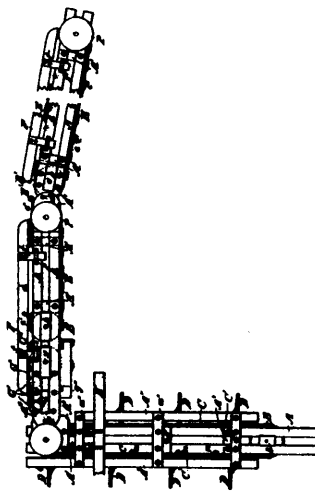
40044 Hidden's Sheet Metal Can.



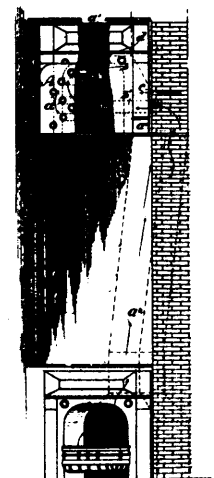
40045 Wilcox's Stove.



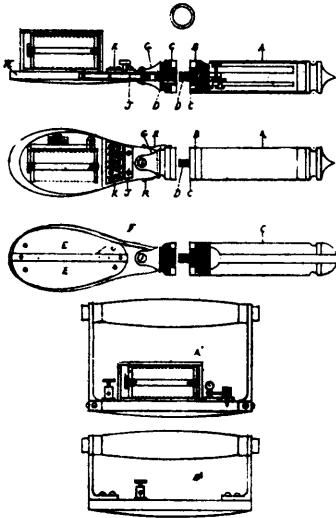
40046 Bonner's Hub boring Machine.



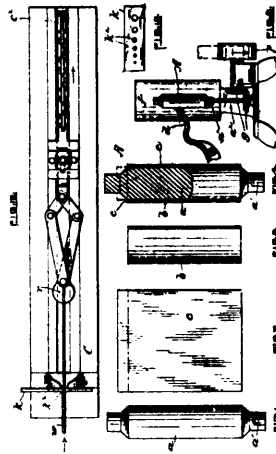
40047 Russell's Freight Elevating and Transporting Apparatus.



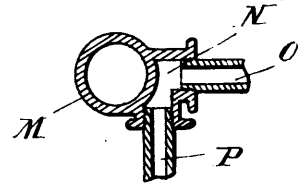
40048 Griffith's Heating System.



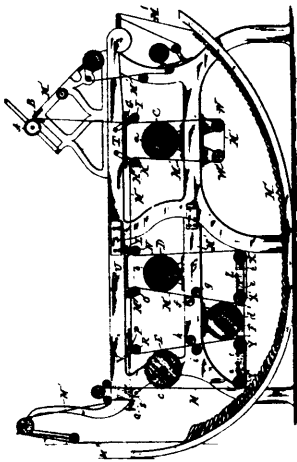
40049 Hodgkinson's Electro-Medical Apparatus, Coil and Battery.



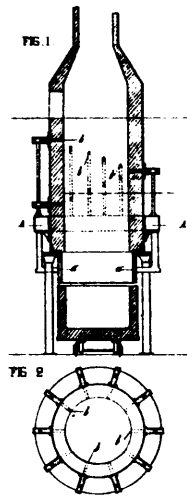
40050 Burdon's Machine for Making Seamless Compound Wire.



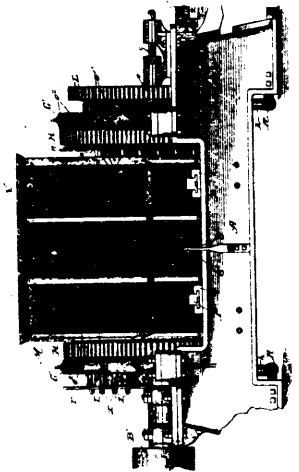
40051 Sewall's Car-heating Apparatus.



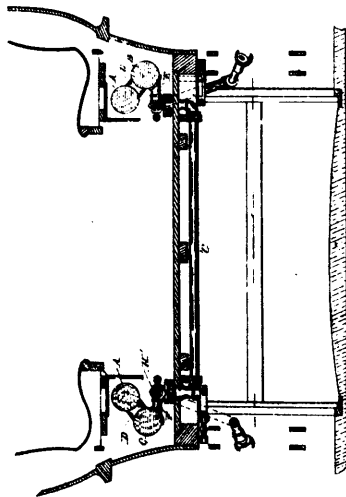
40052 Green's Gigging and Shearing Machine.



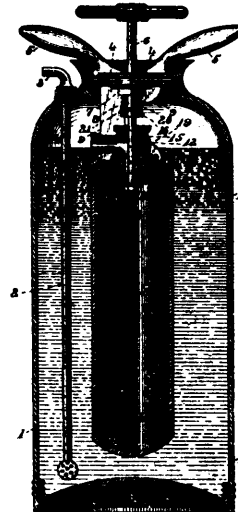
40053 Garnier's Apparatus for Treating Mats.



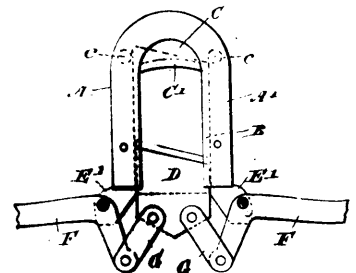
40054 Abbee's Lathe.



40055 McElroy's Street Car Heating Apparatus.



40056 Mansfield's Fire Extinguisher.



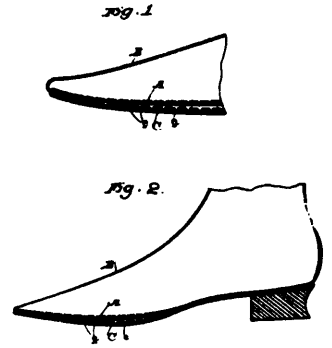
40058 Leavitt's Dehorning Instrument.



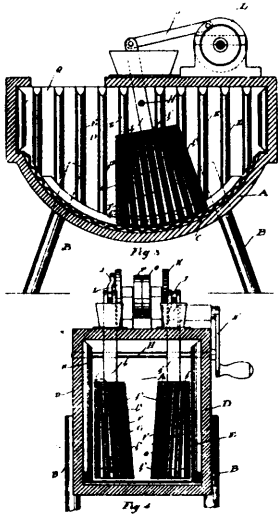
40059 Bunsen's Blow Gun.



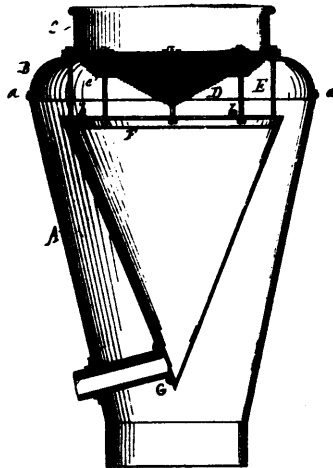
40060 Polley's Cleaner for Boilers.



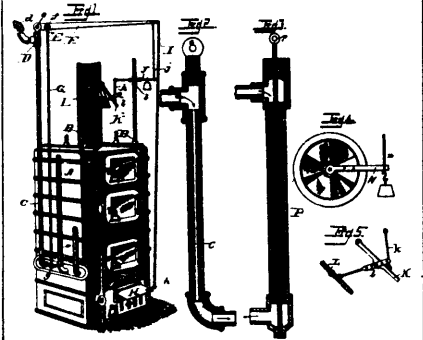
40062 Bryant's Boot and Shoe.



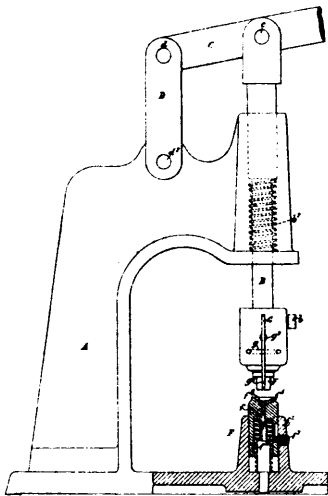
40063 Fauteux's Washing Machine.



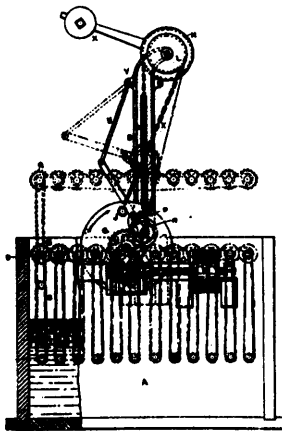
40064 Smith's Spark Arrester.



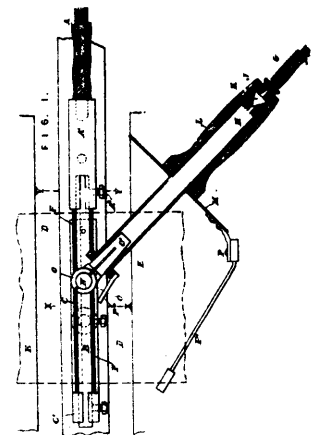
40065 Smith's Regulator for Furnace Dampers.



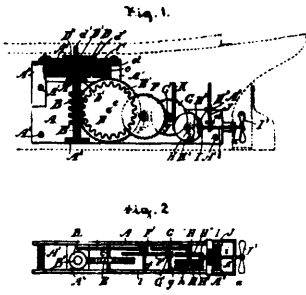
40066 Noelle's Machine for Attaching Buttons to Garments.



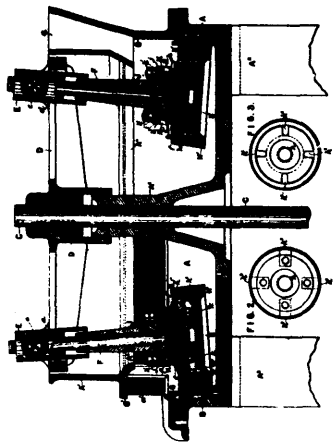
40067 Blackburn, Bray and Clayton's Machine for Scouring and Dyeing Yarn.



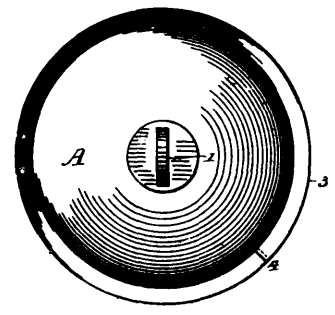
40068 Howard's Heating and Welding by the Electric Arc.



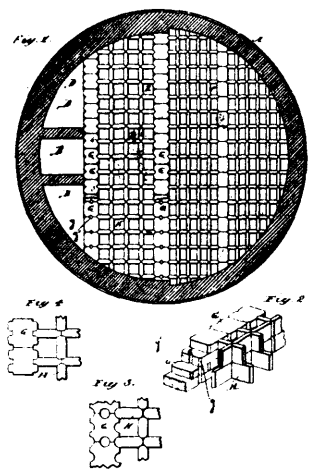
40069 Heath's Spring Motor for Screw Propeller.



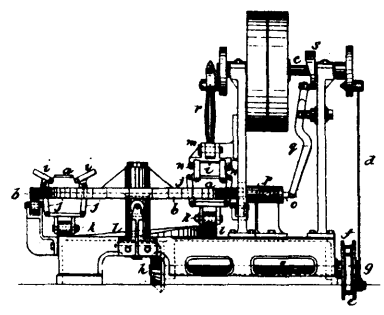
40070 Paxman's Crushing Mill.



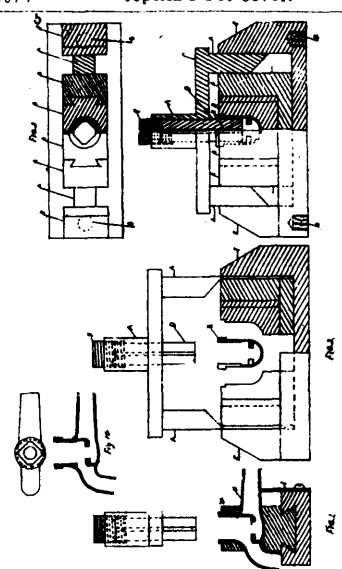
40071 Copelin's Pot Cover.



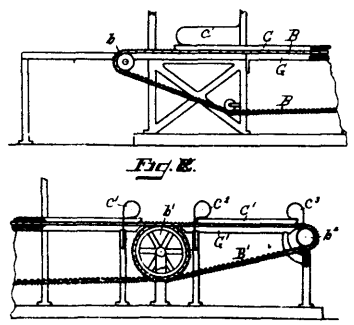
40072 Foote's Hot Blast Stove.



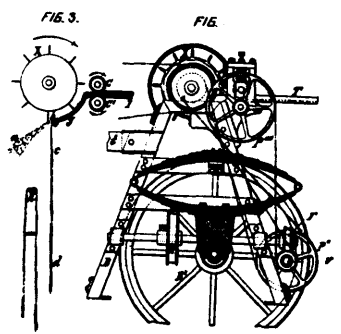
40074 Johnson's Machine for Dressing Sand-faced Brick.



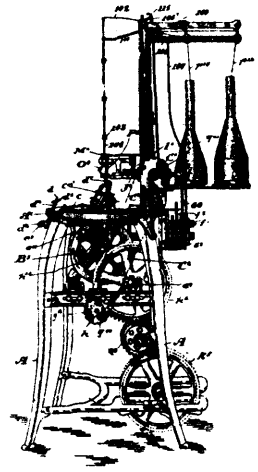
40075 Taylor's Tool for Making Cooks and Valves.



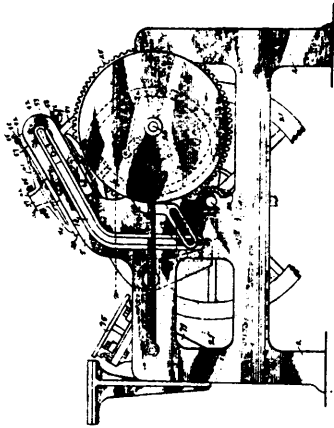
40076 Morison's Machine for Preparing Flax.



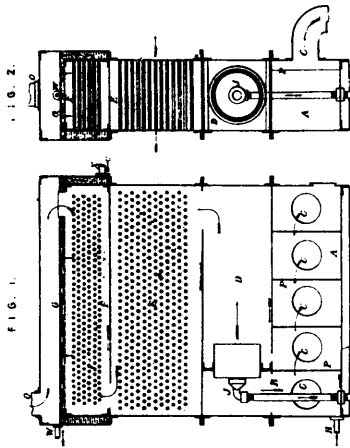
40077 Faure's Machine for Decorticating Ramee.



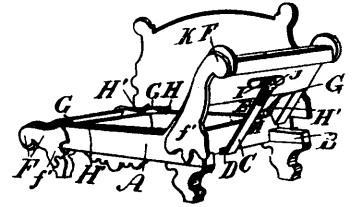
40078 King's Knitting Machine.



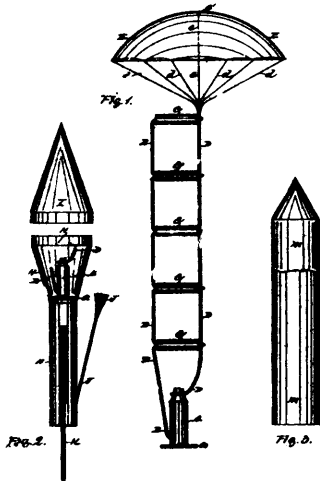
40079 Lawrence's Printing Press.



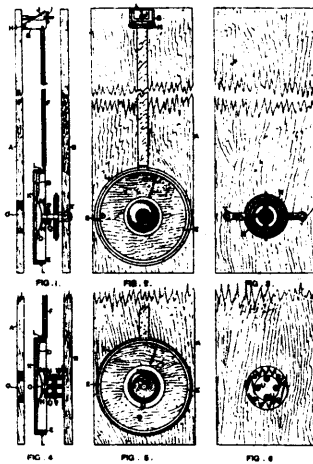
40080 Dulier's Smoke Consumer.



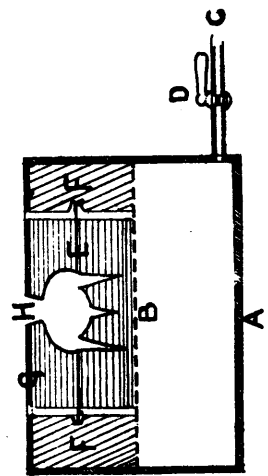
40081 Mee's Lounge.



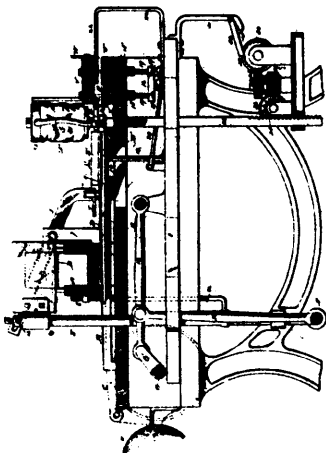
40082 Hand and Teale's Signal for Vessels.



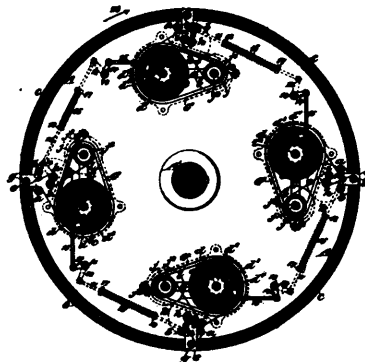
40083 Collier's Transmitter for Telephones.



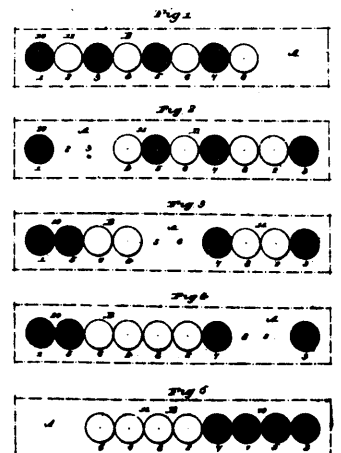
40084 Haydon's Art of Casting Metals.



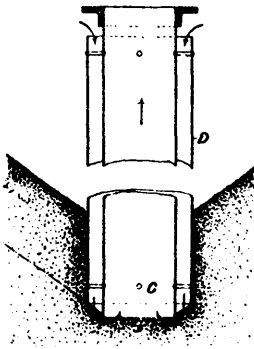
40085 Bohannon's Cigarette Machine.



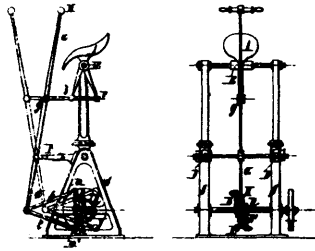
40086 Cottrell's Printing Machine.



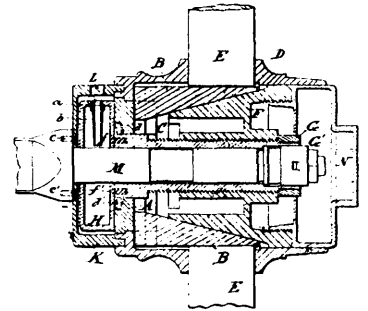
40087 Hubner's Game.



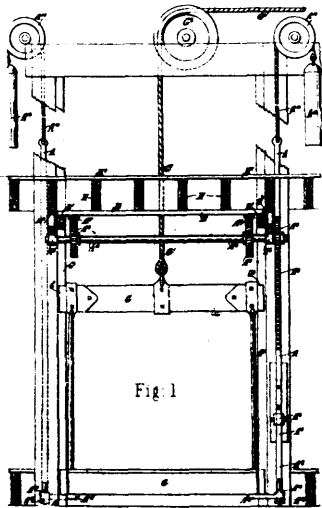
40088 Duckham's Conveyor for Grain.



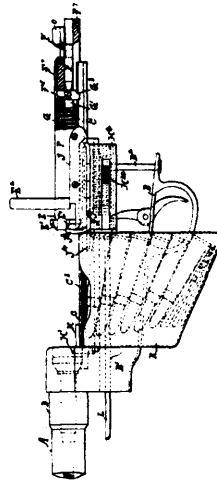
40089 Baldensperger's Self-reacting Motor.



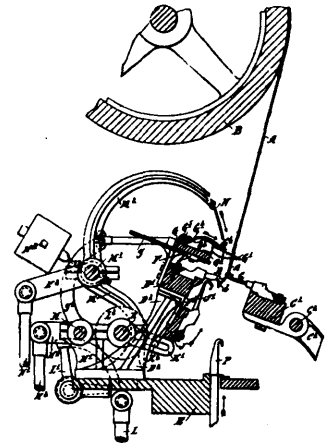
40090 Moore's Wheel for Road Carts.



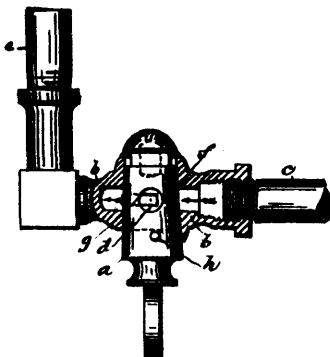
40091 Hallenstein's Fireproof Door.



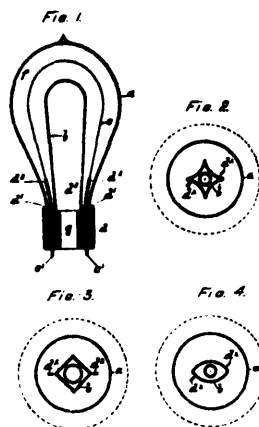
40092 Godsal's Breech-loading Small Arms.



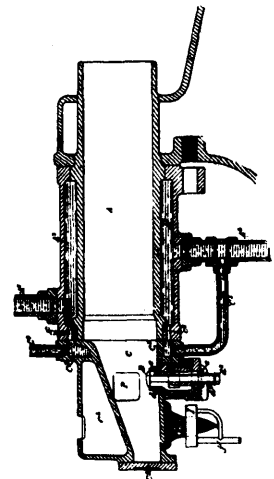
40093 Stuart's Machinery for Making Nets



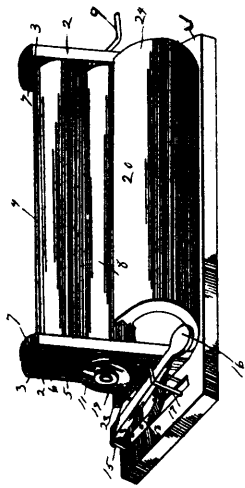
40094 Heppenstall's Gas Tap.



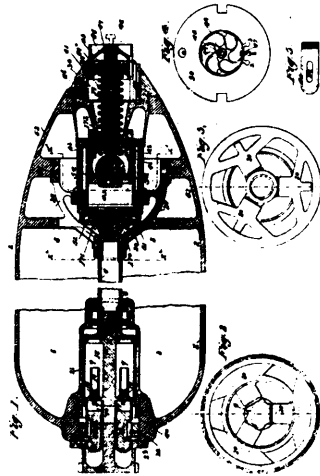
40095 Weaver and Manypenny's Incandescent Electric Lamp.



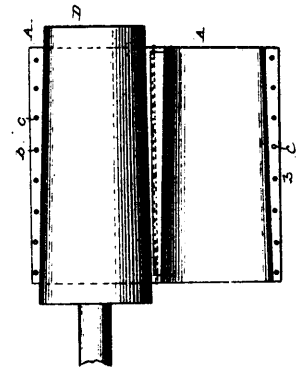
40096 Pinkney's Gas Engine.



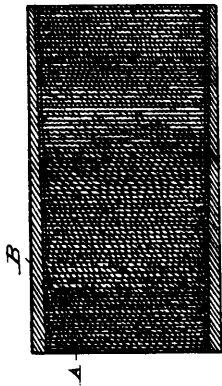
40097 Grabe and Snyder's Copy Holder.



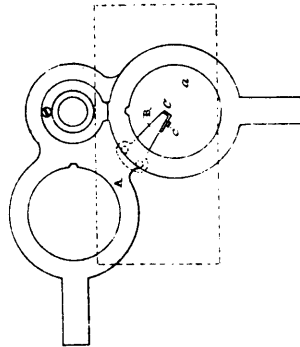
40098 Merriam's Explosive Shell.



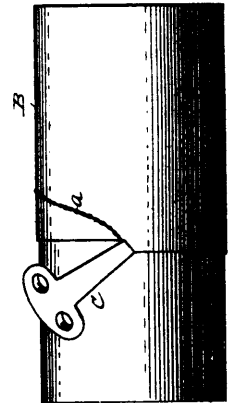
40099 Edison's Phonograph.



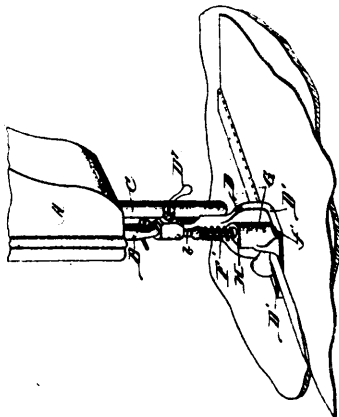
40100 Edison's Phonogram Blank.



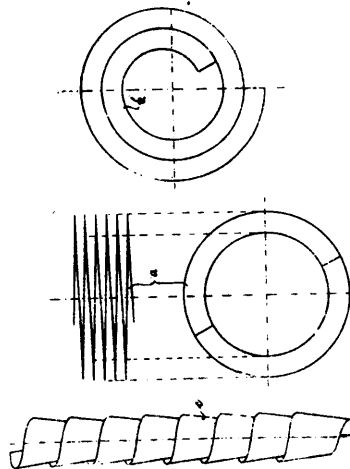
40101 Edison's Phonograph.



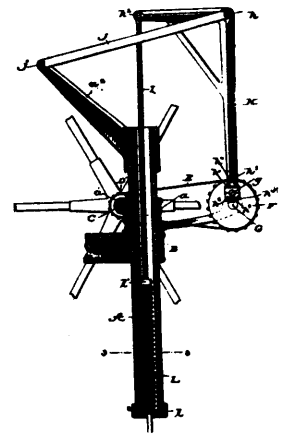
40102 Edison's Phonogram Blank.



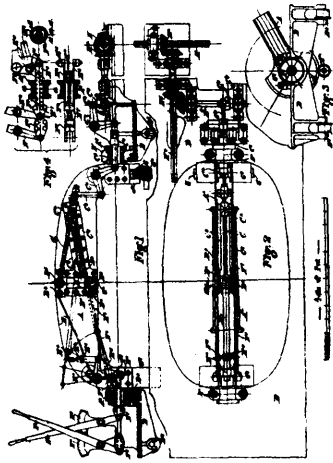
40103 Laskey's Hemmer and Feller.



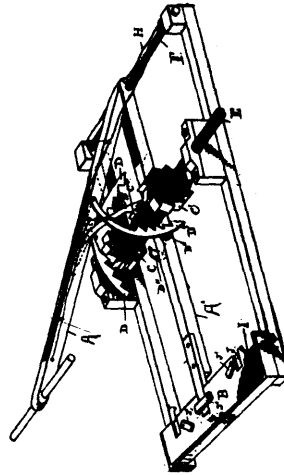
40104 Commichau's Flexible Metal Tubing.



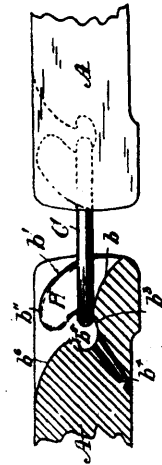
40105 Althouse's Windmill.



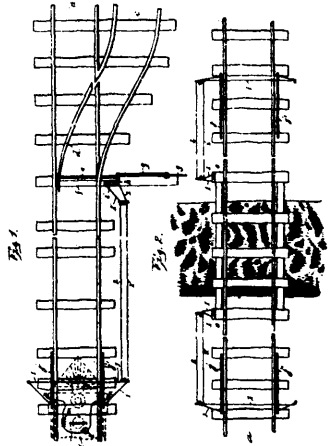
40106 Errington's Stone-cutting and Stone-dressing Machine.



40107 Sheen's Manual Motor.



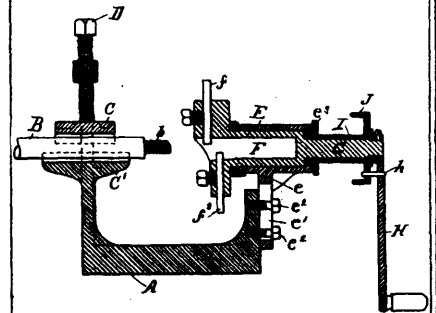
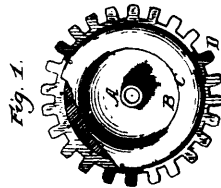
40108 Cassidy's Car Coupler.



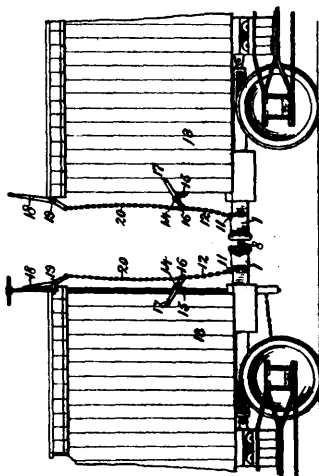
40109 Smith and Fox's Electric Railway Signal.



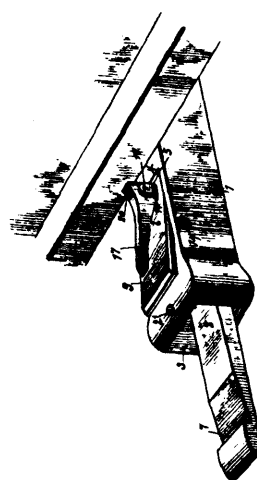
40110 Pfetch's Cogged Wheel.



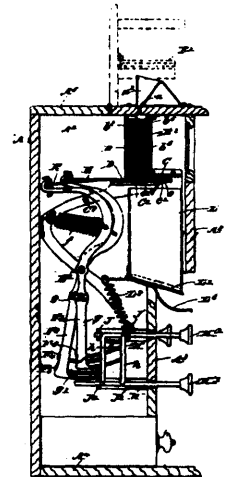
40111 Beardsley's Axle and Thread Cutter.



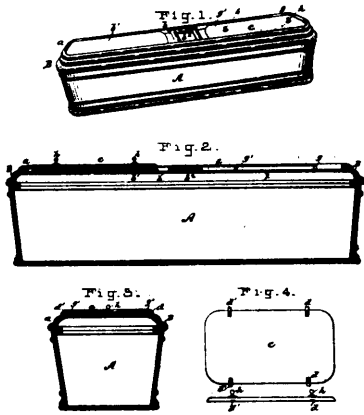
40112 Hammond's Car Coupler.



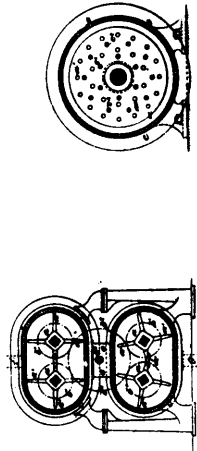
40113 Teel's Car Coupler.



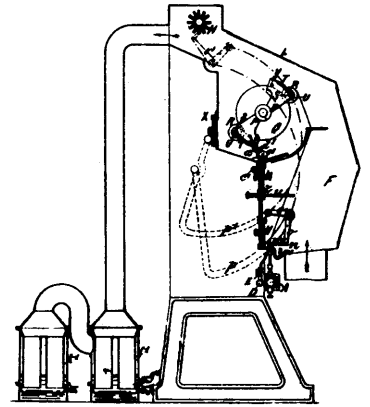
40114 Loranger and Duolos' Money Changer.



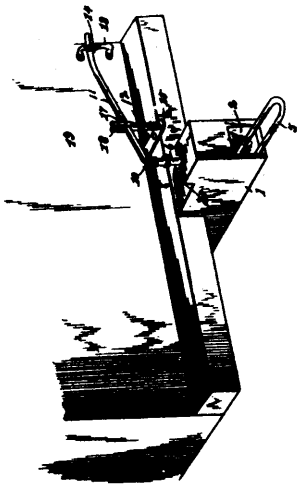
40115 McGovern's Casket.



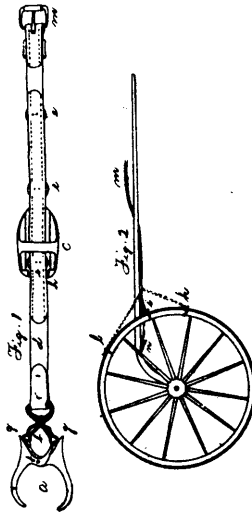
40116 Kellner's Pulp Opener



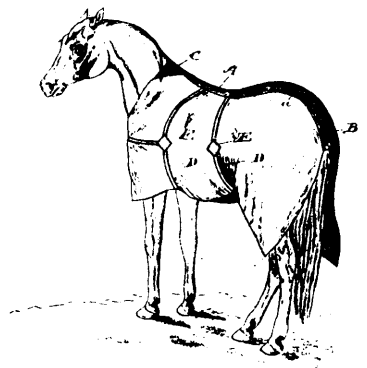
40117 de Chardonnet's Apparatus for Making Artificial Silk Filaments.



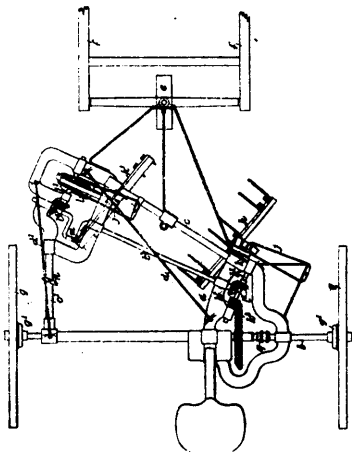
40118 Conley's Car Coupler.



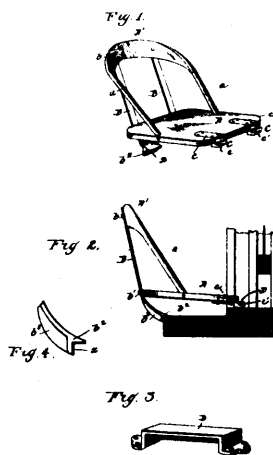
40119 Bell's Horse Holder.



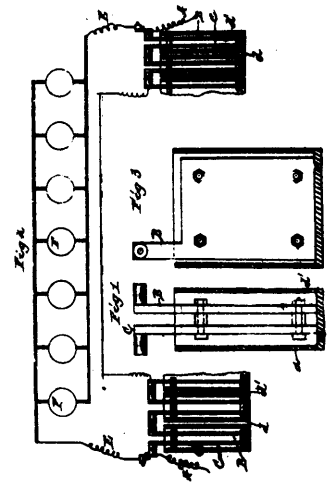
40120 Latham's Horse Blanket.



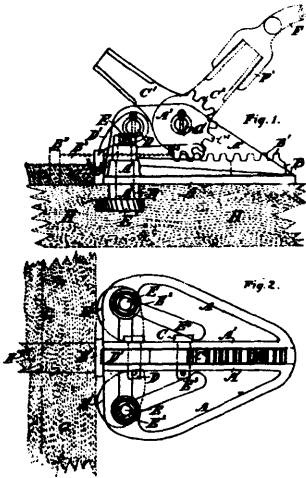
40121 Blackstock's Swath Turner.



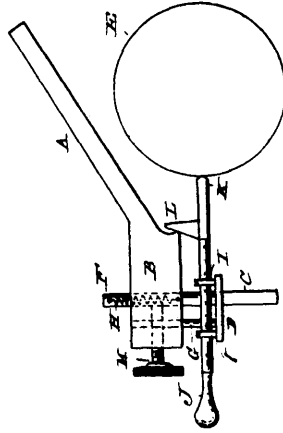
40122 Reynolds' Window Cleaning Chair.



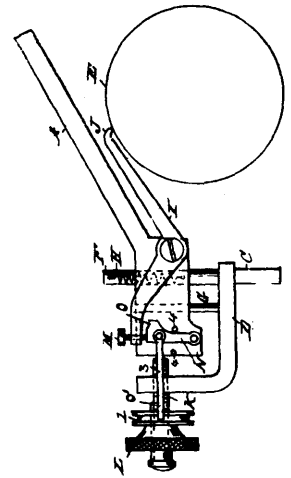
40123 Simpson's Method of Subdividing Electric Currents.



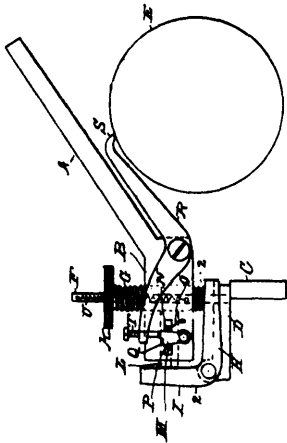
40124 Lillington's Tool for Clamping Timber.



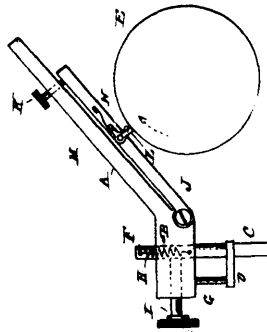
40125 Edison's Determining Device for Phonographs.



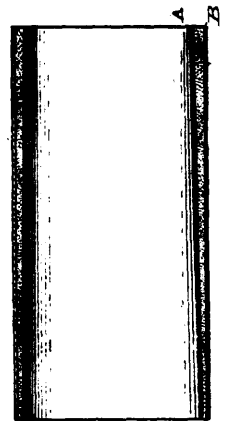
40126 Edison's Determining Device for Phonographs.



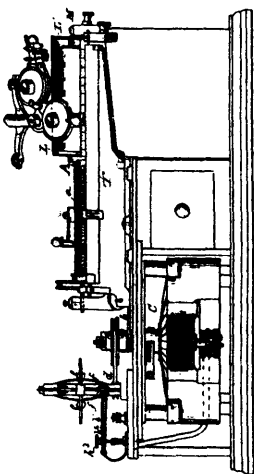
40127 Edison's Determining Device for Phonographs.



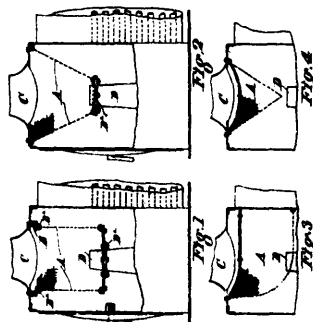
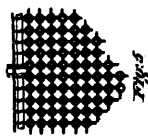
40128 Edison's Determining Device for Phonographs.



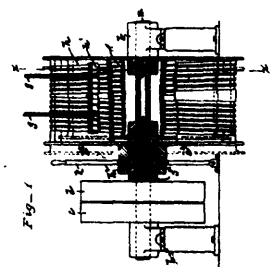
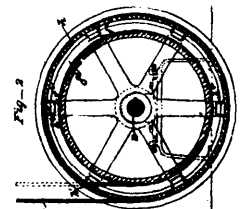
40129 Edison's Phonogram Blank.



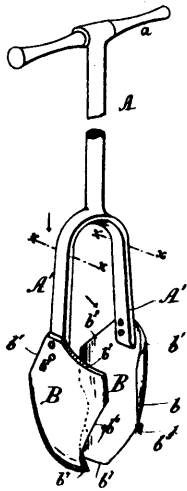
40130 Edison's Phonograph.



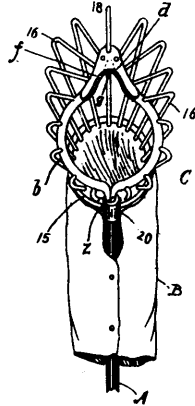
40131 Thornton's Spark Arrester.



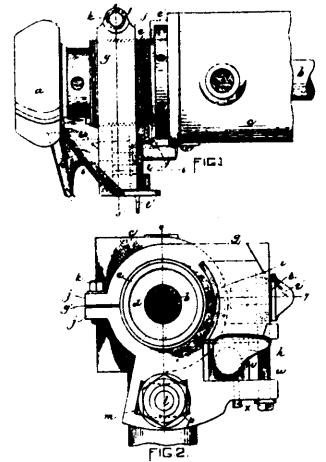
40132 Gibbins' Hoisting Apparatus.



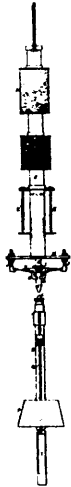
40133 Lane's Earth Auger.



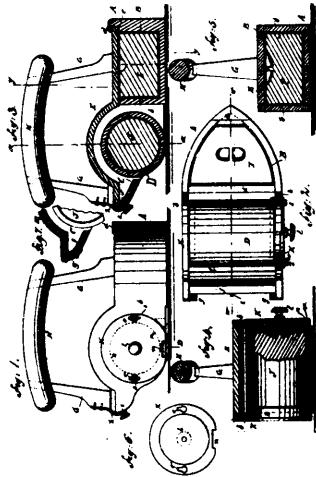
40134 Marsh's Fruit Gatherer.



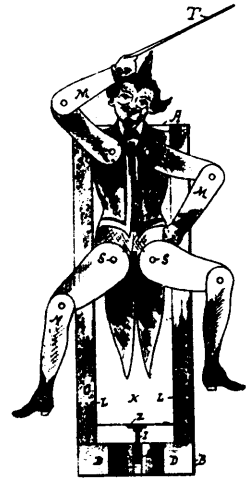
40135 Fuller and Plummer's Heel Trimming Machine.



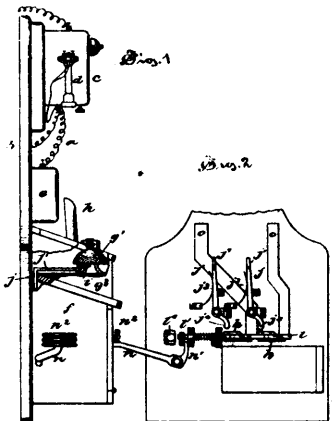
40136 Crampton's Electric Arc Lamp.



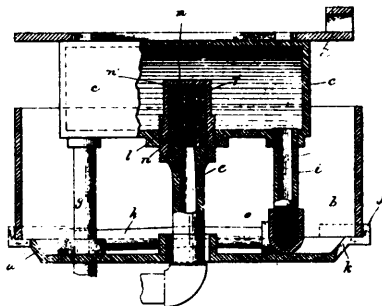
40137 Carman's Sad Iron.



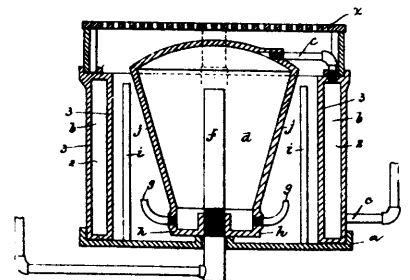
40138 Crandall's Toy.



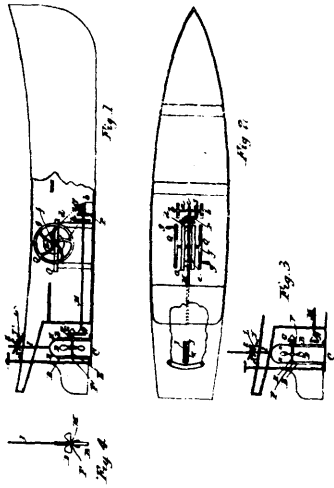
40139 Gray's Coin-controlled Apparatus for Telephones.



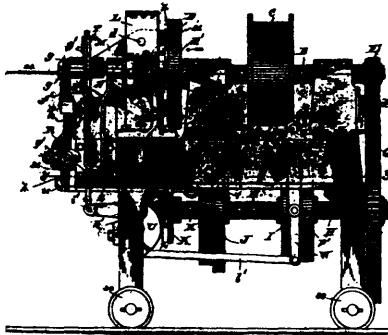
40140 Abbott's Vapour Burner.



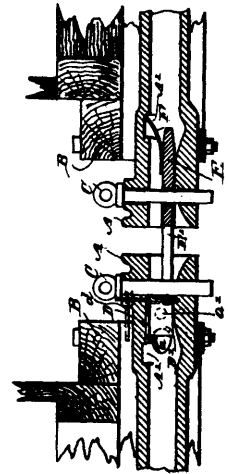
40141 Abbott's Vapour Burner.



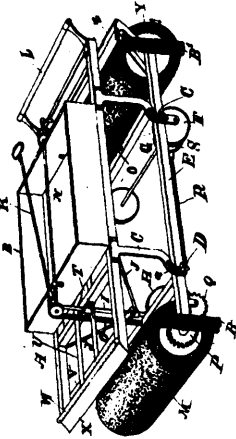
40142 Thompson's Apparatus for Revolving and Elevating the Screw Propeller of a Boat.



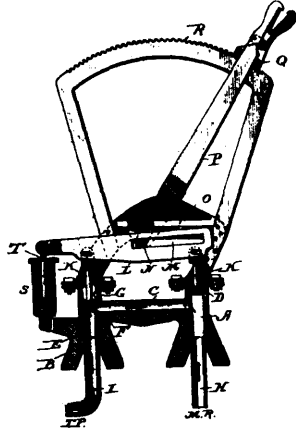
40143 Moore's Machine for Forging Horse shoe Nails.



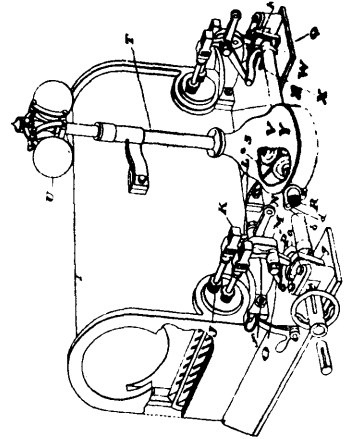
40144 Seabury's Car Coupler.



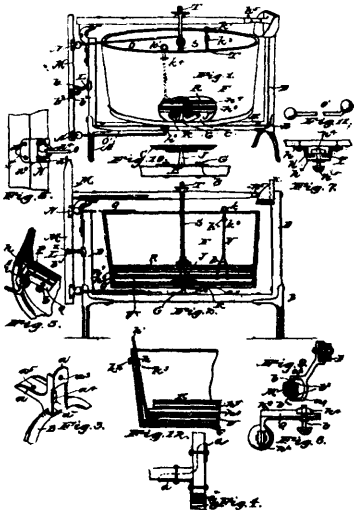
40145 Meehan's Scrubbing Machine.



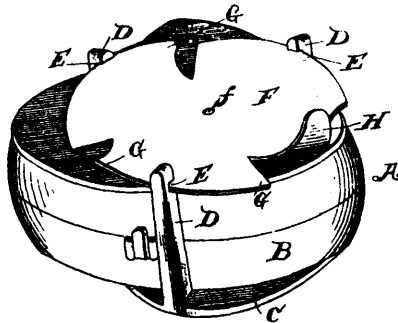
40146 McNulta's Air Brake.



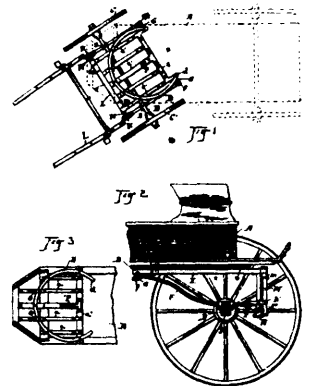
40147 Abell's Cut-off Engine.



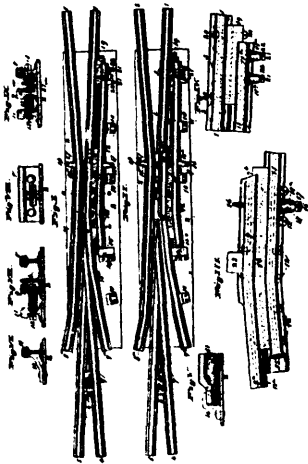
40148 Brobst's Washing Machine.



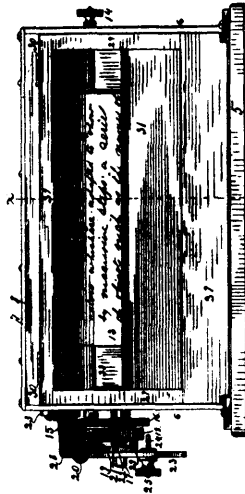
40149 Creery's Clamp for Dental Flasks.



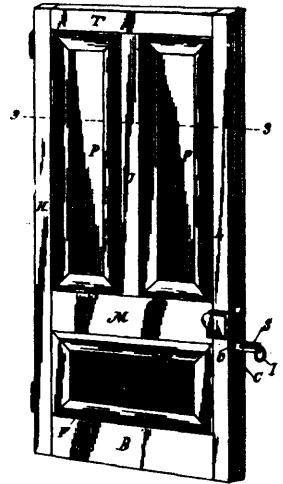
40150 Wigand's Wagon.



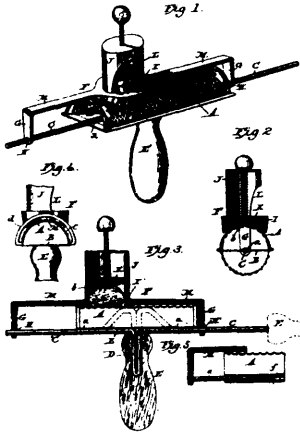
40151 Elliot's Spring Rail Frog.



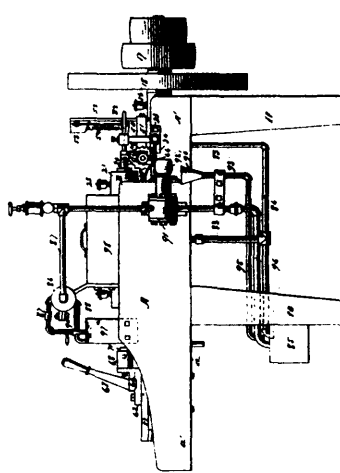
40152 Brunthaver and O'Connell's Copy Holder.



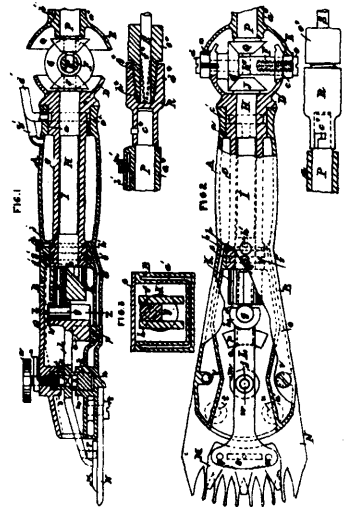
40153 Gregg's Door.



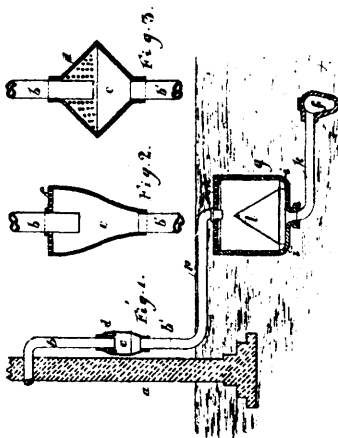
40154 Thomas' Grater.



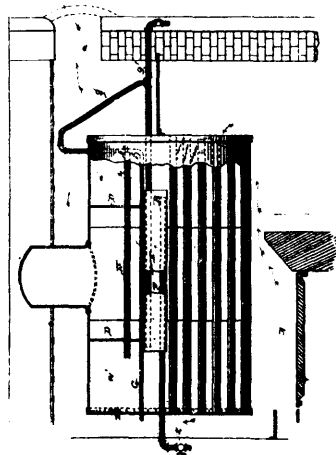
40155 Hubner's Machine for Threading Bolts.



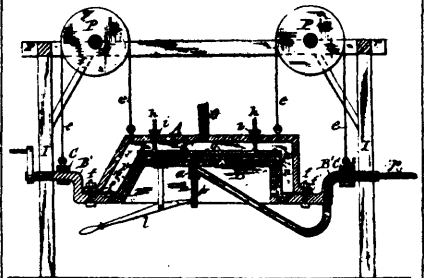
40156 Blanks, Lefebvre and Bird's Sheep-shearing Machine.



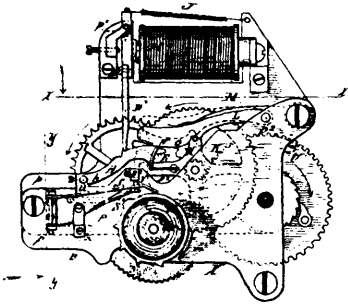
40157 Hoey's Appliance for Tapping Soil Pipes, Sewers, &c.



40158 Dougherty's Filter and Heater for Steam Boilers.



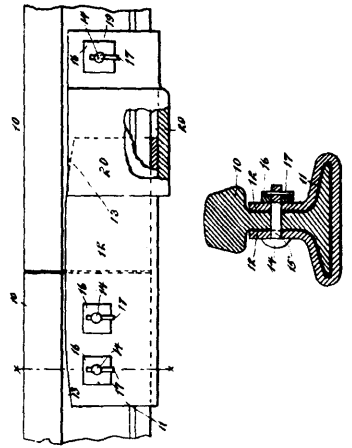
40159 King's Machine for Forming Hollow Ware from Pulp



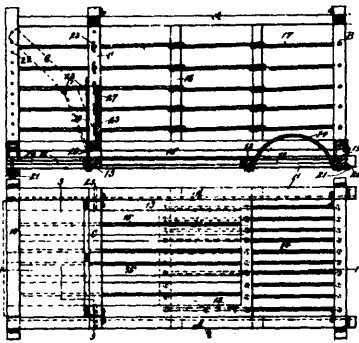
40160 Decrow's Electric Signal Box.



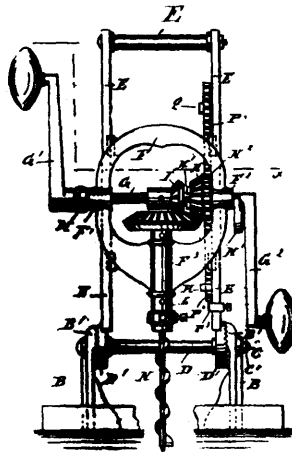
40161 Davis' Grain Conveyor for Harvesters.



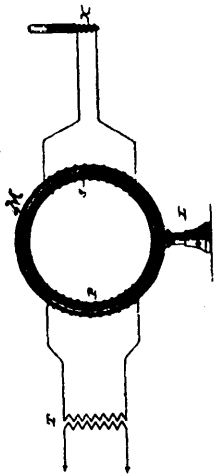
40162 Roxby's Rail Joint



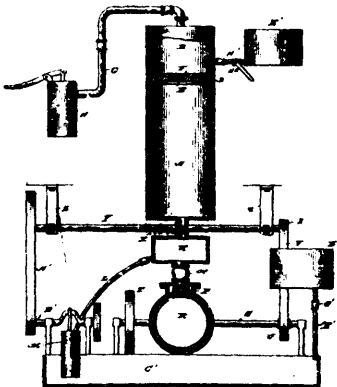
40163 Wallace's Hay Rack.



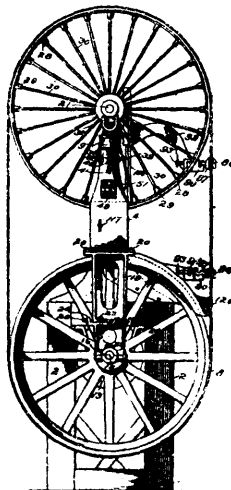
40164 Irwin, Mill and Hitch's Boring Machine.



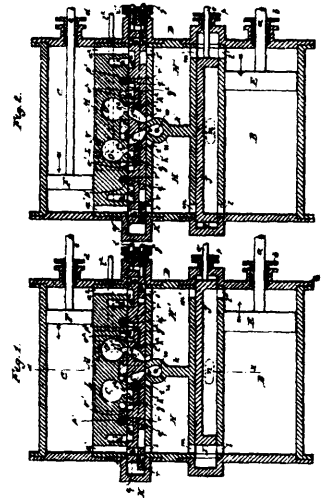
40165 Acheson's Calelectric Generator.



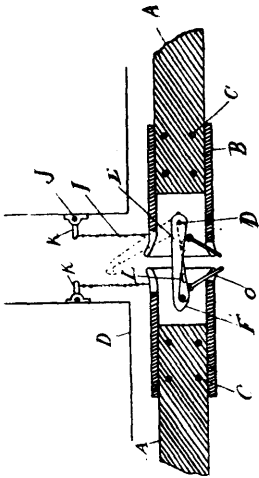
40166 MacLaughlin's Motor.



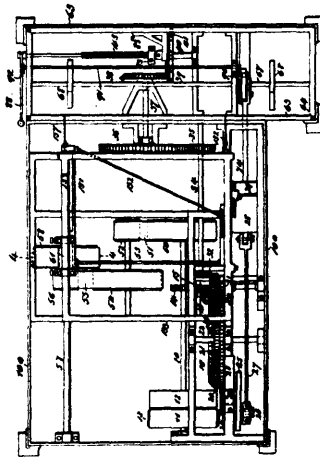
40167 Emerson's Band Saw Mill.



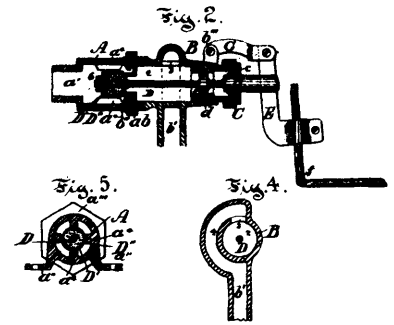
40169 Hoelljes' Method of Operating Gas Engines.



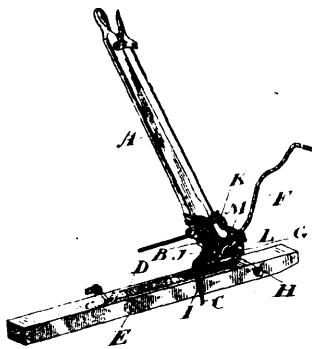
40172 Walker's Car Coupler.



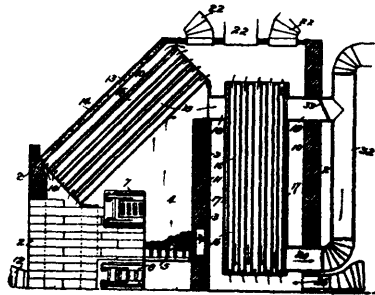
40173 Morgeneier and Bergeron's Duplicating Machine.



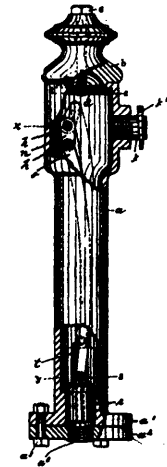
40174 Moore's Valve.



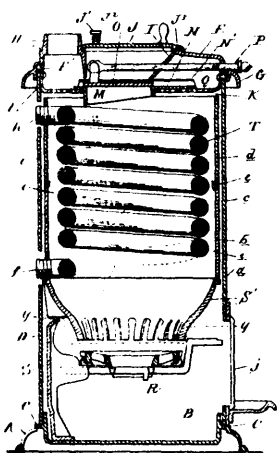
40175 Maxwell's Cutter Bar for Mowers.



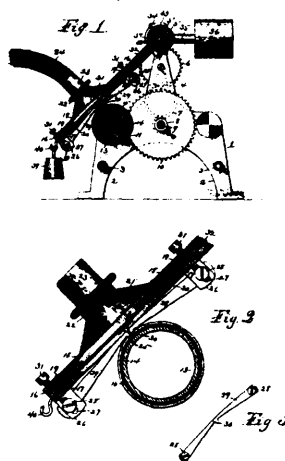
40176 Peteler's Heater.



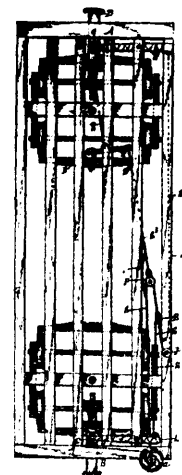
40177 Scheid's Hydrant.



40178 McElroy's Car Heater.



40179 Brown's Art of Obliterating Sound Records from Record Tablets.



40180 Ames' Car Brake.