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The Canadian Patent Office RECORD

Vol. XVII.—No. 12. DECEMBER, 1889. { Price in Canada $2.50 per An. / United States - $2.50 "

INVENTIONS PATENTED.

NOTE.—Patents are granted for 15 years. The term of years for which the fee has been paid, is given after the date of the patent.

No. 31,719. Bag or Sack. (*Sac.*)

A. W. Morris, Montreal, Que., 16th July, 1889 ; 5 years.

Claim.—A bag or sack made of jute or other fibrous material and lined with paper.

[NOTE.—*This patent was left out of July number of the* RECORD *through a mistake of the printers.*]

No. 32,954. Shaft Attachment for Vehicles. (*Disposition aux limonières des voitures.*)

Charles C. Graham, Crawfordsville, Ind., U.S., 2nd December, 1889; 5 years.

Claim.—A shaft attachment comprising the caps having the openings f in their ends, the strap consisting of sections and adapted to be buckled together, and the tips secured to the ends a^2 of the strap, and provided with annular flanges whereby the ends a^2 of the strap are swivelled to said caps, substantially as described.

No. 32,955. Machine for Automatic Grain Weighing and Measuring. (*Machine automatique de pesage et mesurage du grain.*)

Horace M. Fulwider, Redmond, Ill., U.S., 2nd December, 1889; 5 years.

Claim—1st. The combination of the receptacle K, the bearings Q, the shafts R, the latches S, bottoms H^1 and the partially revolving shaft G^1, with the trip arms T, the springs secured to their inner ends, the chains secured to their outer ends and the scale beam, substantially as shown. 2nd. The combination of the receptacle K, the laterally moving hopper placed in its upper end, suitable partially turning or rotating supports upon which the hopper is supported, a connecting mechanism, and the bottoms H^1 by means of which the hopper is moved from one side of the partition in the receptacle to the other, substantially as described. 3rd. The combination of the divided receptacle, the laterally moving hopper, the cranks connected to the hopper, the shafts Z to which the lower ends of the cranks are secured, the cranks D^1, F^1, the connecting rod between the cranks, the partially revolving shaft G^1, and the bottoms secured thereto, substantially as specified.

No. 32,956. Suspender End. (*Ganse de bretelle.*)

Tom. B. Pell and James W. Knox, Lewisport, Ky., U.S., 2nd December, 1889; 5 years.

Claim.—1st. As an improved article of manufacture, a suspender end provided with a pocket having attaching-straps secured to its lower end, as set forth. 2nd. A suspender-end comprising a buckle, a pocket suspended from the buckle, and straps secured to the lower end of the pocket, substantially as described. 3rd. The herein-described suspender-end consisting of the buckle B, the strip of webbing C secured to the buckle, the pocket D of elastic material secured to the face of the webbing C, and the end straps E secured to the lower end of the said webbing, as specified.

No. 32,957. Measuring Gauge. (*Jauge de mesurage.*)

Patrick H. Griffin, Buffalo, N.Y., U.S., 2nd December, 1889 ; 5 years.

Claim.—1st. A gauge for measuring the treads of car wheels and similar objects, consisting of a stationary bar having two legs and a suitable dial, a further bar provided with a single downwardly projecting leg, and a lever fulcrumed at the stationary bar and connected with the movable bar by a connecting rod, said bars being held in sliding contact by screw-bolts passing through apertures in the movable bar, as and for the purpose set forth. 2nd. In measuring gauges, the combination, with the bar A having legs a, a^1 of the movable bar B having two longitudinal slots E, E^1 engaging bolts e, e^1, and near its end a leg b, lever C fulcrumed on the bar A, and connected with the bar B by the connecting rod H, and a suitable dial upon said bar A, as and for the purpose set forth. 3rd. In measuring gauges, a dial having graduations on both of its faces, in combination with a lever having its fulcrum in the centre of said dial, said lever having in its face an opening provided with a pointer, and on the back a guard-piece overlapping the edge of said dial, and also provided with a pointer, whereby the graduations on either side of said dial may be used and the lever held in proper position, substantially as described. 4th. In measuring gauges, the combination, with the bar A having two downwardly projecting legs a, a^1, and overhanging bars R, R^1, a dial C having graduations c, d, a sliding bar B having longitudinal slots E, E^1, bolts e, e^1, a downwardly projecting leg b, and overhanging bar r, a pivoted lever C having aperture g provided with a pointer o on one side, and a guard provided with a pointer j on its opposite side, and a connecting rod H to connect the stationary bar with the movable bar, all as set forth. 5th. In a combined in and outside measuring gauge, the combination, with the bar near one end, a Y-shaped fork provided with downwardly projecting legs a, a^1, and overhanging portions R, R^1, and on the other side a sliding bar B provided with two longitudinal slots E, E^1, and downwardly projecting leg b, and two screw-bolts e, e^1 engaging in said slots and being screwed into said bar A, whereby the said bar B is movably secured to said bar A, substantially as and for the purpose stated.

No. 32,958. Rotary Engine. (*Machine rotative.*)

George H. Weston, Boston, Mass., U.S., 2nd December, 1889 ; 5 years.

Claim.—1st. In a rotary engine, the combination, with an abutment or cylinder having a re-entrant portion b, of a piston-valve having an arm to enter the said re-entrant portion of the said cylinder, and a steam-inlet port located so as to be but partially opened when the point of the said re-entrant portion b is brought substantially in contact with the piston and a cut-off mechanism, as and for the purpose specified. 2nd. In a rotary engine, the combination with an abutment or cylinder having a re-entrant portion b, of a hollow piston valve a^6 having a piston b^2 and provided with a port b^3, and an adjustable cut-off mechanism within the said piston or valve, substantially as described, 3rd. In a rotary engine, the combination, with an abutment or cylinder having a re-entrant portion b, of a hollow valve a^6 having a piston b^2 and provided with a port b^3, and a segmental arm b^4, and sleeve b^6 provided with the extension b^5, the said arm and extension being entered into said hollow valve, substantially as described. 4th. The case or frame A having the bearings a^1, a^2 extended into and outside of the said case or frame, combined with the cylinder a^4, and hollow valve a^6 having shafts extended into and supported by said bearings, substantially as described. 5th. In a rotary engine, the combination, with an abutment or cylinder having a re-entrant portion b, of a piston-valve having an arm to enter the said re-entrant portion of the said cylinder to effect a minimum clearance, and an adjustable cut-off mechanism within said piston-valve, substantially as described.

No. 32,959. Evaporator. (*Machine évaporatoire.*)

George E. Wheeler, Chazy, N.Y., U.S., 2nd December, 1889 ; 5 years.

Claim.—1st. The combination of the heating chamber A, the air chambers 7, 7, upon the sides of said heating chamber perforated at their upper ends, the pan 11 within which the liquid is evaporated by the heat from said chamber, and the cover C having its inside surface insulated from external air by an outer protection, as for instance a covering of paper or asbestus, substantially as described and for the purpose specified. 2nd. The combination of the heating device consisting of the heating chamber, and air chambers provided with inlets, as at 9, and discharge orifices 8, the pan 11, and its cover forming a series of evaporating chambers into which the air chambers open, the cover also being provided with a series of discharge orifices

14, the conductor 15 into which said discharge orifices open, and the smoke stack 6, substantially as described and for the purpose specified. 3rd. In an evaporator, the heating device consisting of the air chambers 7, 7, forming the sides of the heater, the ash space under the grating at one end, and the slanting bottom at the rear of said ash space, provided with the bottom air chamber 10 which opens into the side air chambers, substantially as described and for the purpose specified. 4th. The combination of the transverse partitions 13, having the flanges *n* at their upper edges, with longitudinal connections for said partitions and the doors *d*, the side edges of which doors close upon said flanges, substantially as described and for the purpose specified. 5th. The herein described cover for an evaporating pan having a series of connected partitions or diaphragms extending downwardly below its rim, and separate doors for the chambers between said partitions, substantially as described and for the purpose specified. 6th. An improved frame for the cover of an evaporating pan, which consists of the ridge-piece *a*, partitions or diaphragms 13 secured thereto, and the rods *c*, *c*, combined substantially as described and for the purpose specified. 7th. In an evaporator cover, the ridge piece *a*, the doors *d* hinged thereto, and having the flange *o* to shut under the edge of said ridge-piece, substantially as described and for the purpose specified.

No. 32,960. Drawing Roll for Drawing Heads and Spinning Frames.

(Cylindre étireur pour les bancs d'étirage et les machines à filer.)

Joseph M. Dunham and John McKemmie, Holyoke, Mass., U.S., 2nd December, 1889; 5 years.

Claim.—1st. A pair of drawing rolls for fibrous materials having longitudinal ribs and grooves normally interlocking with each other during their rotation, combined with bearings for one of said rolls, whereby the axes thereof are held at such degree of separation that the edges of the ribs of one roll have no contact with the bottom of the grooves of the opposite roll, substantially as set forth. 2nd. A pair of ribbed and grooved drawing rolls for fibrous materials normally interlocking with each other during their rotation, combined with interchangeable bearings for one of said rolls, whereby the axes thereof are held at varying degrees of separation, substantially as set forth. 3rd. A pair of drawing rolls for fibrous materials, having longitudinal ribs and grooves normally interlocking with each other during their rotation, combined with circular collars, substantially as described, secured on the ends of one of said rolls, whose peripheries engage with the opposite roll, whereby the edges of the ribs of one roll have no contact with the bottom of the grooves of the opposite roll, substantially as set forth.

No. 32,961. Ledger Index Device.

(Châssis d'index de grand livre.)

Knut Buland, Linn Grove, Iowa, U.S., 2nd December, 1889; 5 years.

Claim.—1st. The within-described ledger index device, consisting of a series of double-faced tablets pivoted one below the other upon the sloping front of an upright frame, and alphabetically marked in the corners of their opposite spaced surfaces, said tablets being also provided with ledger-page spaces to correspond with said alphabetical marks, substantially as specified. 2nd. The combination with the back portion A, of the frame and inclined front portions B thereof, of the double-face tablets C pivoted at their lower ends one below the other to the inclined portion B of the frame, said tablets being intermediately divided on their opposite faces or surfaces transversely of the axial lines of their pivots into separate entry-spaces, and said spaces being differently alphabetically lettered in the upper corners of the opposite sides of the tablets respectively, essentially as shown and described.

No. 32,962. Metallic Railway Tie.

(Traverse métallique de chemin de fer.)

James Francis, Sydney Mines, N.S., 2nd December, 1889; 5 years.

Claim.—1st. The lower part or body of the tie, which is formed of one piece flanged downward on each side with V or semicircular pieces, pressed upwards on inside of rails to receive and hold fast the rails to the proper gauge. 2nd. The end covers or sleeves, with pieces pressed upwards on outside of rails, and bolted or keyed to the body of the tie, for the purpose of having double thickness of material under rails and keep them secure in their place.

No. 32,963. Compound for Cleaning Carpets. (*Composition pour nettoyer les tapis.*)

Robert N. Hyde, Des Moines, Iowa, U.S., 2nd December, 1889; 5 years.

Claim.—A fluid for cleaning carpets and preserving them from moth, consisting of water, borax, soap, ammonia, bay rum, oil of sassafras, and alcohol, in the proportions stated.

No. 32,964. Potato Scoop. (*Pelle à patates.*)

Joseph Vowles, Milford, Mich., U.S., 2nd December, 1889: 5 years.

Claim.—1st. A scoop, consisting of tines united at the scooping edge and extending back to the heel, and a cross bar or bars made integral therewith between the said edge and heel, substantially as and for the purposes described. 2nd. A scoop, consisting of tines, united at the scooping edge and extending back to the heel, and a cross-bar integral therewith extending across the intermediate tines near the point where they curve upward, substantially as described. 3rd. A scoop, consisting of a malleable iron coating, and having tines united across the scooping edge extending back to the heel of the scoop, and a cross-bar B cast integral therewith and extending across the tines, along the curved portion, near the heel, substantially as described.

No. 32,965. Process for the Removal and Prevention of Scales in Steam Boilers. (*Procédé pour enlever et empêcher les incrustations des chaudières à vapeur.*)

Richard H. Cooper, Omaha, Neb., U.S., 2nd December, 1889; 5 years.

Claim.—The herein described process of using a saturated water solution of the fluid extract of oak bark or the wood thereof, of the bark or wood separately for the purpose of removing and preventing the formation of scales in steam boilers, substantially as described.

No. 32,966. Combined Binding Post and Thermal Cut-Out. (*Poteau et interrupteur thermal combinés.*)

Howard C. Root and John C. Reilly, Brooklyn, N. Y., U. S., 2nd December, 1889; 5 years.

Claim.—1st. The combined connector and safety catch, comprising two metallic binding posts, insulated from each other, but rigidly in line, a non-conducting fuse carrier having metal tips connected by a fusible strip and held between said posts by a spring at one end, and at the other by a removable abutment screw passing through one of said posts in line with the fuse carrier. 2nd. The combined connector and safety catch, comprising a sleeve of insulating material interposed between two metal binding posts, and forming a rigid structure therewith, a metal spring in contact with one binding post, a removable abutment projecting from the other, and a non-conducting fuse carrier having metal tips connected by a fusible strip placed between said spring and abutment. 3rd. The combined binding post and safety catch, comprising, in combination, the shank 1, provided with clamping devices, spring 11, tubular nipple 9, insulated fuse 16, screw cap 17 and pressure screw 18 adapted to force the fuse 16 against the spring 11 and compress the latter, said shank 1 and nipple 9 being held in fixed position in a solid insulating material.

No. 32,967. Steam Engine Governor.

(Gouverneur de machine à vapeur.)

John W. Brown and William W. Sutcliffe, New Orleans, La., U.S., 2nd December, 1889; 5 years.

Claim.—1st. In a steam governor, the combination, with the wheel chamber having the passage P^1 and the wall therein, having the obliquely directed apertures P, of the wheel having blades Q, and a rotative tube connected with the governor balls and secured to the wheel, and the valve stem also connected with one of the movable heads of the governor balls, and carrying a valve at its lower end within the chamber A, substantially as specified. 2nd. In a steam governor, the combination, with the chamber A, of the wheel chamber, having a wall therein forming a passage P^1 and provided with the obliquely directed apertures P, the wheel arranged in said chamber, the vertical tube secured to the wheel, the spiral spring surrounding the tube, the governor balls secured to heads arranged on the tube, the upper head having the yoke, as shown, the sleeve arranged in the yoke, the valve stem externally threaded and secured to the sleeve, and the nut arranged on the upper end of the sleeve, and the nut arranged on the upper end of the valve stem, substantially as specified.

No. 32,968. Water Heater. (*Calorifère à eau.*)

James Pullen (assignee of George Wells), Montreal, Que., 2nd December, 1889; 5 years.

Claim—1st. The combination, in a water heater, of the fire-pot or furnace having ports 2, with vertical sections *f* and *g* and water-top 6, constructed and arranged substantially as described. 2nd. The combination, in a water-heater, of the fire-pot or furnace having ports 2, with vertical sections *f* and *g*, and water-top 6, having ports 15 and damper 20, the whole substantially as described. 3rd. The combination, in a water heater, of the fire-pot or furnace *a*, having ports 2 with sections *f* and *g* having throats 5 and 9, and air space *k*, with the water-top 6, having ports 15 and damper 20, the whole substantially as and for the purposes set forth.

No. 32,969. Centrifugal Machine for Separating Cream from Milk. (*Machine centrifuge pour séparer la crême du lait.*)

John Laidlaw (co-inventor with James W. Macfarlane), Glasgow, Scotland, 2nd December, 1889; 5 years.

Claim.—1st. In centrifugal machines for separating cream from milk, the construction of the drum in three parts, namely, the upper conical part A, the lower part B and the diaphragm C, D, secured together and connected to the shaft by means of the boss D, substantially as described and shown in the drawings. 2nd. The distributing cup F, constructed so as to prevent the passage of air along with the milk into the separating chamber, substantially as described and illustrated in Figs. 1 and 2. 3rd. The discharge guides for the cream, constructed with a vertical or slightly inclined channel, along which the cream flows to the discharge orifice, substantially as described and shown on the annexed drawings. 4th. The annular collecting chamber T on the underside of the drum, into which the separated liquid passes, and from which it can be drawn off by means of a bent tube or its equivalent, substantially as described and shown on the annexed drawings. 5th. The combination of the spindle E, having pinion u^5, the sleeve *u* having arm u^1, the gear wheel u^4 carried by the arm, the fixed circular rack u^3, the bevel pinion S^2 on the sleeve and the shaft having bevel gear-wheel S^1, substantially as described. 6th. The combination of the spindle E, having pinion u^5, the sleeve *u* having arm u^1, the pinion u^2 and gear wheel u^4 carried by the arm, the fixed circular rack u^3, the bevel pinion S^2 on the sleeve and the shaft, having bevel gear wheel S^1, substantially as described.

No. 32,970. Machine for Grinding Mower Knives. (*Machine à aiguiser les couteaux des faucheuses*

The Mower Knife Grinder Company, Yonkers (assignee of Rufus Dutton, New York), N.Y., U.S., 2nd December, 1889 ; 15 years.

Claim—1st. In a mower knife grinding machine, the combination, substantially as hereinbefore described, of a flat faced grinding wheel, a knife clamp frame and a grinding wheel frame, said frames being pivotally coupled with relation to each other to provide for lateral swinging adjustment, and said grinding wheel frame being composed of two parts, one serving as an arm in which the wheel is mounted, and sliding in said other part or base portion of said frame, a driving crank mounted on a pivot on said arm portion of the frame at right angles to the axis of the grinding wheel, and gearing also mounted on said arm portion of the frame for rotatively coupling said crank with the grinding wheel. 2nd. In a mower knife grinding machine, a flat faced grinding wheel, a pivoted knife clamp normally inclined toward the grinding face of said wheel, a spring forcing said clamp toward the grinding surface, and a sliding frame carrying said wheel and mounted in guide bearings, which are inclined toward said knife clamp, substantially as described, whereby, as the grinding wheel is lifted by the sliding movement of its frame, it will also be advanced toward a knife held in said clamp, and, by forcing the latter rearward, increase the force of said spring, and thus enable the tips of a knife edge to be ground under abrasive pressure equal to that afforded while grinding the lower portion of the same edge. 3rd. In a mower knife grinding machine, the combination, substantially as described, of a knife clamp, its frame, a flat faced grinding wheel and its frame, the latter being constructed in two parts, one sliding upon the other, a driving crank standing at right angles to the axis of the grinding wheel and coupled to said wheel by gearing, and a lever for lifting and lowering that portion of the wheel frame in which said grinding wheel is directly mounted. 4th. In a mower knife grinding machine, the combination of a knife clamp and a flat faced grinding wheel both mounted in frames, which are pivotally connected to admit of lateral swinging adjustment, stops for restricting said pivotal movement and latches which confine or lock said stops when in position for service, substantially as described. 5th. In a mower knife grinding machine, the combination, with the grinding wheel, of a detachable wheel frame arm in which said wheel is mounted, a band crank standing at right angles to the axis of the wheel and mounted on a stud projecting from said frame at the rear of said wheel, and gearing also mounted on studs projecting from said frame for coupling the crank with the grinding wheel, substantially as described. 6th. The combination, substantially as described, of the knife clamp, the grinding wheel, the sliding wheel frame arm provided with a tail piece having a rack gear thereon, and a hand lever having a segmental gear engaging with said rack gear for lifting and lowering said grinding wheel while its face is in contact with a mower knife held in said clamp. 7th. The combination of the wheel, of the wheel frame arm having a flat tail piece, provided with a central spline or web, and the wheel frame base provided with a central vertical groove for receiving said web, and also provided with guide bearings for receiving the two edges of said tail piece, substantially as described.

No. 32,971. Hot Air Furnace.

(*Calorifère à air.*)

The James Smart Manufacturing Company, Brockville, Ont. (assignee of William M. Powell, Brockville, Ont., and Joseph L. Gobeille, Cleveland, Ohio, U.S.), 2nd December, 1889; 5 years.

Claim.—A hot air furnace, having a fire pot 1 and dome 8, provided with convergingly arranged corrugations and caps 14 forming tubes, annular ring 16, vertical tubes 17, plate 10 and the mixing chamber 11, jacket 6 and distributing pipes 7, the whole constructed and arranged substantially as and for the purpose set forth.

No. 32,972. Pipe Coupling. (*Joint de tuyau.*)

Frederick G. Botsford, Cleveland, Ohio, U.S., 2nd December, 1889 ; 5 years.

Claim.—1st. The combination, with two adjacent pipes, provided at their ends with heads or collars, of a pair of links g pivoted at their inner ends to the head of one of said pipes, a pivoted yoke or cross-bar i arranged between the outer ends of said links and provided with a screw-threaded opening, a locking lever I provided with a screw-threaded shank arranged in said threaded opening, and a bearing piece i^3 attached to the inner end of said lever, and adapted to engage behind a lug on the head of the opposing pipe, substantially as set forth. 2nd. In a pipe coupling, the combination, with the heads a, each provided with a lug j and a lug h arranged diametrically opposite each other, of springs l secured to the lugs j, links g pivoted at their inner ends to the lugs h, and locking levers T pivoted to the outer ends of the links and adapted to engage over the lugs j and bear against the springs l, substantially as set forth.

No. 32,973. Composition of Matter to be used in the Manufacture of Medallions, etc. (*Composition de matières pour servir à la fabrication des médaillons, etc.*)

Charles F. Broadbent, Baltimore, Md., U. S., 2nd December, 1889; 5 years.

Claim.—A new composition of matter, which consists of sulphur pumice stone, powdered antimony and bone black, all combined substantially in the proportions set forth.

No. 32,974. Process and Apparatus for Heating Tan Liquor. (*Procédé de réchauffage du tanin et appareil pour cet objet.*)

Oliver F. Carley, Westfield, Penn., U.S., 2nd December, 1889; 5 years.

Claim.—1st. The above described process of heating tan liquor, which consists in passing it in a sinuous flow over the surface of steam pipes in a direction opposite to that of the movement of the steam within the pipes, whereby the advancing liquor is subjected to a gradually increasing temperature, substantially as described. 2nd. The above described process of heating tan liquor, which consists in pumping it upward through a series of zig-zag or sinuous passages through which steam is circulating in pipes in a direction contrary to that of the direction of the liquor, substantially as described. 3rd. A tank for heating tan liquor provided with a zig-zag passage for the liquor, and a zig-zag steam heating coil within the liquor passage, substantially as and for the purposes set forth. 4th. In combination with the tank A, having partitions B to afford a zig-zag passage throughout it, the zig-zag steam pipes or coils E, the inlet F, the connection e, the pump C for forcing the liquor through the tank and steam or water outlet f, all as set forth. 5th. In combination, with the tank A, made as described and having zig-zag passages for the tan liquor and steam, a gate G for letting off the liquor when desired. 6th. In a tan liquor heating tank, as described, the end pieces a^1, each provided with doors a^6, substantially as and for the purposes described, whereby at pleasure a door can be removed or opened when it is desired to inspect any one of the steam coils. 7th. In a tank for heating tan liquor, the end pieces a^1 and rods a^5 for holding them in position, whereby when occasion requires, the said pieces, or either of them, can be removed and access had to the entire inner part of the tank, substantially as set forth. 8th. An apparatus for heating tan liquor provided with means for forcing the liquor through it, and means for treating the liquor by steam, the combinations of the forcing or pumping mechanism with the heating system in the manner set forth and described, whereby the liquor escapes from the tank at its highest temperature. 9th. In combination, with the tan liquuor heating tank A, the steam coils E, each having at the joints the ends e^1 united, as described, by rod e^2 and nuts, substantially as set forth. 10th. In an apparatus for heating tan liquor, the combination of the following elements, viz: a knock-down tank having zig-zag passages for the liquor, zig-zag heatiug pipes in said passages, means for forcing the liquor through the tank doors by which each coil can be inspected, removable end pieces by which the entire interior of the tank can be inspected, and a gate to draw off the liquor as occasion demands. 11th. In an apparatus substantially as described, the combination of the steam pipe or coil having a projecting lug e^4 at each bend or joint, as set forth, with the partition B, whereby the coil or pipe is supported in the manner and for the purposes explained.

No. 32,975. Telegraphic Instrument.

(*Appareil télégraphique.*)

Charles G. Burke, Richmond Hill, N.Y., U.S., 2nd December, 1889; 5 years.

Claim.—1st. In a circuit closing device, the combination of a main arm, and two auxiliary arms frictionally attached thereto, said auxiliary arms carrying circuit-closing points which are caused to simultaneously approach or separate from each other by the motion of the main arm. 2nd. In a telegraphic instrument, the combination of a coreless coil of insulated wire in the main circuit arranged to turn upon one of its diameters within a field of force created by opposite magnetic poles, both of said poles being presented to one of the faces of said coil, the section of the coil presented to one pole having its windings in a direction opposite to those of the section presented to the other pole. 3rd. In a telegraphic instrument, the combination of a coreless coil of insulated wire movable within a field of force created by two magnets, one located on each side of said coil, each presenting both its poles to one of the respective faces of said coil, the section of the coil presented to one pole of each magnet having its windings in a direction opposite to those of the section presented to the other pole of the same magnet. 4th. In a telegraphic instrument, a coreless compound coil composed of two parts movable in a field of force created by two magnets, opposite poles being presented to the same face of each one of said parts, the section of the coil presented to one pole of each magnet having its windings in a direction opposite to those of the section presented to the other pole of the same magnet. 5th. In a telegraphic instrument, a coreless coil of insulated wire arranged to turn upon one of its diameters within a field of force created by two magnets, each presenting opposite poles to the respective faces of said coil, the angular position of the poles of said magnets with reference to the coil being adjustable, the section of the coil presented to one pole of each magnet having its windings in a direction opposite to those of the section presented to the other pole of the same magnet. 6th. In a telegraphic instrument, a cylindrical coil of insulated wire forming part of the main circuit and suspended within a field of force formed by one or more magnets, both poles of the same magnet being presented to the same side of the coil. 7th. In a telegraphic instrument, a coil of insulated wire forming part of the main circuit suspended within a field of force formed by one or more magnents, and a local circuit-closing device consisting of an arm attached to the axis of the coil, moving with said coil between stops carried by a second arm turning upon an axis coincident with the axis of the coil. 8th. In a telegraphic instrument, a flat coil of insulated wire wound in two parts separated from each other, and fixed on each side of a common centre movable in a field of force created by two magnets, each magnet presenting its opposite poles to the outer face of one of the parts of said coil, said magnets being fixed so that the faces of the poles of one magnet are not parallel to the faces of the poles of the other.

No. 32,976. Cash Carrier Apparatus.

(Chien de magasin.)

Frederick J. H. Hazard, Toronto, Ont., 2nd December, 1889; 5 years.

Claim.—1st. The pivoted levers A connected together by the wires or cords C, D, on one of which the carriage H is supported, in combination with means for rocking the levers A on their pivots and locking them at any desired angle, substantially as and for the purpose specified. 2nd. The pivoted levers A connected together by the wires or cords C, D, on one of which the carriage H is supported, in combination, with the spring latch E, provided with a cord F, connected to the lever or levers A, and designed to engage with the latch-holder G, substantially as and for the purpose specified. 3rd. The pivoted levers A connected together by the wires or cords C, D, on one of which the carriage H is supported, the hooked fingers T connected to the levers A and designed to engage with the pin U projecting from the carriage H, in combination with means for rocking the levers A on their pivots and locking them at any desired angle, substantially as and for the purpose specified. 4th. The basket-hook J pivoted on the carriage H, and actuated by the torsion spring K, the bail of the basket L, in combination with the elevator M provided with a finger S, and slidingly connected to the vertical standard N and operated by the cord Q, substantially as and for the purpose specified. 5th. An elevator M, provided with a projecting finger S to carry the basket L to and from the carrier, substantially as and for the purpose specified. 6th. A basket L having a bail formed by the handles *a*, *b* and *c* connected together by a plate *d*, substantially as and for the purpose specified.

No. 32,977. Knitting Machine.

(Machine à tricoter.)

Edward Murby, Detroit, Mich., U.S., 2nd December, 1889; 5 years.

Claim.—1st. The combination of a vibratory yarn-guide, a looper attachment comprising a stationary cam-grooved plate, and a rotatable disk provided with a series of radiating points or fingers, having heels that engage the cam-groove, and a central stem on which said guide and looper attachment are located, substantially as described. 2nd. The combination, with the central stem F, and a vibratory yarn-guide swivelled about said stem, of a looper attachment supported on said stem and comprising a stationary cam-plate, provided with a cam-groove, a rotatable radially-grooved disk and a series of radiating points or fingers having heels that engage the cam-groove, substantially as described. 3rd. The combination, with a centrally supported looper attachment comprising a stationary cam-grooved plate, a rotatably disk and a series of radiating points, of fingers carried by said disk, and having heels that engage the cam-groove, of a yarn-guide provided with a guide-point, means for adjusting said point in a vertical direction, and means for adjusting it in a direction toward and from the centre of motion of the looper attachment, substantially as described. 4th. The combination, with a looper attachment, comprising a stationary cam-grooved plate, and a rotatable disk having a series of radiating points of fingers engaged with the cam-groove, a vibratory yarn-guide, and the central stem on which said guide and looper attachment are located, of a collar surrounding said stem and provided with stops to limit the vibration of said guide, substantially as described. 5th. The combination, with a looper attachment comprising a stationary cam-grooved plate, a rotatable disk, and a series of radiating points or fingers engaged with the cam-groove, of a vibratory yarn-guide and a take-up device, substantially as described. 6th. The combination, with the central stem F, and a vibratory yarn-guide located on said stem, of a binding device to hold said guide in any required position, substantially as described. 7th. The combination, with the stem F, of a vibratory guide engaged thereon, said guide comprising an arm *k*, an arm k^2, and adjustably mounted on the arm *k* by set-screws, and the point k^4 adjustably engaged upon the arm k^2 by a set-screw, substantially as described. 8th. The combination, with the needles, and a stationary yarn-guide E for feeding yarn to the needles, of a centrally supported looper attachment comprising a stationary cam-grooved plate, a rotatable disk and a series of radiating points or fingers carried by said disk and having heels that engage the cam-groove, and an independent vibratory yarn-guide K for feeding a separate looping-yarn to the needle, substantially as described.

No. 32,978. Looping Attachment for Knitting Machines. *(Machine à tricoter.)*

Edward Murby, Detroit, Mich., U.S., 2nd December, 1889; 5 years.

Claim.—1st. In a looping attachment for knitting machines, the combination, with the needles, the needle-cylinder, and means for operating the needles and cylinder, of a conically-shaped plate supported within said needle-cylinder, and adapted to be revolved therewith, a series of points supported by said cone-plate, and means for projecting the points upward in a diagonal direction when desired, substantially as described. 2nd. In a looping attachment for a knitting machine, the combination, with the needles, the needle-cylinder, and means for operating the needles and cylinder, of a cone-plate supported within the needle-cylinder and adapted to be revolved therewith, a series of points supported by said cone-plate, and a cam-groove in which the heels of the points are engaged for projecting the points upward in a diagonal direction, substantially as described. 3rd. In a looping attachment for a knitting machine, the combination, of the needle-cylinder, the needles, a cone-plate supported within the needle-cylinder and adapted to be revolved therewith, a series of points supported by said cone-plate, a cone-cam having the grooves *g* and g^1, a standard having an arm for supporting the stem of the looping attachment, and a weight supported on the upper end of said stem to hold the looping mechanism down to its work, substantially as described.

No. 32,979. Photographic Vignetter.

(Appareil photographique à vignettes.)

Aaron W. Clark, St. Louis, Mo., U.S., 2nd December, 1889; 5 years.

Claim.—1st. In combination, with a camera, the herein-described photographic vignetter, the same consisting of the two masks and their support, said support having an opening opposite the lens, said masks being independently adjustable vertically and laterally upon said support, and one of said masks consisting of a transparent plate having an opaque vignette arranged centrally thereupon, and the other of said masks being opaque and having a serrated edge, substantially as and for the purpose set forth. 2nd. The combination of the two masks and their support, said support having an opening l^2, said masks being independently adjustable upon said support, and one of said masks consisting of a transparent plate having an opaque vignetter, and the other of said masks being opaque and having a serrated edge, substantially as described.

No. 32,980. Shingle Binding Loop.

(Châssis d'empaquetage du bardeau.)

George H. Waring, Jr., Milford, N. B., 2nd December, 1889; 5 years.

Claim.—The combination of the endless metallic loop A, with the binders B, substantially as herein shown and described.

No. 32,981. Culvert for the Passage of Water.

(Ponceau.)

William D. Harris, Ottawa, Ont., 2nd December, 1889; 5 years.

Claim.—1st. A culvert constructed or consisting of a number of vertical sections, each of which is complete in itself, and is composed of vertical sides and inclined roof either of wood or of metal, placed side by side and forming in the aggregate a tube, substantially as and for the purpose herein before set forth. 2nd. The novel construction thus secured of a culvert flexible at all points and in all directions.

No. 32,982. Grass Harvesting Machine.

(Machine à moissonner l'herbe.)

The William N. Whitely Company, (assignee of William N. Whitely), Springfield, Ohio, U. S., 2nd December, 1889; 5 years.

Claim—1st. In a tubular frame harvesting machine supporting the three shafts in tubular bearings, two of the bearings being cast solidly together, the third, which supports the crank or fly wheel shaft, having one end securely fixed to the main tube and braced therefrom, its forward end supporting the crank or fly wheel and the end of the main brace to the cutting apparatus, substantially as shown and described. 2nd. In a harvesting machine carrying a part or all the weight of the cutting apparatus on the frame or pole by means of two springs, one of which is attached to the brace or supporting bar near its connection to the fly wheel shaft bearing, and the other acting upon the inner end of said finger bar through the medium of a spring bolt arranged in the coupling frame and operated upon by the lifting lever, substantially as shown. 3rd. In a harvesting machine, lifting the outer end of the cutting apparatus from the ground by means of a main lever, which first operates an intermediate lever pivoted to the coupling frame that acts upon a spring bolt arranged in the coupling frame, thereby causing the outer end of the cutting apparatus to rise before the inner end after which the entire cutting apparatus is lifted bodily from the ground, substantially as shown and described. 4th. In a harvesting machine, the combined tubular bracket for connecting the cutting apparatus to the brace bar, the forward and rearward tubular projections fitted to the front and rear portions of the inner shoe, the other surrounding a portion of the brace bar making a light and strong connection between it and the cutting apparatus, substantially as shown. 5th. In a grass harvesting machine, arranging a pocket in the tubular bracket attached to the brace bar for the spring bolt, which acts to hold the outer weight of the cutting apparatus from the ground by making the joint at the inner end of the cutting bar nearly rigid, but, at the same time, sufficiently elastic to permit the cutting apparatus to follow the undulations of the ground, substantially as shown. 6th. In a harvesting machine, lifting the outer end of the cutting apparatus from the ground by means of a main lever, which first operates upon an intermediate lever pivoted to the coupling bar, and bearing upon the inner end of the finger bar, thus causing the outer end of the cutting apparatus to rise before the inner end after which the whole may be bodily lifted from the ground. 7th. In a harvesting machine, the tubular bracket or coupling frame for connecting the cutting apparatus to the brace bar, having forward and rearward tubular projections adapted to receive the corresponding front and rear portion of the inner shoe, and a tubular part to receive the brace bar making a light and strong connection between the brace bar and cutting apparatus, substantially as shown. 8th. In a harvesting machine, constructing the main frame tubular in all its parts for sustaining the shafting which through the gearing attached communicates motion from the drive wheels to the knife, the drive wheels being arranged at either end of the main shaft, the second shaft parallel with the main shaft having a gear wheel on each end, the third shaft at right angles to the main shaft with a gear wheel on one end and a crank or fly wheel on the other, all located outside of the tubular frame, bearings for the purpose of giving strength and lightness to the machine, and to preserve the perfect alignment of all parts, so the shafts may run free being at the same time self contained for supporting all the gear shafting of the machine. 9th. In a harvesting machine, wherein the gearing may be disconnected when the cutter bar is elevated, and again connected when the bar is restored to its working position, whereby the operator may raise and lower the cutter bar at will, to pass obstructions, in combination

with the foot lever, arranged and operated as shown and described. 10th. In a harvesting machine, the cover or shield fixedly attached to the bracket, in combination with the inner shoe of a cutting apparatus, said shield extending over and downward to protect the front end of said shoe when the machine is in operation, said shield projecting over and below the point of said shoe and not interfering at all with the movement of the shoe, but leaving the cutting apparatus free to follow the undulations of the ground or to be folded independent of the said shield, substantially as shown and described.

No. 32,983. Grain Harvesting and Binding Machine. (*Moissonneuse-lieuse à grain.*)

The William N. Whitely Company, (assignee of William N. Whitely), Springfield, Ohio, U.S., 2nd December, 1889; 5 years.

Claim.—1st. A harvester having an upper and lower elevator belt, in combination with the grain guide in rear of the elevator belts, said elevator belts being operated by a chain exposed to assist the elevating apparatus in carrying the grain in its upward flow to the binder, substantially as described. 2nd. A harvester wherein the driver's seat and upper elevator belt are firmly attached to the seat support, in combination with a post connected to the lower rear side of the main frame of the machine, thereby leaving a sufficiently open unobstructed space to admit of the free passage of long grain, etc., substantially as shown and described. 3rd. In a grain harvesting machine wherein the elevators are driven by an endless chain, in combination with a single post located within the pathway of said chain, its lower end attached to the rear side of the main frame of said harvester, its upper end to the rear of the driver's seat support, substantially as described. 4th. The main frame of a harvesting machine, and the finger beam of its cutting apparatus, in combination with a bracket which connects the two main frame pieces together at the forward part of the machine, the finger beam being connected to said bracket at a point lower than the main frame, substantially as shown and described. 5th. In a grain harvesting machine wherein the main shoe of the cutting apparatus is supported in front of the finger beam and above the knife heel, in combination with a brace fixedly connected to the finger beam, and extended over and in front of the knife and rigidly connected to the main shoe, thereby firmly attaching said shoe to the finger beam, substantially as described. 6th. In a grain harvesting machine wherein the finger beam and platform are rigidly connected together, in combination with means to support the said platform which is attached to the upper edge of said finger beam, and to the rear portion of the platform, said means of support being located inside the carrying belt, and between the elevator rollers, thus forming a brace and tie which more firmly connect the platform and finger beam together, substantially as described. 7th. In a grain harvesting machine wherein the rear end of the fly wheel shaft is supported outside of its pinion, in combination with a support connected to a portion of the main frame, or some fixed part thereof, thereby preventing the crowding of the pinion from its driving gear, and better resisting the pull of the chain which runs the elevators, substantially as described. 8th. A grain harvesting machine wherein the master wheel pinion is located on a shaft in rear of said master wheel, and upon the two side rails of the frame, in combination with oscillating boxes, thereby relieving said shaft from the torsion and twist of the frame, substantially as shown and described. 9th. In a grain harvesting machine, wherein the elevator is made open, giving permanent support to the front of said elevating mechanism, by means of a brace extending from the rear portion of the frame to the front post supporting the elevator, in combination with the reel post connected to the shoe of the finger beam, said two posts being connected and braced so as to form a lateral support truss-shaped for the front of the elevating apparatus also braced endwise to the rear of the main frame of the machine, substantially as shown and described. 10th. In a grain harvesting machine, the combination of the divider and finger beam, with a combined fender and brace fitted over the point of the outer guard, its rear end fixedly attached to the finger beam, and extending outward laterally, thus forming a protection for the knife during its stroke, also extending forward and upward and rigidly attached to the divider, thereby giving it strength and acting to separate the cut from the uncut grain, substantially as shown and described. 11th. A harvesting machine having a double belt elevator open at its rear end, in combination with an inverted V-shaped frame connected to the rear of the main frame, or some fixed part thereof, and a brace extending from upper end of inverted V-frame to the outer rear corner of the main frame, or some fixed part thereof, the rear belt guide of the lower elevator being a part of the inverted V-shaped frame, all of which firmly support the rear elevating mechanism, substantially as shown and described. 12th. A grain harvesting machine having an open end double elevator wherein the upper belt is narrower than the lower one, in combination with the rear support of the upper belt which is sustained in its proper position through the medium of the driver's seat support, substantially as shown and described. 13th. A grain harvesting machine wherein the height of the cut on the grain wheel side is changed by means of a crank axle plate and screw connected therewith, and pivoted to the rear end of the divider sill or platform, and the height of the master wheel axle is changed by means of the cranked ends of said axle being pivoted to the main frame on each side thereof, in combination with a screw rod fixedly connected to the main frame, its outer end formed to fit a crank, thereby providing means to raise or lower either end of the cutters independently, substantially as shown and described. 14th. A grain binding harvesting machine, in combination with a tubular piece attached to the main frame or some fixed portion thereof, said piece supporting a portion of the elevator and binder shifting mechanism, substantially as shown and described. 15th. In a grain binding harvesting machine, a support for the binding machine attached to the front outer corner of the main frame of the harvester, in combination with a bace rod extending across the front of the machine to the elevator frame, or some fixed portion thereof, thereby forming a truss to securely carry the weight of the binding attachment but does not interfere with its backward and forward movement, substantially as described. 16th. A grain binder and harvesting machine wherein the binder is movable backwards and forwards, in combination with a crank, a pair of bevel gears, and a spur pinion which acts with the rack to move the binder either backward or forward, and so constructed and arranged as to operate jointly, substantially as shown and described. 17th. A grain binder and harvesting machine having a reel, butter, relief, rake and elevator chain, in combination with the two shafts attached to the front end of the machine, one of which receives its motion from the upper roller shaft of the lower elevator which also communicates motion to the upper elevator also to the butter and to the horizontal shaft, which in turn communicates motion to the reel and relief rake, substantially as and for the purposes shown and described. 18th. A harvesting machine having an open end double canvas elevator, wherein the binding machine is driven direct by the endless driving chain, which derives motion from the driving sprocket wheel located on the fly wheel shaft, which is supported on the main frame of the harvester, said chain running around the curved support of the driver's seat board, in combination with the horizontal carrying and elevator belts, the carrying and lower elevator belts being driven direct by the chain, the upper elevator belt is driven through the medium of gears arranged at the front end of the machine, the chain driving the sprocket wheel operating the binding machine, substantially in the manner and for the purposes shown and described. 19th. A harvesting machine wherein the underside of the upper end of the lower elevator frame is braced and held the proper distance apart by means of a rod or tubular piece, in combination with a binding machine which is supported at its upper end by said rod, said binding machine is loosely attached to said rod to permit it to freely slide along in its forward and aft movement, substantially as shown and described. 20th. In a grain harvesting machine having an open end elevator, the combination of the binder shifting mechanism located at the rear upper corner of the machine within reach of the driver and below the pathway of the grain as it is elevated into the binder receptable, substantially as shown and described. 21st. A grain harvesting machine, in combination with a grain binder and grain deflector which connects the front and rear upper ends of the upper elevator together, the deflector acting in a double capacity holds the upper end of the belt guides of the elevator at the proper distance apart, and at the same time it guides and directs the grain into the binder receptacle, substantially as shown and described. 22nd. A grain binding machine having a hinged grain separator attached to the binding mechanism, and hanging down loosely while the gavel is being bound, in combination with a rotary ejector attached to the knotter shaft or knotter wheel, the point of which when it rotates, coming in contact with the swinging grain separator, thereby pressing the unbound grain back in the binder receptacle, and clearing the pathway of the ejector, as it rotates, to eject the bound gavel, thereby positively preventing its entanglement with the unbound grain, substantially as shown and described.

No. 32,984. Air Brake. (*Frein atmosphérique.*)

The Lansberg Brake Company (assignee of Frank Lansberg), St. Louis, Mo., U.S., 2nd December, 1889; 5 years.

Claim—In an air-brake, the combination, with the train pipe 1 and receiver 3, of independent cylinders provided with pistons having rods located at each end of said receiver, the pipe 4 provided with valves connected to pipe 1 and receiver 3, the pipes 10, each having a valve 12 connected with pipe 4 and each of the cylinders and the pipes 11, each having a valve 13 communicating with pipe 1 and each of the cylinders, whereby said cylinders may be supplied from the receiver, or from both the receiver and train pipe, or from the train pipe alone, or either cylinder may be supplied from the train pipe independently of the other cylinder and receiver, as set forth.

No. 32,985. Apparatus for Smoking Meats. (*Appareil à fumer les viandes.*)

Isaac C. Copeland, Boston (assignee of Benjamin J. Downs, West Somerville), Mass., U.S., 2nd December, 1889; 5 years.

Claim.—1st. In an apparatus for smoking meats, the furnace or heater E having smoke pipe I and damper J therein, in combination with the perforated section L for emitting smoke within the chamber, and the sleeve or slide M for controlling the same, and with the external operating means, substantially as and for the purpose set forth. 2nd. In an apparatus for smoking meats, the combination, with the chamber and the smoke-emitting furnace therein, of a movable device for support of a sample of meat under treatment, such device being adapted to expose the meat sample and to close the aperture through the wall, substantially as and for the purpose set forth.

No. 32,986. Pressure Regulating Valve and Governor. (*Soupape et gouverneur pour régler la pression.*)

John M. Foster, New York, N.Y., U.S., 2nd December, 1889; 5 years.

Claim.—1st. The combination of a regulating valve and casing carrying a diaphragm open to the fluid pressure, with a valve spindle passing through and adjustable in the diaphragm, and a spiral spring around the valve stem which has an operating handle outside the diaphragm, all substantially as described. 2nd. The combination of a regulating valve and casing carrying a diaphragm open to the fluid pressure, with a threaded stuffing box connected to the diaphragm, a spiral spring around the valve stem to oppose the fluid pressure, and a threaded valve stem passing through the stuffing box and having an operating handle. 3rd. The combination of a regulating valve and a casing carrying a diaphragm open to the fluid pressure, with a threaded stuffing box connected to the diaphragm, a threaded valve stem adapted to the said stuffing box, and a spiral spring around the valve stem to oppose the pressure on the diaphragm. 4th. The combination of a regulating valve and casing carrying a diaphragm open to the fluid pressure, with a threaded valve stem passing through

and adjustable in the diaphragm, and a spring to oppose the fluid pressure on the diaphragm, and bearing on a nut or collar not free to turn with the stem, but free to move longitudinally therewith, all substantially as described. 5th. The combination of a regulating valve and casing carrying a diaphragm open to the fluid pressure, and a stuffing box carried by, but detachable from, the diaphragm, with a threaded valve stem adapted to the said stuffing box, and a spring bearing on a nut or collar free to move longitudinally with the stem, but not free to turn therewith, all substantially as described. 6th. The combination of a regulating valve and casing carrying a diaphragm open to the fluid pressure, and a stuffing box adjustably clamped to the diaphragm, with a threaded valve stem adapted to the stuffing box and a spring bearing on a nut or collar free to move longitudinally with the stem, but not free to turn therewith, all substantially as described. 7th. The combination of a regulating valve and casing, carrying a diaphragm open to the fluid pressure, with a valve stem carried by the diaphragm and having a nut or collar, with a projection or projections to prevent excessive lift of the diaphragm, substantially as described. 8th. The combination of a casing, carrying a diaphragm open to the fluid pressure, and a valve adjustably mounted in the diaphragm with a spring and an adjustable weight to act upon the valve against the said fluid pressure, substantially as described.

No. 32,987. Window Sash Fastener.

(*Arrête-croisée.*)

Kingsforth Graburn, Winnipeg, Man., 2nd December, 1889; 5 years.

Claim.—1st. In a window fastener, the combination of a vertical rod which is attached to the window casing and which fits into a longitudinal perforation in the window sash, a jaw which surrounds said rod and is set in the window sash, a set screw which is mounted in said jaw and which bears against said rod, substantially as described. 2nd. In a window fastener, the combination of a vertical rod which is attached to the window casing and which fits into a longitudinal perforation in the window sash, a jaw which surrounds said rod and is set in the window sash, and a set screw which is mounted in said jaw and bears against said rod, together with a notch cut in said rod at that point where it is seized by the clamp when the window is closed, substantially as described. 3rd. In a window fastener, the combination of a vertical rod attached to the window casing, a jaw which surrounds said rod and is attached to the window sash, a set screw which is mounted in said jaw and bears against said rod together with a notch in said rod at the point opposite the set screw when the window is closed, which notch has a bevelled lip which bears upon the side of the set screw from which the sash should be forced to ensure complete closure of the window, substantially as described.

No. 32,988. Ventilator. (*Ventilateur.*)

Brisbane M. Turnbull, near Scranton, Miss., U. S., 2nd December, 1889; 5 years.

Claim—The car ventilator, consisting of a perforated pipe, extending from end to end of the car, and having a downward imperforated extension at each end thereof, said extensions being each provided with a brush therein, a removable cap at the open end thereof, and a flaring air collector located between the brush and the cap and provided with a screw, substantially as specified.

No. 32,989. Fire Escape. (*Sauveteur d'incendie.*)

Hazen Wood, St. Thomas, Ont., 2nd December, 1889; 5 years.

Claim.—The combination of endless chains or cables B, B, with sprocket wheels A, A and suspended steps or platforms C, C, C, substantially as and for the purpose hereinbefore set forth.

No. 32,990. Land Roller.

(*Rouleau d'agriculture.*)

Edwin C. Derby, Portland, Mich., U.S., 2nd December, 1889; 5 years.

Claim.—In a land roller, of the kind described, hangers C and stop block d^2, in combination with the beam A, tongue B and the bearing boxes d^1, constructed and adapted to operate substantially as and for the purpose set forth.

No. 32,991. Sash Fastener. (*Targette.*)

David Ouellet, Québec, Qué., 2nd December, 1889; 5 years.

Résumé.—1o. La forme de la tige A avec ses extrémitées en manivelles *c*. 2o. La forme des ferrures D, qui reçoivent les dites manivelles *c*, avec leurs coulisses *f* et le pas *e* pratiqué dans la languette d'en avant *h*. pour arrêter ou retenir les manivelles *c* à leur place quand le châssis est fermé. 3o. La manière dont marche la dite targette de droite à gauche ou de gauche à droite, c'est-à-dire, la combinaison avec les ferrures D et les manivelles *c* mises en mouvement par la tige A, au moyen de la poignée *b*, tel que cidessus décrit et pour les fins indiquées.

No. 32,992. Machine for Bolt Threading.

(*Machine à fileter les boulons.*)

James A. Becher, Mishawaka, Ind., U. S., 2nd December, 1889; 5 years.

Claim.—1st. The combination of the base disk, having a sleeve on its rear face, and the adjustable cutter bearing plates on the outer face of said disk, with the block playing on said sleeve, the studs projecting from said plates and the link connections between said studs and the block, whereby the plates are adjustable from the block, substantially as and for the purpose described. 2nd. The combination of the disk, its sleeve and the block and sheave moving freely on said sleeve, with the plates adjustably attached to said disk, the link connections between said plates and the block, whereby the plates are actuated from the block, and the adjustable cutters mounted on said plates, all as and for the purpose described. 3rd. The combination of the slotted disk, its sleeve and the movable block and sheave on said sleeve, with the opposite semi-cylindrical cutter-bearing plates adjustably secured to said disk, the studs on said plates projecting through slots in the disks, and the toggle joint and link connections between said studs and the blocks, all constructed and arranged substantially in the manner and for the purpose described. 4th. The combination of the slotted disk, with the cutter bearing plates mounted thereon by bolts playing through the slots of the disk, the studs projecting centrally from said plates through slots in the disk, and the link connections between said studs, whereby the plates can be approached or separated, all constructed and arranged to operate substantially in the manner and for the purpose described. 5th. The combination of the revoluble slotted disk, its sleeve and the movable block and sheave thereon, with the movable plates secured to the disk by bolts passing through the slots therein, the studs of said plates projecting through the disk, the link connections between said studs and the block, and the removable cutter bearing blocks on said plates, all constructed and arranged to operate substantially as and in the manner and for the purpose described.

No. 32,993. Signal Lantern. (*Lanterne à signaux.*)

George C. Westervelt, Marseilles, Ill., U.S., 3rd December, 1889; 5 years.

Claim.—1st. A lantern provided with screens attached thereto at diametrically opposite points, and constructed to be simultaneously extended around the lantern, substantially as described. 2nd. The combination of the lantern, the casings attached thereto at diametrically opposite points, and the folding screens constructed to be simultaneously extended around the lantern and folded within the casings, substantially as described. 3rd. In combination with a lantern, the rings surrounding the same, and the flexible colored screen running on the rings and constructed to be folded or extended around the lantern, substantially as specified. 4th. The combination, with a lantern of the casing attached thereto, the sliding rings surrounding the lantern, and the flexible screens attached to the rings and adapted to be folded within the casing, substantially as specified. 5th. The combination, with a lantern, of the open-sided casings arranged on opposite sides thereof, the sliding rings surrounding the lantern, the caps attached to the rings and carried thereby, and the flexible screens attached at one edge to the casings and at the other edge to the caps, substantially as and for the purpose specified. 6th. The combination, with a lantern, of the open-sided casings attached thereto, the sliding rings surrounding the lantern, the caps carried by the rings and adapted to close the open sides of the casings, and provided with spring catches to engage the same, and the flexible screens arranged on the rings and adapted to be folded within the casings, substantially as specified. 7th. The combination, with a lantern, of the casings attached thereto at diametrically opposite points, the sliding rings operating in guide apertures in the said casings and surrounding the lantern, and the flexible screen provided with small rings G^1, fitted on the said sliding rings and attached at one edge to the casings, substantially as specified. 8th. The combination, with a lantern, of the sliding rings surrounding the same, the flexible screen sliding on the rings and adapted to be gathered thereon, and the small rings G^1 G^1 on the said sliding rings passing through the edge of the screen to secure the latter firmly to the rings, substantially as specified. 9th. In a lantern, the two folding screens arranged at diametrically opposite points and constructed to be simultaneously extended in opposite directions, each screen covering one half of the lantern proper so that when both the screens are extended the entire lantern is covered, as set forth. 10th. The combination, with a lantern, of the sliding rings surrounding the same, the flexible screen sliding on the rings and adapted to be gathered thereon, the casings secured to the lantern and having openings that form bearings for the sliding rings, the caps secured to the latter, and loops H, H secured to the inner faces of the casings and caps and bent around the stiffening rods in the ends of the screen, substantially as set forth.

No. 32,994. Pencil Sharpener. (*Taille-crayon.*)

Benjamin N. Black, Paterson, N. J., U. S., 3rd December, 1889; 5 years.

Claim.—1st. The combination, with the rotary file and its shaft, of a wheel D adapted to be rubbed back and forth on the desk or floor, a handle with bearings for the shaft, and a tubular holder for the pencil, substantially as specified. 2nd. The wheel D having an elastic rim 4, the shaft C and rotary file B, in combination with the tubular pencil holder, and a belt for giving motion to the same from the axis of the rotary file, substantially as set forth. 3rd. The tubular pencil holder E, in combination with the clamping shell M and spring clamp N, in the form of similar bent metal strips, fitting within the shell M and having lapping tongues to grasp the pencil, substantially as set forth. 4th. The combination, with the tubular pencil holder, of a spring clamping device located within the shell of the holder, and adapted to grasp the pencil and frictionally hold the same, substantially as specified.

No. 32,995. Crusher and Pulverizer.

(*Broyeur.*)

Joseph Behm, San Jose, and James J. Smith, Stockton, Cal., U.S., 3rd December, 1889; 5 years.

Claim.—1st. A crusher or pulverizer, consisting of an exterior circular casing, a disk with radial arms and shoes attached to said arms and rotating within the casing, adjustable dies fixed in the circle within the casing and exterior to the line of the rotation of the arms, said dies being made either solid or with slots or open-

ings through or between them, and having beveled faces, substantially as described. 2nd. A centrifugal crusher and pulverizer comprising an exterior casing with dies arranged and secured around the periphery with discharge-openings, as shown, a shaft and hub with radial arms and shoes or beaters, slots opening into the sides of the casing for the admission of air, and plates or shutters by which the openings are regulated or closed, a yoke extending over these shutters and openings and a clamping-screw, whereby the shutters are secured or locked in place, substantially as described. 3rd. The rotary crusher having the exterior casing with the inlet and discharge-openings, the rotary arms or beaters, the feeding-chute and the hinged tilting box with its operating mechanism, the stationary table having the oscillating pushing-plate or feeder, the crank arm, connecting rod and eccentric by which said plate is actuated, so as to advance the ore toward the feed-chute of the pulverizer, substantially as described. 4th. A sectional exterior casing having dies fitted therein, bolts and nuts by which the sections of the case are secured together or separated at will, a disk mounted upon a shaft and rotating within the circle of the dies, said disk having shoes or beaters attached to its periphery, a feed-chute and mechanism, whereby the ore is delivered to the interior of the machine to be acted upon by the beaters and shoes, discharge-openings through which the pulverized ore may escape from the casing, and air-inlet openings with controlling gates or shutters, whereby the rate of discharge and degree of pulverization of the ore may be regulated, substantially as described.

No. 32,996. Road Cart. (*Désobligeante*)

Timothy Doland, Wellington, Ohio, U. S., 3rd December, 1889; 5 years.

Claim.—1st. In combination with a road cart, the seat bars H, H, having jointed connections J, J, with the shafts, loops L, L, engaging the notched plates attached to the seat bars, and a jointed connection with the spring G, attached to the cross bar of the foot rest supported by its hangers N, N, being fastened to the seat bars, and a jointed attachment to the spring G, respectively arranged as and for the purpose substantially as set forth. 2nd. In combination with a road cart, the foot rest hangers N, N, attached at one end to the seat bars H, H, and the opposite ends thereof jointedly connected to the seat bars, spring G arranged to co-operate conjointly with the seat and seat bars having a hinged connection with the shafts, substantially as and for the purpose set forth.

No. 32,997. Hand Car. (*Char à bras.*)

Albert F. Kuhl, Van Wert, Ohio, U. S., 3rd December, 1889; 5 years.

Claim.—1st. In a car provided with hand propelling mechanism, substantially as shown, brake levers B, B^1, one located to one side of the propelling mechanism and the other to the rear thereof, the lower ends of said brake levers being connected by a bar, and a link for connecting one of the levers to a crank rod carrying brake shoes, substantially as shown and for the purpose set forth. 2nd. In a hand car, a superstructure or housing therefor, consisting of a top connected to a frame for supporting and bracing the same, side strips D and F having grooves *f*, *f*, for supporting side sections, substantially as shown and for the purpose set forth. 3rd. In a car, a roof having front and rear portions which extend beyond the frame thereof, angular depending end pieces, the supporting corner posts and end doors hung to the corner posts and provided with angular bottom plates, the parts being organized substantially as shown. 4th. In a car, a removable superstructure supported upon corner posts, said corner posts being provided with eye-bolts, and doors hinged thereto, said doors being adapted to meet in front of the car, substantially as shown. 5th. In a car, end doors constructed substantially as shown, and provided with angular extensions which, when the doors are closed, form a continuation of the floor boards, for the purpose set forth. 6th. In combination with a car, the end doors supported upon hinges and provided at their lower ends with inwardly extended pieces, which are adapted to meet when the doors are closed, said doors having windows supported in angular frames, substantially as shown and for the purpose set forth. 7th. In combination with a housing for hand cars, end doors hinged to the side frames so as to meet beyond the car body, the doors being at an angle, as shown, with the sides of the car.

No. 32,998. Method of Combining Electricity with Gas for Illuminating, Heating and other purposes.

(*Mode de combiner l'électricité avec le gaz pour des fins d'éclairage, de chauffage et autres.*)

Eugène de Beauharnais, Delia L. M. Wilson, David A. Pender, Joseph F. Eby, Hugh Blain and William J. McMurtry, Toronto, Ont., 3rd December, 1889; 5 years.

Claim.—The union of electricity with illuminating gases of any nature, for the purposes of illuminating, heating and other uses, substantially as herein described for the purposes herein specified.

No. 32,999. Adjustable Crossing and Switch for Overhead Conductors. (*Traverse et commutateur mobiles pour les conducteurs suspendus.*)

Charles J. Van Depoele, Lynn, Mass., U.S., 3rd December, 1889; 10 years.

Claim.—1st. A crossing or switch for suspended electric conductors, comprising two or more adjustably connected members adapted for attachment to the respective conductors. 2nd. A crossing or switch for suspended electric conductors, comprising two or more adjustably connected members, and electric conductors secured to the said members. 3rd. A crossing or switch for electric conductors, comprising a contact or surface members connected in adjustable relation thereto and extending from the surface, and ribs or extensions upon the members to which the conductors are attached. 4th. An adjustable switch for electric conductors comprising two or more adjustably connected members, each adapted to receive and be attached to a terminal of the conductor, and each provided with a depending rib to guide the contact wheel, and a pivot uniting the members, substantially as described.

No. 33,000. Overhead Contact and Switch.

(*Contacte et commutateur suspendus.*)

Charles J. Van Depoele, Lynn, Mass., U. S., 3rd December, 1889; 10 years.

Claim.—1st. In an electric railway, the combination, with an overhead conductor, a contact device making underneath contact with the conductor, and a switch plate attached to the conductor and provided with means for depressing the contact device. 2nd. In an electric railway, the combination, with an overhead conductor for receiving underneath contact, of a switch plate attached thereto and provided at its extremities with means for depressing the contact device. 3rd. A switch for suspended electric railway conductors, comprising a box attached to the conductor and formed with two or more branching compartments leading therethrough, one or more of the compartments having a contracted portion adjacent to its extremity. 4th. A switching device for electric railways consisting of an open bottom metallic box or frame secured to, and depending from the under side of a suspended conductor and formed with two or more branching compartments leading therethrough, the extremities of such compartments flaring outwardly toward the conductor to form lateral guides, and inwardly, if desired to facilitate the passage of the contact device. 5th. A switching device for electric railways, comprising an open bottom box conductors connected to the upper portion of the box, and a guide rib or ribs connecting the extremity or extremities of the switch box with the conductor. 6th. A switching device for electric railways, comprising an open bottom box, conductors leading to the upper closed portion of the box, and a guide rib connecting the interior of each extremity of the switch box with the conductor. 7th. A switch for suspended electric railway conductors, comprising a downwardly open frame or box having passages extending therethrough, the main conductor attached to the upper portion thereof, and a guide rib or strip extending from the inner under side of the box and against the under side of the conductor. 8th. A switching device for suspended electric railway conductors, comprising an open frame or box having branching compartments extending therethrough and suspended from the main conductor, and fixed guides at the extremities of said passages. 9th. A switching device for suspended electric conductors, comprising an open bottom box or frame formed with branching compartments and depending from the conductors, a rib or ridge at the under side of the conductor and extending into the switch box and lateral guides on each side of the rib. 10th. In an electric railway, the combination, with the car, of a post extending upward therefrom, a frame hinged and pivoted upon said post, and a longitudinally adjustable arm secured in said frame and pivoted at one end with a grooved contact wheel for engagement with a suspended conductor, and at the other with a tension spring for maintaining the contact wheel in operative position. 11th. The combination of a moving vehicle, a support or post extending upward therefrom, a frame hinged and pivoted therein, an arm longitudinally adjustable in the pivoted frame and provided at its outer end with a contact wheel arranged to bear against the under side of the conductor, and tension springs acting against the arm for holding the contact wheel in position. 12th. In an electric railway, the combination, with the car, of a post extending upwardly therefrom, a contact carrying arm hinged and pivoted upon said post, and a tension spring adjustably secured to the lower part of said arm, and connected with the car, said spring acting to hold the outer extremity of the arm, and the contact carried thereby upward against a suspended supply conductor. 13th. In an electric railway, the combination, with a car, of a post extending upwardly therefrom, a contact carrying arm hinged and pivoted upon said post, and provided at one end with a grooved contact wheel for engagement with the supply conductor suspended above the line of travel of the car, and a rope or other flexible connection secured near the outer end of said arm and connected with the car, and a rope or flexible connection secured at or near the lower end of said arm, whereby the outer extremity of the arm may be lowered by one rope and the arm moved into the desired position by the other rope.

No. 33,001. Switch for Suspended Electric Conductors. (*Commutateur pour les conducteurs d'électricité suspendus.*)

Charles J. Van Depoele, Lynn, Mass., U.S., 3rd December, 1889; 10 years.

Claim.—1st. A switch for electric conductors, comprising a rib or member for each conductor, the inner extremities of which are arranged to intersect or lap, and a bridge or body by which said members are connected. 2nd. A switch for electric conductors, comprising a rib or member for each conductor, and a bridge or body formed integral with said ribs by which they are connected. 3rd. A switch for electric conductors, comprising a rib or member for each conductor, the inner extremities of the ribs being arranged to intersect or lap. 4th. A switch for electric conductors, comprising a rib or member for each conductor, and a bridge or body by which said members are connected, the inner extremities of the several members being arranged to intersect or lap. 5th. A switch for electric conductors, comprising a plurality of arms or members to which the conductors are connected, the inner extremities of the members being arranged to intersect or lap a block located at the point of intersection of the several members, and ways or channels between the intersecting members. 6th. A switch or crossing for electric conductors, comprising arms or members, the inner extrem-

ities of which are arranged to intersect or lap said arms, being connected to the crossing-conductors, a central block, and passages around the block and between the extremities of the conductors, for the passage of the trolley wheel in the desired position. 7th. A switch for suspended conductors, comprising a rib or member for each conductor, said members being supported and connected at their inner extremities, and having said extremities arranged to lap or intersect, so that one flange of the trolley wheel will engage the leaving rib before the other flange becomes disengaged from the entering rib. 8th. A switch for suspended electric conductors, comprising a rib or member for each conductor, each member being formed with an opening or groove to receive the conductor, and with a rib or part extending from the openings or grooves to carry the contact device to the point of divergence. 9th. A switch for suspended electric conductors, comprising a rib or member for each conductor, each member being formed with an opening to receive the extremity of the conductor, and with a rib or part extending from the said openings forming continuations of the conductor to carry the contact device to the point of divergence.

No. 33,002. Double Suspended Conductor System for Electric Railways.

(*Système de conducteurs doubles suspendus pour les chemins de fer électriques.*)

Charles J. Van Depoele, Lynn, Mass., U.S., 3rd December, 1889; 5 years.

Claim.—1st. A double suspended conductor system for electric railways, comprising positive and negative conductors following the line of each track, the conductors of one polarity over each track being arranged upon the inner sides thereof, and electrically connected at intervals, the remaining conductors being parallel therewith but nearer to the outer sides of said tracks. 2nd. A double suspended conductor system for electric railways, comprising positive and negative supply-conductors following the line of each track, a branch extending from said main conductors, comprising metallic frogs in electrical connection with said main conductors, branch conductors connected to, but insulated from said frogs, and an upward pressure contact device having a plurality of independent insulated contacts adapted to engage the said supply conductors. 3rd. Switching devices for a double-suspended conductor system, comprising metallic frogs in contact with the main conductors, an insulated crossing for one of said conductors, a branch conductor extending from the frog of one of said conductors and engaging the crossing but insulated therefrom, a continuation of the insulated branch conductor, and an electrical connection uniting the insulated extremities thereof, and a branch conductor extending from, and in electrical connection with, the frog of the other main conductor. 4th. Switching devices for a double-suspended conductor system, comprising metallic frogs connected to the main conductors, branch conductors connected to, but insulated from, said frogs, a crossing for one of said main conductors to which one branch is electrically connected, a continuation of said branch conductor, and a frog upon the next adjacent main conductor to which the said continued branch is electrically connected, and a branch extending from the other main frog to, but insulated from a crossing upon the next adjacent main conductor, a continuation of said second branch conductor and a frog upon the other main conductor to which said continuation is connected, and electrical connections between the insulated portions of the branch conductor. 5th. A switch and crossing for a double system of duplex suspended conductors, comprising metallic frogs in electrical connection with one set of main conductors, a branch conductor extending from one frog to, and insulated from a crossing attached to conductors of the opposite polarity and connected thence, but insulated therefrom, by a conductor secured to a crossing of similar polarity, and a frog to an insulating crossing, and thence by a continuation of the branch conductor to a crossing of like polarity, thence to a crossing of opposite polarity from which it is insulated, thence by a continuation of the branch conductor, and an electrical connection between the insulated terminals of the branch conductor. 6th. In a system of double suspended conductors, a switch and crossing for a double duplex line, comprising metallic frogs in contact with the main conductors of one line, an insulated crossing for one of said conductors, a branch conductor extending from the frog of one of said conductors, and engaging the crossing and insulated therefrom, a continuation of the insulated branch conductor and an electrical connection uniting the insulated extremities thereof, a branch conductor extending from, and in electrical connection with the frog of the other main conductor, and two sets of crossings connected with the main conductors of the other main line to which the branch conductors, from the first-mentioned main line, are connected and from which they may be continued. 7th. In a duplex suspended system of conductors, a metallic frog in electrical connection with one of said conductors, a branch conductor connected thereto, and an insulating section between the frog and the branch conductor. 8th. A crossing-plate having a flat metallic surface, a central downward projection for guiding a grooved contact wheel and lateral flanges to prevent lateral displacement of the contact device. 9th. The combination, with a metallic crossing plate, of a main conductor of one polarity connected thereto, and ribs or pieces of insulating material also connected to said plate, and conductors of opposite polarity connected to the extremities of said insulating ribs. 10th. A crossing plate for conductors of opposite polarity, comprising a metallic plate secured to, and in electrical connection with the main conductor, insulating sections secured at opposite ends of the plate, and conductors of opposite polarity secured to the extremities of said insulated section. 11th. A crossing plate comprising a metallic surface to which the main conductor may be attached, insulating sections extending from each end thereof, and connected to terminals of conductors of opposite polarity, a crossing-plate comprising a metallic surface, a central downward projection for guiding a grooved contact wheel thereacross, and terminals extending from each end for connection to their respective conductors. 12th. The combination, with a crossing-plate, of a main conductor connected thereto for crossing at one direction, ribs composed in part of insulating material and connected to said crossing-plates for attachment to conductors of opposite polarity for a crossing of another direction, and protecting roofs extending over the insulated portions of the said insulating ribs. 13th. In a system of suspended conductors, an insulating section and conductors of opposite polarity connected to the extremities thereof, whereby the said section is adapted to convey the contact device between insulated and separated continuous conductors. 14th. In a system of suspended conductors, an insulating section for connecting conductors of opposite polarity, having high tensile strength and composed of a metallic body having an exterior insulating surface. 15th. In a system of suspended conductors, an insulating section, the lower or contact surface of which is discontinuous. 16th. In a system of suspended conductors, an insulating section uniting the extremities of conductors of opposite polarity, and provided with a protecting roof or cover. 17th. In a system of suspended conductors, an insulated section for uniting conductors of opposite polarity having its lower edge made discontinuous by notches or serrations, and provided with a discontinuous metallic wearing surface between the serrations. 18th. In a double-suspended system of electric railway conductors, a contact device comprising a pair of independent upwardly spring-pressed arms, each provided with a contact device at its outer extremity, both said arms being free to swing about a vertical axis, separate insulated connections between the contact devices and a stationary support or base, and a slack and flexible portion between the fixed and movable parts of the said circuit-connections, for permitting said arms to swing upon their vertical axis for reversing. 19th. In a double-suspended conductor system, the combination, with a suitable support mounted upon a car or other vehicle, of a pair of contact carrying arms, vertical and transverse axes sustaining said arms in positions to swing freely about the vertical axis, tension springs pressing said arms independently upward against suspended conductors, and separate flexible conductors extending between the contact devices carried by the arms and connected to fixed terminals of the motor circuit. 20th. In a double suspended conductor system, the combination, of a pair of arms, vertical and transverse axis for said arms upon which they are mounted at their lower ends, tension-springs for imparting an upward tendency to said arms independently, and self-adjusting and locking connections between the inner ends of said springs, and a support whereby the tension of the springs may be adjusted by moving the arms away from their operative position. 21st. In a double-suspended conductor system, the combination of of a block Q mounted upon a vertical pivot, transverse arms, contact-carrying arms hinged thereupon, and tension springs upon the arms, the outer ends of said springs engaging the contact-carrying arms, and their inner ends being held by detent mechanism connected to said springs and engaging detents carried by the block Q.

No. 33,003. Electric Motor. (*Moteur électrique.*)

Charles J. Van Depoele, Lynn, Mass., U.S., 3rd December, 1889; 10 years.

Claim.—1st. In an electro-dynamic motor, the combination of a field-magnet wound with a separable coil, a switch upon the motor provided with a continuous series of insulated terminals, connections between the portions of the field-magnet coils and part of the terminals of said switch, a series of artificial resistances connected to the remaining terminals of the switch, and a moving terminal, and means for operating the same, whereby any portion of the artificial resistance may be connected in series with the field-magnet coils or cut-out altogether. 2nd. In an electro-dynamic motor, the combination of a continuous series of insulated terminals, a movable contact adapted to engage said terminals successively, a plurality of resistance-coils connected in series and divided into sections, each section connected to a separate terminal of the switch series, and a sectional field-magnet, the parts of which are separately connected to the remaining terminals of the switch, the last coil of the resistance and the first coil of the field-magnet being connected to the same terminal. 3rd. In an electro-dynamic motor, the combination of a field-magnet wound with devisible magnetizing coils, a switch having a series of separated terminals, and connections between the said divisible field-magnet coils and part of said terminals, and a series of artificial resistances connected to other terminals of the said switch, and adapted to be thereby connected in series with the field-magnet coils. 4th. In an electro-dynamic motor, a field-magnet provided with main and auxiliary coils, said coils being wound and connected in two separate portions arranged in multiple relation to each other, connections extending from said multiple arc coils to part at the terminals of a switch, and a series of resistances connected to other terminals of said switch, and arranged to be thereby connected in series with the coils of the field-magnet. 5th. In an electro-dynamic motor, a field-magnet wound with main and auxiliary magnetizing coils, a switch upon said motor comprising a series of separated terminals to part of which the said coils are connected, in electric connection between one of the commutator-brushes and a movable switch-lever, whereby any desired portion of the auxiliary coils may be placed in circuit with the armature or the auxiliary coils entirely cut out, and an adjustable resistance connected to the remaining switch terminals, and arranged to be by said switch combined in whole or in part with the said field-magnet coils. 6th. In an electro-dynamic motor, a field-magnet, provided with main and auxiliary magnetizing coils, a switch located upon the motor and provided with a series of separate terminals to part of which the field-magnet coils are separately connected, a series of resistance-coils connected to other separate terminals of the same switch, a switch-lever for contact with any of said terminals, and an electric connection between one of the commutator-brushes and said switch-lever, whereby all or a part of the resistance together with the field-magnet coils, or the field-magnet coils alone, or any portion thereof, may be placed in circuit with the armature.

No. 33,004. Electric Locomotive.

(*Locomotive électrique.*)

Charles J. Van Depoele, Lynn, Mass., U.S., 3rd December, 1889; 10 years.

Claim.—1st. An electric locomotive, comprising a platform or vehicle, a single pair of driving wheels centrally located thereunder,

and an electric motor, the armature shaft of which is mechanically connected with the said driving wheels by suitable gearing, and which is supported upon the axle thereof in positive relation thereto. 2nd. An electric locomotive, comprising a platform or vehicle, a pair of centrally-located driving wheels, an electric motor supported in a normally vertical position upon the axle of said driving wheels, and positive mechanical connections between the armature shaft of the motor and the axle of the driving wheels. 3rd. An electric locomotive, comprising a car or platform, a single pair of centrally-located driving wheels, the motor located above the driving wheels, an elongated box or bearing upon the driving axle, and supports extending between the said box and the frame of the motor. 4th. An electric locomotive, comprising a car or platform, a single pair of centrally-located driving wheels, spring bearings between the platform and the extremities of the driving axle, a motor supported upon the axle of the driving wheels, and spring connections between the frame of the motor and the platform of the car. 5th. An electric locomotive, comprising a car or platform and a centrally-located pair of driving wheels, a pair of auxiliary supporting wheels under the front and rear portions thereof, and pivotal connections between the auxiliary supporting wheels and the axis of the driving wheels, whereby free lateral movement is permitted to the ends of the platform. 6th. In an electric locomotive, the combination of the car or platform A, centrally-located driving wheels, metallic frames K connected to the axles thereof and pivotally attached at the centre of the vehicle, auxiliary supporting wheels secured to the extremities of the frame K, and upwardly acting springs carried by the axles of the auxiliary wheels between the axles of the auxiliary wheels and the ends of the platform. 7th. The combination of a platform A, centrally-located driving wheels, supporting wheels J, J, pivoted connecting frames K and the lateral springs M. 8th. The combination of the platform A, the central driving-wheels, the auxiliary supporting wheels J, J, and pivoted connecting frames K, K, and the lateral springs M and guard-chains N. 9th. The combination of the platform A, centrally-located driving wheels B, B, supporting wheels J, J, rotatably mounted upon axles *j*, *j*, and frames K rigidly secured to said axles and pivotally connected at the central point of the platform A. 10th. The combination of the platform of a car and centrally-located driving wheels thereunder, supporting wheels sustaining the end portions thereof, and pivotally connected to the center of said platform and attached to axles *j*, tracks located above the auxiliary supporting wheels, and devices extending upward from the axles thereof and resting against said tracks, and laterally-acting springs secured to the platform and to the auxiliary wheels, whereby said wheels are normally retained in central positions beneath the platform. 11th. The combination of the platform A, having centrally-located driving wheels, supporting wheels J, J, connecting arms K pivotally connected at the centre of the platform and rigidly attached to axles *j*, supporting the wheels J, supporting plates k^1 located above said axles *g* and provided with extensions *m*, vertically-acting springs L mounted upon said plates, and laterally-acting springs M attached to the extensions *m*.

No. 32,005. Electro-Dynamic Motor.

(Moteur électro-dynamique.)

Charles J. Van Depoele, Lynn, Mass., U. S., 3rd December, 1889; 10 years.

Claim.—1st. In an electric motor, the combination, with the armature thereof, of a long field magnet coil in series therewith, an adjustable resistance and means for placing any desired portion of the resistance either in series or in shunt relation to the coils of the field magnet. 2nd. In an electric motor, the combination, with the armature thereof, of a long series field magnet coil, an adjustable resistance adapted to be connected in series therewith at starting, and means for placing said resistance or any desired portion thereof in derivation from the field magnet coils. 3rd. In an electric motor, the combination, with the armature thereof, of a long series field-magnet coil, an adjustable resistance adapted to be connected in series therewith at starting, means for placing said resistance or any desired portion thereof in derivation from the field magnet coils, an opposing or differential coil or coils upon the field magnet, and series connections between the differential coil or coils, and the resistance, when in shunt relation with the field magnet. 4th. In an electric motor, the combination, with the armature, of a long field magnet coil in series therewith, an adjustable resistance, a switch, connections between the coils of the field magnets and the resistance and the switch, and means for placing the resistance in series or in shunt relation to the field magnet coils, or in shunt relation to the field magnet coils, or cutting it out entirely, to regulate the power and speed of the motor. 5th. In an electric motor, the combination, with the armature, of a long series field coil and an adjustable artificial resistance, a switch and connections between the switch and the several portions of the resistance, said switch being so arranged that the resistance can be placed either in series or in derivation from the main field magnet coils of the motor. 6th. In an electric motor, the combination, with the armature, of field magnet coils, an adjustable resistance, a switch connections between the field magnet coils and the coils of the resistance and the said switch, and a switch lever adapted to be moved into successive engagement with the several parts of the switch, and to thereby connect the field magnet coils and resistance in series, then gradually cut out the resistance, then connect the said resistance in derivations over the field magnet circuit, and then gradually cut out the shunted resistance, or *vice-versa*. 7th. In an electric motor, the combination, with the armature of a field magnet coil in series therewith, an adjustable resistance, a switch, connections between the coils of the field magnet and of the resistance and the switch, and a switch lever adapted to be moved into engagement with the several parts of the switch and in one rotation to connect the resistance in series with the field magnet coils, then to gradually cut it out, then to connect the entire resistance in derivation from the said field magnet coils and cut it out altogether. 8th. The combination, with a series field magnet and a divided artificial resistance, of a switch having an extended terminal connected to one end of the field magnet coil, a number of contact points connected to terminals arranged along the resistance, an extended return connection, a short segmental contact, a conductor extending from the beginning of the field magnet to said contact, and a movable contact arm provided with contacts adapted to engage the several parts of the switch and to connect the resistance in series or in derivation with the field magnet coils, substantially as described.

No. 33,006. Multiple Motor Electric Locomotive. (*Locomotive électrique à moteur multiple.*)

Charles J. Van Depoele, Lynn, Mass., U. S., 3rd December, 1889; 10 years.

Claim.—1st. An electrically propelled vehicle, provided with sets of driving wheels, rigid upon their axles, electric motors mounted upon said axles and radially movable thereon, driving gears upon the axles, driving pinions upon the armature shafts of the motors in connection with the driving gears upon the axles, and buffer springs for limiting the oscillations of the free ends of the motors. 2nd. An electrically propelled vehicle, provided with one or more sets of driving wheels rigidly secured upon their axles, electric motors vertically journalled upon said axles and extending upwardly therefrom, driving gears upon the axles, driving pinions upon the armature shafts of the motors in mesh with the driving gears upon the axles, and buffer springs and connections upon the upper ends of the motors. 3rd. In an electrically propelled vehicle, a plurality of sets of driving wheels mounted rigidly upon transverse axles, electric motors journalled upon and radially movable upon said axles, driving gears upon the axles, and driving pinions upon the armature shafts of the motors in mesh with the driving gears upon the axles, a longitudinally rigid connection between the free extremities of the motors, a rigid or stationary brace or support connected to the axles and formed with an upward extension for guiding the connection extending between the motors, and buffer springs bearing against the upward projection of the brace and attached to the connection uniting the free ends of the motors. 4th. In an electrically propelled vehicle, two sets of driving wheels, electric motors journalled upon the axles thereof and radially movable thereof, driving gears upon the axles to be driven, and driving pinions upon the armatures of the motors in mesh with the said driving gears, a brace or support extending between and journalled at its extremities upon the driving axles and extending upwardly between the free ends of the motors, a longitudinally rigid connection attached to the free ends of the motor and passing through and guided between the upwardly extending support and buffer springs secured to the support and to the motor connection. 5th. In an electrically propelled vehicle, the combination, with the driving axle, a motor supported thereon and radially movable with respect thereto, a driving gear upon the axle and a driving pinion upon the armature shaft of the motor in mesh with the driving gear, and a supporting link journalled upon the armature shaft at one end and upon the driving axle at the other.

No. 33,007. Nut Lock. (*Arrête-écrou.*)

David Steiner, Adamsburg, Penn., U.S., 3rd December, 1889; 5 years.

Claim.—The combination, with a pair of nuts and a locking slide placed between the nuts and held from lateral displacement thereby, of a locking bolt passed beneath the said nuts and engaging with the locking slide, substantially as and for the purpose described.

No. 33,008. Operation of Long-Line Telegraph Circuits. (*Opération des circuits des lignes télégraphiques longues.*)

David H. Keeley, Ottawa, Ont., 3rd December, 1889; 5 years.

Claim.—1st. The method herein described of transmitting telegraphic signals, which consists in transmitting over a line positive and negative impulses alternately, and in neutralizing or augmenting the effects of the same by presenting to line at the receiving station a rapidly reversing current. 2nd. In a telegraphic system, a pole changing transmitter in combination with a rapidly acting current reverser at the receiving station, for either neutralizing or augmenting the impulses transmitted. 3rd. In a telegraphic system, a pole changing transmitter, in combination with a receiving apparatus, consisting of a polarized relay and a rapidly acting current reverser, whereby the transmitted impulses are either neutralized or augmented. 4th. In a telegraphic system, a main line, including the primary of an induction coil, a relay included in the secondary of said coil, in combination with a pole changer operating to open and close said secondary circuit, and to effect its closure before the introduction of a current into, and its opening before the withdrawal of a current from the said primary, whereby the movements of the relay in long circuits are accelerated. 5th. An automatic circuit breaker, comprising two polarized electro-magnets and two batteries with circuits and contacts, arranged so that the movement of an armature of one magnet effects a reversal of current in the other magnet, one of the armatures being arranged to make and break a separate circuit. 6th. In duplex telegraphy, the combination, with the main line, of a current reverser located in a derived circuit to the main line, and operating in the manner and for the purpose set forth. 7th. In a telegraph system, with double key transmission, the arrangement and connections of two transmitting keys operating when depressed to send and currents respectively to line and in the act of their uprisal to send weaker reverse currents momentarily to line, in combination with a receiving apparatus, consisting of a galvanometer or syphon recorder and a rapidly acting current reverser, whereby the discharge currents are neutralized and the movements of the receiving instrument are accelerated.

No. 33,009. Liniment or Medical Compound for the Cure of Rheumatism, Bruises, Spinal Disease, etc.

(*Liniment ou composition médicale pour la guérison des rhumatismes, contusions, maladies de l'épine dorsale, etc.*)

Euphemia A. McLennan, Goderich, Ont., 3rd December, 1889; 5 years.

Claim—In a liniment or medical compound, the combination of fluid extract of juniper, iodide of potassium, acetic acid, glycerine, spirits of ammonia forte, spirits of turpentine, alcohol, spirits of camphor, fluid extract of belladonna, laudanum, spirits of tar, oil of sassafras and sulphuric aether, all in the proportions as and for the purposes set forth.

No. 33,010. Automatic Car Coupler.

(*Attelage automatique de chars.*)

James A. Hinson, DesMoines, Iowa, U. S. ,3rd December, 1889; 5 years.

Claim.—1st. The combination, with the movable draw-bar A and draw-head of a car-coupler, of a removable T-headed eye-bolt *r*, rotatable shaft *n* loosely connected to said eye-bolt, latch *m* pivoted in the draw-head, and chain *s*, substantially as described. 2nd. A car-coupler, consisting of a movable draw-bar A and draw-head hollowed out at its centre, and having an arm B and guard C, a jaw D having a lateral branch *f*, journals *g* integral therewith, pendent latch *m*, detachable bearing plate *h* having projection h^1 and recess b^3, shaft *n* and chain *s*, substantially as set forth. 3rd. The combination, with a draw-bar A, of a car-coupler having an arm B provided with a groove on its upper side, and a recess b^2 in its lower portion b^1, of the jaw D having a lateral branch *f* and journals *g*, bearing-plate *h* and bolt *i*, substantially as described.

No. 33,011. Combination Tool.

(*Outil à combinaison.*)

Arden D. Kimball, Miles, Iowa, U.S., 3rd December, 1889; 5 years.

Claim.—The hereinbefore described combination tool composed of the three levers A, B and C, pivotally connected together, the levers A and B having the curved jaws D^1 and D respectively, the lever A having the cutting edge *d*, and the lever B having the saw edge d^1 and the tack extractor d^2, and the lever C having the screw-driver E at one end, and the corkscrew E^1 at its other end, substantially as shown.

No. 33,012. Parallel Ruler. (*Reigle à parallèles.*)

Neil S. Phelps and Charles L. Ellis, Eureka, Cal., U.S., 3rd December, 1889; 5 years.

Claim—1st. The ruler A having the concavo-convex longitudinal central portion F, the bearings at the ends of said portion F, the downwardly curved sides G, I, extending in opposite directions from portion F, the said side G having the downwardly inclined straight edge H, and said side I having the upwardly curved straight edge K, and the cylindrical roller arranged under the portion F, and having journals at its ends, mounted in the bearings of the ruler, substantially as described. 2nd. The ruler A having the concavo-convex longitudinal central portion F and the downwardly curved sides G, I, the former having the downwardly inclined straight edge H, and the latter having the inwardly curved straight edge K, substantially as described. 3rd. The blank rectangular in shape and of suitable length and width, and having the extensions B at its ends provided with the openings D and the salient angle portions C, the latter and said extensions B being divided by aligned longitudinal slits E, substantially as described. 4th. The ruler having the concavo-convex central portion F, the overlapping end portions B having the aligned openings D and the lips C, the latter being clinched on the overlapping portion B, to secure the same together, in combination with the cylindrical roller having its journals engaging the openings B, substantially as described. 5th. The ruler A made of a single piece of metal bent longitudinally in the centre, to form the longitudinal central portions F and the downwardly curved sides G, I, each of which terminates in a longitudinal straight edge, and the roller L arranged within the longitudinal central portion F, between the two straight edges, as set forth,

No. 33,013. Device for Securing Hoisting Chains to Sunken Vessels. (*Appareil pour assujétir les chaines de hissage aux vaisseaux coulés.*)

Joseph A. Sloane, West Bay, Mich., U. S., 3rd December, 1889; 5 years.

Claim—1st. In a device for securing hoisting chains to sunken vessels, the combination, with the hull, of a line passed through openings on opposite sides of the hull and beneath a permanent portion of the frame work of the hull, and provided with surplus portions outside of the said openings and having suitable buoys attached to the opposite ends of the said surplus portions, substantially as set forth. 2nd. In a device for securing hoisting chains to sunken vessels, the combination, with the hull having on opposite sides openings, substantially as described, in the rail or deck coincident with the space between two adjacent frames, of a cord or chain passed through the said openings and through the said space between the frames and having surplus portions outside of the said openings, and floating buoys secured to the ends of the surplus portions, substantially as set forth. 3rd. In a device for securing hoisting chains to sunken vessels, the combination, with the hull of a vessel, of a continuous line having its middle portion passed from side to side through the space between the adjacent frames of the hull, and through the openings in the rail or deck coincident to the opposite ends of the line, and with surplus portions between the said buoys and openings, substantially as set forth. 4th. In a device for securing hoisting chains to sunken vessels, the combination, with the hull of the vessel provided on opposite sides with openings in the rail or deck, and a line passed through the said openings and beneath a permanent portion of the frame, and provided with the knots or enlargements V and W and having buoys secured to the opposite ends of the line, and two part plugs surrounding the line between the knots V and W and lying loosely in said openings, substantially as set forth. 5th. In a device for securing hoisting chains to a sunken vessel, the combination, with the hull provided on opposite sides with openings through the rail coincident with the space between the timbers of the frame, of a chain passed from side to side through the space between the frames and the buoy lines, with one end passed through the said openings in the rail and secured to the opposite ends of the said chains and provided adjacent to the openings with the knots or enlargements V and W and with buoys secured to their outer ends, and two part plugs surrounding the said lines between the knots V and W and lying loosely in the said openings in the rail, substantially as set forth.

No. 33,014. Stove. (*Poêle.*)

Alfred M. Sanders, Morristown, Penn., U.S., 3rd December, 1889; 5 years.

Claim.—The combination, with a stove body having an oven chamber therein surrounded by flues, and a front wall provided with laterally projecting hood 15, of a detachable fire-box 5 having a fire-space, a fire-grate 6 and ash-pan 7 below the grate, a top flange 14, side lugs 12, bottom flange 16 respectively bolted to the hood, side walls and bottom wall of the stove body, and a fire-plate 19 rising vertically from the bottom of the detachable fire-box above the level of the bottom wall of the stove body and above the flue under the oven chamber, substantially as shown and described.

No. 33,015. Car Axle Lubricator.

(*Boîte à graisse.*)

Edward Best, Carleton Place, Ont., 3rd December, 1889; 5 years.

Claim.—1st. The oil vessel A^1 having the hollow bearing E, oil escape opening F, filling passage H, sloping shoulders I, troughs J and drip holes K, substantially as shown and described. 2nd. The combination of the outer case A with the oil vessel A^1, having the filling passage H, with its cover H^1, sloping shoulders I, troughs J and drip holes K, and supported in said case by the spring G, all substantially as herein shown and described.

No. 33,016. Burner. (*Foyer.*)

James Gibbons, Jersey, N.J., U.S., 4th December, 1889; 5 years.

Claim—1st. In a burner, the combination of a fuel supply pipe forming also a gas and air mixing tube and apertured at its inner part for inlet of air, and a body or casing surrounding the pipe and forming a chamber supplying or conducting superheated air to the interior of the pipe and in advance of the point of ignition of the burner, the aperture of said fuel supply pipe and mixing tube forming the outlet from said superheating chamber toward the point of ignition for the air superheated in said chamber, and said body or casing and the fuel supply pipe and mixing tube made relatively adjustable to control the supply of superheated air to said pipe and to the point of ignition of the burner, substantially as herein set forth. 2nd. In a burner, the combination of a fuel supply pipe forming also a gas and air mixing tube and apertured at its inner part for inlet of air, a flame-cup held at the outer part of said pipe, and a body or casing surrounding the pipe and also the side walls of the flame-cup and forming outside the pipe a main chamber supplying or conducting superheated air to the interior of the pipe, and forming at or next the flame-cup walls a passage for superheating air prior to its inlet to the air superheating chamber around the pipe, said inner aperture of the fuel supply pipe forming the outlet from said chamber toward the point of ignition for the air superheated in said chamber, substantially as herein set forth. 3rd. In a burner, the combination of a fuel supply pipe forming also a gas and air mixing tube and apertured at its inner part for inlet of air, a flame-cup held at the outer part of said pipe, and a body or casing surrounding the pipe and forming a chamber supplying or conducting superheated air to the interior of the pipe and through its inner aperture in advance of the point of ignition at the flame-cup, said body or casing and fuel supply pipe made relatively adjustable to regulate the supply of air to the pipe at a passage next the flame-cup wall, and said inner aperture of the pipe forming the outlet from the air superheating chamber toward the point of ignition for the air superheated in said chamber, substantially as herein set forth. 4th. In a burner, the combination of a fuel supply pipe forming also a gas and air mixing tube and apertured at its inner part for inlet of air, a flame-cup held at the outer part of said pipe, a plate fitted in the flame-cup to deflect the flame to its side walls, and a body or casing surrounding the pipe and also the side walls of the flame-cup and forming outside the pipe a main chamber supplying or conducting superheated air to the interior of the pipe, and forming next the flame-cup walls a passage for superheating air prior to its inlet to the air superheating chamber around the pipe, said inner aperture of the fuel supply pipe forming the outlet from said chamber toward the point of ignition for the air superheated in the passage next the flame-cup walls and in the chamber outside the pipe, substantially as herein set forth, 5th. The combination, in a burner, of a gas and air mixing tube B B, apertured at *b* at its inner part, and a casing A having an open outer end admitting air and fitted at its closed inner end to the mixing tube beyond or outside of its apertures *b*, substantially as shown and described, whereby an air superheating and conducting chamber F is formed between the mixing tube and casing, and the superheated air from said chamber will find passage into the mixing tube through its apertures *b*, as and for the purposes set forth. 6th. The combi-

nation, in a burner, of a gas and air mixing tube B B, apertured at *b* at its inner part, and a surrounding casing A having an open outer end admitting air, and fitted adjustably at its closed inner end by a screw-joint to the mixing tube beyond or outside of its apertures *b*, substantially as described for the purpose set forth. 7th. The combination, in a burner, of a gas and air mixing tube B B, apertured at *b* at its inner part, a flame-cup H held to the outer end or part of the mixing tube, a casing A fitted at its inner closed end to the mixing tube beyond or outside of its apertures *b*, and extending outward around the tube to form an air superheating and conducting chamber F, and extending also around the flame-cup to form an air superheating passage I, all arranged for operation, substantially as herein set forth. 8th. In a burner, the combination, with the tube B B, apertured at *b* and communicating with a fuel feed pipe, of a body or casing A fitted to the tube back of its aperture, and having a part a^1 surrounding the tube, and an upper part *a* of a flame-cup H held to the tube, and providing a passage I between the part *a* of the body and the side walls of the cup, and a pendent wall J forming an air inlet, and heating chamber K outside the part *a* of the body which surrounds the flame-cup, substantially as herein set forth. 9th. The combination, in a burner and with a fuel supply pipe forming also a gas and air mixing tube, having an air inlet at its inner part, and a body or casing fitted to the pipe behind its air inlet and surrounding the pipe to form an air superheating chamber, of a fuel feed pipe coupling to which the burner pipe is threaded, and a lock nut on the burner supply pipe at the coupling, substantially as herein set forth.

No. 33,017. Oil Cup for Lubricating Locomotive and other Engines.

(*Godet à huile pour graisser les machines locomotives et autres.*)

Edwin D. Bangs, Milwaukee, Wis., U. S., 4th December, 1889; 5 years.

Claim—1st. In an oil cup, the combination of the cylinder with a vertical column having a channel therethrough adjacent to the wall of said cylinder, and a curved guide for directing the course of the oil to said channel. 2nd. In an oil cup, the combination of the cylinder with a vertical column having a channel therethrough adjacent to the wall of said cylinder, the top of said column being below the top of said cylinder, and a cap having a feed hopper projecting down into said cylinder below the entrance to the said channel, whereby the said channel can only receive oil when the oil is forced above said channel entrance as by the motion of said cup. 3rd. In an oil cup, the combination of the cylinder with a vertical column having a channel therethrough adjacent to the wall of said cylinder, the top of said column being below the top of said cylinder and a cap having a passage leading to said cylinder closed by a perforated plug, whereby there is always an air cushion above the oil in the cup. 4th. In an oil cup, the combination of the cylinder with a vertical column having a channel therethrough adjacent to the wall of said cylinder, an adjustable plate having an opening registering with said channel and surrounded by walls forming a funnel around said opening, said plate being adapted by change of position to more or less close said channel, and a curved guide for directing the course of the oil into said funnel. 5th. In an oil cup, the combination of the cylinder with a vertical column having a channel therethrough adjacent to the wall of said cylinder, and a curved guide for directing the course of the oil, with a cap having a central feed hopper, and a central neck rising above said feed hopper and communicating therewith, and a vent or passage between said neck and the cylinder below, and a perforated plug filling the upper part of said neck.

No. 33,018. Grain Door for Cars.

(*Porte de char à grain.*)

Edward A. Hill, Chicago, Ill., U.S., 4th December, 1889; 15 years.

Claim—The combination of a door, pivots attached thereto, a guide-rod at each side of the doorway, and a ring encircling each of said guide-rods and said pivots at their intersection, substantially as described.

No. 33,019. Wheel of Vehicle. (*Roue de voiture.*)

James Arnott, Leeds, Eng., 4th December, 1889; 5 years.

Claim.—1st. The formation of the naves or hubs or wheels of vehicles of an elastic construction, substantially in the manner hereinbefore described. 2nd. The construction of the nave in opposite parts 3, 4, adapted to form an annular recess for internally and laterally supporting an annular elastic cushion 6, the inner projecting part 5 and the cushion 6 being correspondingly mortised for the reception and support of the inner ends of the spokes, substantially as hereinbefore described. 3rd. The construction of the nave in one piece in an ordinary manner, with peripheral recesses 10 adapted to support independent elastic cushions or seatings 6x, the nave and the said cushions being correspondingly morticed for the reception and support of the inner ends of the spokes, substantially as hereinbefore described. 4th. In combination with the nave of a wheel formed of an elastic construction, substantially as hereinbefore described, an axle-box 13 fitted with a surrounding elastic cushion 15, substantially as and for the purpose hereinbefore described.

No. 33,020. Apparatus for Filing Saws.

(*Appareil pour limer les scies.*)

Daniel G. Aber, Charleston, N.C., U.S., 4th December, 1889; 5 years.

Claim.—1st. In an apparatus for filing saws, the combination of the bar D, the hooks H, H, H, and the adjusting screws E, E, E, E^1, all substantially as shown. 2nd. In an apparatus for filing saws, the combination of the bar D, hooks H, H, H, and screws E, E, E, E^1, with sliding saddle *m*, adjusting screw I, and descending lug J, substantially as and for the purposes set forth. 3rd. In an apparatus for filing saws, the combination of the bar D, hooks H, H, H, screws E, E, E, E^1, I, saddle *m*, lug J, with guide bars *a*, *c*, block B, and file F, substantially as and for the purposes represented.

No. 33,021. Shoe Vamp. (*Empeigne de chaussure.*)

Jean L. Peltier, Montreal, Que., 4th December, 1889; 5 years.

Résumé.—Un nouvel article de manufacture, une empeigne de chaussure, composée de deux portions distinctes et symétriques en elles-mêmes, dont une A est découpée de manière a donner la courbe extrême *c*, les grandes courbes rentrantes *g*, g^1, g^2, les pointes *h*, *h*, les courbes aussi rentrantes *d*, *m*, m^1, g^2, et l^1, echancrure *e* et l^1 autre B ayant la forme indiqueé dans la fig. 2 des dessins, et ayant les courbes extérieures d^0, m^3, m^0, g^3, le tout tel que ci-dessus décrit et pour les fins sus-mentionnées.

No. 33,022. Dynamo. (*Dynamo.*)

Elmer A. Sperry, Chicago, Ill., U.S., 4th December, 1889; 5 years.

Claim.—1st. In a dynamo-electric machine, the combination of a rotating spider, with a series of bolts projecting therefrom and secured thereto, and an armature secured on such bolts independently of the spider. 2nd. In a dynamo-electric machine, the combination of a rotating spider, with a series of bolts projecting therefrom, and secured thereto by a collar and nut on opposite sides of such spider, arms with an armature secured to such bolts independently of the spider. 3rd. In a dynamo-electric machine, the combination of a rotating spider, with a series of bolts secured thereto and projecting therefrom, and an armature secured on such bolts between a flange and a nut on each side of said bolts. 4th. In a dynamo-electric machine, the combination, of a rotating spider, with a series of bolts projecting from the arms thereof, each secured thereto by a flange and nut on opposite sides of each spider arms, with an armature secured on such bolts between a flange and a nut on each of them. 5th. In a dynamo-electric machine, the combination of a rotating spider, with an annular armature and bolts which project from and are secured to the spider, and to which in turn is secured the armature independently of the spider.

No. 33,023. Earth Boring Apparatus.

(*Appareil à percer la terre.*)

Emanuel Przibilla, Cologne on Rhine, Prussia, 4th December, 1889; 5 years.

Claim.—1st. In earth boring apparatus, the combination of head piece *a*, piston a^1, spring *d*, and peg *e*, substantially as and for the purpose described. 2nd. The combination of cylinder *b*, with slit *e*, and peg *g*, substantially as and for the purpose hereinbefore set forth. 3rd. In earth boring apparatus, the tube *i*, with slits *n* and *l*. 4th. In earth boring mechanism, the combination, with a tube having guide slits formed in it, and the boring mechanism enclosed by said tube, of pegs inserted in such boring mechanism and adapted to fit and slide in such slits, for the double purpose of turning the boring mechanism and of attaching or detaching the working parts. 5th. In earth boring apparatus, a spring adapted to increase the striking action of the boring tool. 6th. In earth boring apparatus, the tube *k* having extension k^1, as shown and for the purposes set forth. 7th. In earth boring apparatus, the combination, with the actuating crank of the overground working appliances, of a self-acting set-screw ending in a swivel and working in a rocking screw nut fixed to said crank, substantially as shown and for the purpose hereinbefore described.

No. 33,024. Contrivance for Guarding Cattle while Pasturing. (*Appareil pour garder les bestiaux en pâturage.*)

William H. Perrin, Montague, Ont., 4th December, 1889; 5 years.

Claim.—The combination of the wire A, the rings B, B, and the rope C, C, together with the fences D, D, substantially as and for the purposes hereinbefore set forth.

No. 33,025. Mitering Machine.

(*Machine à onglet.*)

William Murphy, St. John, N.B., 4th December, 1889: 5 years.

Claim.—1st. In combination with a V-shaped knife and mechanism for reciprocating it, a gauge of similar shape arranged behind it, and adjusting devices for setting said gauge toward or from said knife to regulate the depth of cut, substantially as set forth. 2nd. In combination with a vertically reciprocating V-shaped knife, a gauge for regulating the depth of cut, a hand wheel and screw-threaded shaft for adjusting said gauge toward or from said knife at will, a carriage supporting said knife gauge and adjusting devices, and a treadle, and connections for reciprocating said carriage and the parts supported thereon, substantially as set forth. 3rd. In combination with a knife and gauge, and devices for reciprocating them, a hand wheel, and shaft for adjusting said gauge, a feed table, and an additional gauge on said table, which is fixed relatively to the motion of said knife, substantially as set forth. 4th. In combination with a reciprocating laterally inclined knife, a gauge in front of said knife having a fixed part, and a pivotal part or parts adjustable to varying degrees of inclination, for the purpose set forth. 5th. In combination with a V-shaped reciprocating knife, and a V-shaped gauge adjustable toward or from it at right angles to its line of travel, an additional gauge consisting of a fixed middle part and two wings hinged thereto, and adjusting devices for holding said wings inclined more or less, substantially as set forth. 6th. In combination with a reciprocating V-shaped knife, a gauge L consisting of a fixed middle part L and two hinged wings L^2, provided with rearwardly extended curved rods, fixed perforated lugs through which the said rods pass, and screws binding said rods independently, whereby either wing may be adjusted to any angle without adjusting the other, substantially as set forth.

No. 33,026. Side Hill Plough.

(*Charrue à versant de côteau.*)

John D. Burkhart, Dayton, W.T., U.S., 4th December, 1889; 5 years.

Claim.—1st. In a hill-side plough, the combination, with a beam, of a double pointed plough having the standard formed in two pieces, and the top plate, the vertical pivot-bolt passing through the beam, the hinged locking stirrups, the locking lever, the link, the link arms, the pivot-bolt connecting the same, and having the enlarged head and the vertical guide-way, substantially as set forth. 2nd. The combination, with the beam of the handles, the guard, the locking bar and its pin, and the pivoted brace-rod connecting the handles and the beam, substantially as set forth. 3rd. The combination, with a plough beam, of a clevis pivotally secured thereto, a clip extending over the clevis, the centrally-pivoted cross-bar, the wedges pivoted to the ends of the cross-bar, and an operating rod, substantially as set forth.

No. 33,027. Oil Burning Apparatus.

(*Appareil à brûler l'huile.*)

George D. Streeter, Waco, Texas, U.S., 4th December. 1889; 5 years.

Claim.—1st. The combination, with an oil burner, of a perforated tube placed slightly above the burner to receive the flame therefrom, said tube being materially smaller than the normal flame passing into it, whereby the combustion if wholly or partially arrested, and air is mixed with the resulting gas to form a more perfectly combustible product. 2nd. The combination, with an oil burner, of an open tube placed slightly above the burner to receive the flame therefrom, said tube being materially smaller than the normal flame and provided with wings extending outward and downward about the flame to ensure the entrance of the latter into the tube. 3rd. The combination, with an oil burner, of an open tube placed slightly above it to receive the flame therefrom, said tube being laterally perforated and provided with hinged outwardly swinging sides, substantially as and for the purpose set forth. 4th. The combination, with the slotted burner tube and the oil supply pipe, of the wire diaphragm within the tube, and the asbestus wick resting upon said diapragm, substantially as set forth. 5th. The combination, with the burner tube, and the supply pipe, of the slide G adapted to close the slot in the tube, substantially as set forth. 6th. The combination, with the burner tube, of the extinguishing slide G, having the slot J adapted to leave a relighting flame when the slide is closed, substantially as set forth. 7th. The combination, with the burner tube, of the extinguishing slide G, having the slot J adapted to leave a relighting flame, and the second slide mounted upon the first for wholly or partially obstructing said slot, substantially as and for the purpose set forth.

No. 33,028. Galvanic Battery.

(*Pile galvanique.*)

James L. Gethins, Boston, Mass., U.S., 4th December, 1889; 5 years.

Claim.—1st. In a galvano-electric battery, the combination of a jar of glass, or equivalent material, coated with asphaltum paint about its edge, with a porous cup provided with a glazed flange forming a cover to the jar, said flange being perforated at one point for the admission of a conductor, and having a coat of asphaltum paint and a cover of non-metallic material for the porous cup perforated for the admission of an electrode, substantially as described. 2nd. In a galvanic battery, the combination of a jar of insulating material coated with asphaltum paint about its upper edge, with a porous cup having a glazed flange forming a cover to the jar and coated with asphaltum paint, substantially as described. 3rd. In a galvanic battery, the combination of a porous cup having a concavely-curved bottom with mercury in said concavity, and a zinc electrode dipping into the mercury, substantially as described. 4th. In a galvanic battery, the combination of a jar of insulating material for the reception of one electrode, and a porous cup for the reception of the other electrode, said cup being provided with a perforated flange forming a cover to the jar, with a cover for the porous cup perforated for the admission of the upper end of the electrode in the cup, substantially as described. 5th. A galvanic battery consisting of a jar of insulating material, a copper electrode in the bottom thereof covered with crystals of sulphate of copper, a porous cup suspended in said jar, and a zinc electrode resting on the bottom of said porous cup and partially immersed in mercury therein, as set forth. 6th. A galvanic battery consisting of the jar A, the flanged porous cup B and its cover M, the copper electrode G in the bottom of the cup, the zinc electrode I in the porous cup, and the copper wire F electrically connected with the electrode G and extending through the flange of the porous cup B, as set forth.

No. 33,029. Electric Telegraph.

(*Télégraphe électrique.*)

Alexander Muirhead, London, Eng., 4th December, 1889; 5 years.

Claim.—1st. In a duplex electric telegraph working upon the double block or analogous systems, and in which condensers are employed in both the sending and receiving circuits, the combination, with the cable, of an artificial line or compensating circuit having much less capacity than the cable and correspondingly greater resistance than the conductor of the cable, and an adjusting circuit for establishing a balance between the said cable and the artificial line or compensating circuit, substantially as hereinbefore described. 2nd. The combination, substantially as hereinbefore set forth, in a duplex electric telegraph, of an artificial line or compensating circuit, having much less capacity than the cable, and correspondingly greater resistance than that of the conductor of the cable, and an adjusting circuit for establishing a balance between the said cable and artificial line or compensating circuit, with the key K, the battery, the receiving instrumen t R, the adjustable rheostat, the condensers C^1, C^2, one connected with the actual cable and the other with the artificial line or compensating circuit, and the condenser C^3 in circuit between the cable and the artificial line or compensating circuit. 3rd. The combination, substantially as hereinbefore set forth, in a duplex electric telegraph, of an artificial line A L having much less capacity than the cable and correspondingly greater resistance than that of the conductor of the cable, and an adjusting circuit comprising a condenser and a resistance or an inductive resistance, for establishing a balance between the actual cable and the said artificial line, with the key K, the battery, the receiving instrument R, the adjustable rheostat, the condensers C^1, C^2, one connected with the actual cable and the other with the said artificial line, and the condenser C^3 in circuit between the actual cable and the artificial line. 4th. The combination of a cable C, an artificial line A, L, having much less capacity than the actual cable and correspondingly greater resistance than the conductor of the cable, condensers C^1, C^2, C^3, a key K, a receiving instrument R and an adjusting circuit, the whole being regulated or adjusted, substantially as hereinbefore described, so as to establish a balance under the conditions of cable and artificial line above specified. 5th. The combination, with the cable C, the condenser C^1, the key K and a receiving instrument, of the condensers c^1, c^2, c^3, c^4, c^5 and resistances r^1, r^2, r^3, r^4, r^5, substantially as and for the purposes set forth. 6th. The combination, with the cable C, the condenser C^1, the key K and a receiving instrument, of the condensers c^1, c^2, c^3, c^4, c^5, the resistances r^1, r^2, r^3, r^4, r^5 and the resistance R^1, substantially as and for the purposes set forth. 7th. The combination, with the cable C, the condenser C^1, the key K and receiving instrument, of the condensers c^1, c^2, c^3, c^4, c^5, the resistances r^1, r^2, r^3, r^4, r^5 and the condenser C^2, substantially as and for the purposes set forth.

No. 33,030. Closing and Securing Doors of Railway Cars. (*Fermeture des portes de chars de chemins de fer.*)

Ernst O. Leinbrock, Gottlenba, Saxony, 4th December. 1889; 5 years.

Claim.—1st. In a mechanical contrivance to effect the closing of the doors of railway carriages from a given point, the application of the arms *g* upon the shafts *d*, turned by the revolution of the shaft *a* by means of the worm *b* and segment *c*, substantially as described and illustrated in the accompanying drawings. 2nd. The coupling of the shaft *a*, consisting of two toothed discs, such as n, n^1, connected by the universal joint i, i^1 with the shaft a, and the combination, with the discs n, n^1, of the ring o placed loosely round the disc n^1, and by means of the fork p reaching behind the second disc n, where it is secured over the handle by the spring controlled ring r, substantially as described and illustrated in the accompanying drawings. 3rd. By the described arrangement, the moving back of the arm g with the simultaneous forward movement of the step T, suspended beneath the carriages by means of the angle plate w, connected with the segment c and acting through the rod u upon the vertical link v of the steps, substantially as described and illustrated in the accompanying drawings.

No. 33,031. Oil Filter. (*Filtre à huile.*)

David R. Ellis, Chicago, Ill., U.S., 4th December, 1889; 5 years.

Claim.—1st. The combination of the tank A, filter tube B within the tank, oil supply tube B^1, and a conduit or conduits leading from the top of the tube B to the lower part of the tank A, for conducting the oil which rises through the filtering material in said tube B to a point below the water line in the tank. 2nd. The combination, with a tank A, filter tube B, supply tube B^1 and filtering material occupying the space between the tubes B and B^1, of a second tube C, its interior open bottomed tube C^1, the pipe delivering from the upper end of the tube B in the top of the tube C^1, and that leading from the top of the tube C to a point below the water line of the tank, substantially as described. 3rd. The combination, with the tank A, tubes B and C, the interior tubes B^1 and C^1, the pipe leading from the tube B to the tube C^1, the pipe leading from the tube C to a point in the tank A below the water line thereof, and the external faucet leading respectively from the bottom of the tube B, from the bottom of the tank A and from the tank A above the water line, substantially as described.

No. 33,032. Wrench. (*Clé à écrou.*)

Peter R. Erickson, Ishpeming, Mich., U. S., 4th December, 1889; 5 years.

Claim.—1st. The combination, in a wrench, of the hollow handle having the rigid jaw, the movable jaw having the guide arm and the longitudinally movable arm O in the hollow handle adapted to engage and lock the arm of the movable jaw, and be withdrawn from such engagement and having limited lateral movement, substantially as described. 2nd. The combination, in a wrench, of the hollow handle having the rigid jaw B, the movable jaw F having the guide arm, with ratchet teeth, the thumb nut K arranged in the hollow handle, the arm O secured thereto and provided with ratchet teeth adapted to engage those of the movable jaw, and having limited lateral movement and the spring pressing inward on the arm O, for the purpose set forth, substantially as described. 3rd. The combination of the hollow handle, having the rigid jaw, the movable jaw having the guide arm with ratchet teeth, the thumb nut having the socket L, the arm O screwed to the thumb nut and having the head provided with ratchet teeth, for the purpose set forth, the pin or screw engaging the socket L, the spring S in said socket bearing on the said pin, the spring T bearing against one side of the arm O and the adjusting screw U, engaging the opposite side of said arm, substantially as described. 4th. The combination, in a wrench, of the hollow handle having the rigid jaw B, the movable jaw F having the guide arm with ratchet teeth, the thumb nut K arranged in the hollow handle, the arm O secured thereto and having the ratchet teeth adapted to engage those of the movable jaw, said arm O being capable

of vertical movement to bring said ratchet teeth into and out of engagement with the movable jaw and having limited lateral movement, substantially as described. 5th. The combination, in a wrench, of the hollow handle having the rigid jaw B, the movable jaw F having the guide arm with ratchet teeth, the thumb nut K arranged in the hollow handle, the arm O secured thereto and having the ratchet teeth adapted to engage those of the movable jaw, the thumb nut having a threaded connection with the arm O, and the adjusting screw U bearing against the arm O, substantially as described. 6th. In a wrench, the handle having the rigid jaw B combined with movable jaw F, having the guide arm G provided with ratchet teeth, the thumb nut K having threaded socket M, the arm O within the handle and having the ratchet teeth engaging those on the guide arm and provided with a threaded end received in the threaded socket M, the spring bearing against the thumb nut and the spring bearing against the arm O, as set forth. 7th. In a wrench, the handle having the rigid jaw B combined with the movable jaw F, having guide arm G provided with ratchet teeth, the arm O provided with ratchet teeth engaging those on the arm G, and the adjusting screw U bearing against the arm O to move the same slightly, for the purpose set forth.

No. 33,033. Wrench. (*Clé à écrou.*)

Vincent J. McDonnell, Philadelphia, Penn., U. S., 4th December, 1889; 5 years.

Claim—1st. In a wrench, a semi-circularly shaped screw-threaded groove, provided on the outer surface of the main shank or stem, in combination with a tubular-shaped section secured to the adjustable jaw of the wrench, and having a projection attached thereto and provided on a portion of its circumference with a mutilated screw-thread adapted to fit in the screw threads of the groove in the shank, and a pawl and tooth securing device, substantially as set forth and described. 2nd. In a wrench, a semi-circularly-shaped screw-threaded groove provided on the main shank or stem, in combination with a tubular-shaped section secured to the adjustable section of the wrench, said section provided with a handle projection and with screw threads on a portion of its circumference, adapted to fit and operate in the screw threads of the groove of the shank or stem, a pawl adjusted to the tube section operated by a lever and notches provided on the end of the adjustable section of the wrench to engage said pawl, substantially in the manner and for the purpose as hereinbefore set forth and described. 3rd. In a wrench, the screw-threaded groove *a*, in combination with the tubular section E of the wrench, and provided with screw-threads on a portion of its circumference, and a handle or projection D, substantially as hereinbefore set forth and described. 4th. In a wrench, the screw-threaded groove *a*, in combination with the tubular section E secured to the adjustable section A^1, and provided with screw threads on a portion of its circumference, and a handle or projection D, a pawl *e* adjusted to the tubular section E, and teeth *t* provided on A^1, substantially as hereinbefore set forth and described.

No. 33,034. Carding Machine.

(*Machine à carder.*)

Frederick H. Carpenter, Louisville, Ohio, U.S., 4th December, 1889; 5 years.

Claim—1st. In a train of carding engines, first and second breaker cylinders equipped with the usual appurtenances, a stripping and stretching roller to take the stock from the doffer of the first breaker, spreading and evening rollers arranged next to the stripper and stretcher, and another stretching roller arranged next to the second breaker cylinder, and which also serves to feed the stock to the said second breaker cylinder, combined with a finishing card and similar stripping and stretching, and spreading and evening, and stretching and feeding rollers interposed in the order named between it and the second breaker, substantially as described. 2nd. In a train of carding engines, first and second breaker cylinders equipped with the usual appurtenances, a stripping and stretching roller to take the stock from the doffer of the first breaker, spreading and evening rollers, and means to impart a longitudinal vibration thereto arranged next to the stripper and stretcher, and another stretching roller arranged next to the second breaker cylinder, and which also serves to feed the stock to the said second breaker cylinder, combined with a finishing card and similar stripping and stretching, and spreading and evening, and stretching and feeding rollers interposed in the order named between it and the second breaker, substantially as described.

No. 33,035. Barrel Swing. (*Chantier de baril.*)

Francis Mason and Foster N. Ham, Bowmanville, Ont., 4th December, 1889: 5 years.

Claim.—1st. The combination of the standard A fitting into bosses B, C, at the ends, and the brackets F, G, sleeved on the standard and having a hook *a*, as set forth. 2nd. The combination, with the standard A and bracket F, having at top an inclined face around the eye of the arm I, sleeved on the standard and having a slot receiving a guide pin projecting from the standard, and an inclined plane or face agreeing with the inclined face of the bracket, the spiral spring N to depress the arm, and a cover J attached to the arm, whereby the arm is automatically raised by the bracket to lift the cover and depressed by the spring, as set forth.

No. 33,036. Gas Stove. (*Poêle à gaz.*)

James Gibbons, Jersey, N.J., U.S., 4th December, 1889: 5 years.

Claim.—1st. The combination, in a stove, of a burner made with a gas and air mixing tube C, apertured at *c* at its inner part, and a casing G having an open end admitting air, and fitted at its closed inner end to the mixing tube beyond or outside of the apertures *c*, and a fire-chamber receiving products of combustion from the burner, and provided at its walls with an air passage which opens at one end to an air-supply, and ranges along or next the fire-chamber into which it opens at or near the point of ignition of the burner, substantially as shown and described, whereby products of combustion from fluid fuel and superheated air commingled in advance of the point of ignition of the burner, and flaming at the burner will be met thereat by a volume of air superheated in the passage at the fire-chamber walls, to maintain combustion at a very high temperature in the stove, as herein set forth. 2nd. The combination, in a stove, of a burner made with a gas and air mixing tube C, apertured at *c* at its inner part, a flame-cup held to the outer end or part of the mixing tube, a casing, as G H, surrounding the tube and cup and providing air-superheating passage J, and chamber G^1, said casing fitted at its closed inner part to the mixing-tube beyond or outside of its apertures *c*, and a fire-chamber receiving the products of combustion from the burner, and provided at its walls with an air-passage which opens at one end to an air-supply and ranges along or next the fire-chamber into which it opens at or near the point of ignition of the burner, substantially as described for the purposes set forth. 3rd. The combination, in a stove, of a burner made with a gas and air mixing tube C, apertured at *c* at its inner part, and a casing, as G, having an air-inlet at its outer part and fitted at its closed inner part to the mixing-tube beyond or outside of its apertures *c*, a fire-chamber receiving the products of combustion from the burner, and provided at its walls with a passage which opens at one end to an air-supply and ranges along or next the fire-chamber, and opens at the other end to the fire-chamber at or near the point of ignition of the burner, to maintain combustion of commingled fluid fuel and superheated air at the burner by a supply of air superheated by the fire-chamber of the stove, and a drum or wall providing an air-passage outside of, and communicating with, the inlet of the air-passage at the fire-chamber walls and opening to the outer air nearer the burner of the stove, to cause the air which maintains combustion at the burner to traverse the fire-chamber twice in its passage to the burner for highly superheating said air, all arranged and combined for operation substantially as herein set forth. 4th The combination, in a stove, of a burner made with a gas and air mixing tube C, apertured at *c* at its inner part, and a casing, as G' having an air-inlet at its outer part and fitted at its closed inner part to the mixing-tube beyond or outside of its apertures *c*, a fire-chamber receiving the products of combustion from the burner, and provided at its walls with a passage which opens at one end to an air-supply and ranges along or next the fire-chamber, and opens at the other end to the interior of the fire-chamber at or near the point of ignition of the burner to maintain combustion of commingled fluid fuel and superheated air at the burner by a supply of air superheated by the fire-chamber of the stove, and said fire-chamber provided with outlets for delivery of hot products, a drum or wall providing an air-passage outside of, and communicating with the inlet of the air-passage at the fire-chamber wall, and opening to the outer air nearer to the burner of the stove, to cause the air which maintains combustion at the burner to traverse the fire-chamber twice in its passage to the burner for highly superheating said air, and an outside drum forming an outer chamber receiving the hot products from the outlets of the fire-chamber, and serving to radiate or distribute the heat of the stove, all arranged and combined for operation substantially as herein set forth. 5th. The combination, in a stove, of a fire-chamber, a burner delivering hot products thereto, and said chamber provided with a passage at its walls, which opens at one end to an air-supply and ranges along or next the fire-chamber, and opens at its other end to the interior of the fire-chamber at or near the point of ignition of the burner, to maintain combustion at the burner by a supply of air superheated by the fire-chamber of the stove, a drum or wall providing an air-passage outside of, and communicating with the inlet of the air-passage at the fire-chamber walls and opening to the air nearer the burner of the stove, to cause the air-supply maintaining combustion at the burner to traverse the fire-chamber twice in its passage to the burner in a superheated condition, said fire-chamber provided with outlets delivering hot products, and an outer drum forming an outer chamber receiving the hot products from the outlets of the fire-chamber and serving to radiate or distribute the heat of the stove, all substantially as described for the purposes set forth. 6th. A stove constructed with a body having a main fire-chamber, and three drums forming three passages for air and products of combustion outside the fire-chamber, the centre of the three passages opening at the bottom or inner part of the air which has an up-draft or out-draft through it, the inner of the three passages communicating with the outer part of the centre passage and the inner part of the fire-chamber, and the outer passage or flue communicating with the outer part of the fire-chamber and serving as a heat receiving and distributing chamber, substantially as herein set forth. 7th. In a stove, the combination, with a burner or fire-pot, of a fire-chamber provided with lower or inner air-inlet and outer passages, as at S, for hot products, a drum X fitted at its outer part to the fire-chamber and having air-inlet at *y*, and drums U, V supported outside of the drum X, said drum U fitting the fire-chamber inside of its passages S, and a cover fitted to the fire-chamber and outer drum V, substantially as shown and described, whereby passages Y, Z, T are formed for circulation and heating of air in the stove-body, as and for the purposes set forth. 8th. In a stove, the combination, with a burner or fire-pot, of a fire-chamber provided with lower or inner air-inlet and outer passages, as at S, for hot products, a drum X fitted at its outer part to the fire-chamber and provided with air-inlet at *y*, and drums U V supported outside of the drum X, said drum U fitting the fire-chamber inside of its passages S, and a cover fitted to the fire-chamber and outer drum V, whereby passages Y, Z, T are formed in the stove body for circulation and heating of air, said stove body having passages at its outer wall for exit of hot products, and one or more damper fitted to these hot product exits, substantially as herein set forth. 9th. A stove constructed with a body having a main fire-chamber and three drums forming three passages Y, T, Z, for air and products of combustion outside the fire-chamber, and said fire-chamber fitted with a removable cover or plate at its outer end, substantially as herein set forth. 10th. A stove constructed with a body, having a main fire-chamber and three drums forming three passages Y, Z, T, for air and products of combustion outside the fire-chamber, said body having a top or outer end, provided with openings p^1 and a damper *p* controlling said

openings, substantially as herein set forth. 11th. A stove constructed with a body, having a main fire-chamber and three drums forming three passages Y, Z, T, for air and products of combustion outside the fire-chamber, said body having a top or outer end formed with a removable cover for the fire-chamber and with openings p^1 from the outer passage T, and a damper p controlling said openings, substantially as herein set forth. 12th. In a stove, the combination, with a burner or fire-pot, a fire-chamber having inner air-inlet and outer passages for hot products, and drums relatively arranged to provide passages Y, T, Z, for establishing circulation of air and hot products through the stove-body, of a damper fitted over hot product passages in the outer drum, and one of said hot product passages and the damper relatively arranged to always leave an opening for escape of hot products from the stove body, substantially as herein set forth. 13th. A stove made with a burner or fire-pot, a fire-chamber having air-inlet R, and hot product outlet S, a drum X fitted to the fire-chamber and resting on the burner or fire-pot shell, and drums U V connected at the top with the fire-chamber and resting on a base or support, as W w, substantially as shown and described, whereby passages Y, Z, T are provided in the stove-body for air circulation, and the entire body may be removed from the burner or fire-pot, as and for the purposes set forth. 14th. In a stove, the combination, with a burner, a fire-chamber and a drum fitted around the fire-chamber and burner, and provided with mica or translucent plates 4, of a body capable of incandescence and made in the form of an inverted cup placed in the fire-chamber and providing an air and light passage at its rim, substantially as herein set forth. 15th. In a stove, the combination, with a burner, a fire-chamber, and a drum fitted around the fire-chamber and burner, and provided with mica or translucent plates 4, of a body capable of incandescence and made in the form of an inverted cup placed in the fire-chamber, and provided with a passage 3 at its top or outer part, and providing an air and light passage at its rim, substantially as herein set forth.

No. 33,037. Process of Making Hollow Glassware. (*Procédé de fabrication de la verrerie creuse.*)

John B. Curtis, Cambridge, and John W. McIntosh, Brookline, Mass., U.S., 4th December, 1889; 5 years.

Claim.—The process of making hollow glass-ware direct from the molten glass composition, which consists in rolling the molten glass material into a flat blank of uniform thickness, and then placing said blank before cooling and, while in a plastic condition, onto a former or mould and permitting it to cool and contract on said former, whereby it assumes the shape thereof, and finally removing the so-shaped blank from the former and annealing it, substantially as described.

No. 33,038. Automatic Car Coupler.

(*Attelage de chars automatique.*)

William M. Bunce, Sheidon, and William P. Munro, Nevada, Mo., U.S., 4th December, 1889; 5 years.

Claim.—1st. The combination, with a draw-head having horizontal spring-pressed coupling jaws provided with upwardly-projecting operating levers C, C, pulleys g, g, on the end of the car, and the chains G connecting the upper ends of the levers and passing upward between the pulleys of the vertically-sliding rod H, connected at its lower end to the chain above the pulleys, and provided with a laterally-projecting catch h^1, adapted to engage a projection on the car and hold the rod in its raised position, substantially as set forth. 2nd. The combination, with a draw-head having longitudinally extending hooked jaws B, pivoted at their inner ends within the inner end of the head, and operating levers, of two plate springs E^1, E^1, secured at e e and bearing against the sides of the jaws, and a U-shaped spring e^1 embracing the springs E^1, E^1, substantially as set forth.

No. 33,039. Flue Cleaner.

(*Nettoyeur de bouilleur.*)

Samuel F. Sacket, (assignee of Johannes Ehrlich), Marion, Kan., U.S., 4th December, 1889; 5 years.

Claim.—1st. In a flue cleaner, the combination, with the steam chamber having a valved steam supply connection, a stuffing box, a piston carrying a brush or cleaner, and the support or handle connected to said steam chamber, of a spring retracted drum or sheave carried by said handle and located at a distance, and separated from said steam chamber, and a flexible piston rod having one end connected to said drum or sheave, and the other passing through the stuffing box on said steam chamber and being connected to said piston, substantially as set forth. 2nd. The flue cleaner consisting of the rod or handle having at one end a hand hold, and an offset at about the middle of its length, a steam chamber mounted upon the end opposite said hand hold and having a valved steam supply connection, a stuffing box, a piston carrying a brush or cleaner, the drum or sheave having coiled therein a spring engaging said drum, and a shaft upon which said drum or sheave independently revolves, said drum or sheave being located in the said offset of the rod or handle, plates connected to said rod forming bearings for said shaft, and the wire piston rod passed through said stuffing box on the steam chamber and connected to said piston, substantially as set forth. 3rd. In a flue cleaner of the class described, the piston constructed in sections, as set forth, said sections being adapted to be expanded radially by the pressure of steam admitted to the piston, for the purpose specified. 4th. In a flue cleaner, the combination, with a wire or rod, of a supporting piece secured to one end thereof, spring arms connected at one end to said supporting piece, and the sectional piston C^1 comprising the sections C^2, and the head C^4 secured to said spring arms, as and for the purpose specified.

No. 33,040. Centre Draft Mowing Machine.

(*Faucheuse s'attelant au centre.*)

Warren Hill, Athens, and Norman Hicks, Towanda, Penn., U.S., 4th December, 1889; 5 years.

Claim.—1st. In a centre-draft mowing machine, the combination, with the two shoes, of the vertically-adjustable bridge-pieces J^3 on the same, and provided with the sockets S, the rods R passed into the sockets S and provided at their ends with balls fitting in the said sockets, the axle, wheels supporting the same, and frames on the ends of the axle in which frames the upper ends of the rods R are held, substantially as herein shown and described. 2nd. In a centre-draft mowing-machine, the combination, with an axle, the wheels and the frames on the ends of the axle, of the rods R projecting from said frames, and provided at their lower ends with balls, and near their ends with the collars S^2, the bridge-pieces J^3 provided with the flaring sockets S, for receiving the balls on the ends of the rods R, the screws S^1 bearing on the collar S^2 in the sockets, for adjusting the sockets on the rods R, and shoes supporting the bridge-pieces, substantially as herein shown and described. 3rd. In a centre-draft mowing machine, the combination, with the shoes, and a reciprocating cutter-bar, of a button mounted to turn on the top of said bar at one end, which button has its side edges rounded on a convex line, and of an angle-lever pivoted to the shoe and provided at one end with a slot having concaved sides, which slot receives the above-mentioned button on the cutter-bar, and of mechanism for rocking the angle-lever and reciprocating the cutter bar, substantially as herein shown and described. 4th. In a centre-draft mowing-machine, the combination, with a rod having a forked end provided with bevels on the prongs, of a socket held against the forked end, a shackle surrounding the socket and provided with bevels on the ends of its prongs, resting against the bevels on the prongs of the forked rod, and a bolt passed through the ends of the shackle and the forked end of the rod, substantially as herein shown and described. 5th. In a centre-draft mowing-machine, the combination, with the wheels and axle, of a frame held on the axle, a train of gearing in said frame, clutch mechanism for throwing said gearing in and out of action, a pivoted forked lever engaging the clutch mechanism, an elbow shifting-lever connected with said forked lever, and the cam-pieces E^5 on the frame between which the angle of the elbow shifting-lever is guided, substantially as specified.

No. 33,041. Electric Semaphore.

(*Sémaphore électrique.*)

The American Semaphore Company, (assignee of Frederick Stitzel and Charles Weinedel), Louisville, Ky., U.S., 4th December, 1889; 5 years.

Claim.—1st. In a semaphore signaling device, the combination, with a closed circuit made through the track rails of railroad block and a pair of electro-magnets D, D^1, of a pivotal compound armature bar J J^1, a visual signal blade pivoted to fall by gravity, a motor and a chain or its equivalent, connecting the motor and visual signal, substantially as set forth. 2nd. In a semaphore signaling device, the combination, with a thermo-motor L, a shaft F, a quadrant N and supports E, E^1, of a pivoted locking bar O and a pivotally supported swinging hook p, substantially as set forth. 3rd. In a semaphore signaling device, the combination, with a thermo-motor L, a heating device M, a quadrant N, a shaft F and supports E, E^1, for the shaft, of a pivoted locking bar O, a shoulder or stop R^1 on the quadrant, an adjustable weight o on the locking bar, and a pivoted hook p supported near the end of the rocking bar, substantially as set forth. 4th. In a semaphore signaling device, the combination, with a thermo-motor L, a heating device M, a quadrant N, a rocking arm G and a shaft F secured to the quadrant and motor, a curved latch bar G^4 pivoted by one end to the arched rim of the quadrant N, a pivoted gravity bar I, a compound armature bar J J^1, a swinging latch block 8 supported on the rocking bar, and a pair of electro-magnets D, D^1, substantially as set forth. 5th. In a semaphore signaling device, the combination, with two electro-magnets D, D^1, and an electrical generator or battery, of a pivoted compound armature bar J J^1, substantially as set forth. 6th. In a semaphore signaling device, the combination, with a pair of electro-magnets D, D^1, included in an electrical circuit with the railway rails, the railway rails of the block, a pivoted compound armature bar J J^1, and a pivoted latch hook p supported near the end of the armature bar, of a pivoted locking bar, substantially as set forth. 7th. In a semaphore signaling device, the combination, with a casing A, a shield B and a visual signal blade C pivoted in the shield, of a thermo-motor L supported on the same shaft with a balanced quadrant N, a quadrant N and a rocking arm G, substantially as set forth. 8th. In a semaphore signaling device, the combination, with a closed electrical circuit including a battery, two parallel tracks, the length of the block and two electro-magnets D, D, of a compound armature J J^1, substantially as set forth. 9th. In a semaphore signalling device, the combination, with a horizontal pivoted shaft, of a thermo-motor L and a quadrant N secured on and to this shaft, and a rocking arm G loosely mounted on the shaft, substantially as set the shaft, of a curved latch bar G^1 pivoted to one arm of the curved forth. 10th. In a semaphore signaling device, the combination, with a rocking shaft F, a thermo-motor L and a quadrant N mounted on rim of the quadrant, and a rocking arm G supported loosely on the shaft on which the motor and quadrant are placed, a latch 13 pivoted in the side of this rocking arm, and offset shoulders 14 on the quadrant substantially as set forth. 11th. In a semaphore signaling device, the combination, with a visual signal blade C, a thermo-motor L, a quadrant N fastened to the same shaft that pivotally supports the motor L, a rocking-arm G loosely mounted on the shaft with motor L, a flexible weighted connection e, e^1 between the signal blade and rocking arm, and quadrant N, of a closed electrical circuit that extends through the parallel rails as conductors, a pair of electro-magnets D, D^1, included in this circuit, and an armature bar J J^1, substantially as set forth.

No. 33,042. Cigar Bunch Wrapping Machine. (*Machine à envelopper les bottes de cigares.*

The Schmalz Cigar Machine Company, (assignee of John E. Schmalz,) New York, N. Y., U.S., 4th December, 1889; 5 years.

Claim.—1st. The combination, with oscillating bunch-holders having guide-rollers and laterally adjustable tension rollers, of two independent endlessaprons passing over said rollers and between said bunch-holders, and driving rollers for said aprons, substantially as set forth. 2nd. The combination, with oscillating bunch-holders having guide-rollers and laterally ajustable tension rollers, of two independent endless aprons passing over said rollers and between said bunch-holders, driving rollers for said aprons, a tip-forming block at one end of the bunch-holders, and a spring actuated mandrel at the other end of the bunch-holders, substantially as set forth. 3rd. The combination, with oscillating bunch-holders, having guide-rollers and laterally adjustable tension rollers, of two independent endless aprons passing over said rollers, driving rollers for said aprons, and spring tension rollers applied to the same, substantially as set forth. 4th. The combination, with oscillating bunch-holders having guide-rollers and adjustable tension rollers, of two independent endless aprons passi ng over said rollers, driving rollers for said apron, spring tension rollers pressing on said aprons, end intermediate stretching rollers between said aprons, substantially as set forth. 5th. The combination, with oscillating bunch-holders having guide-rollers, and endless aprons guided on the same, and suitable driving rollers, of a tip-forming block having a cavity open at the outer end, and a longitudinally reciprocating end spring actuated rotary tip-finishing thimble extending into the cavity of the tip forming block, substantially as set forth. 6th. The combination, with oscillating bunch-holders, having guide-rollers, endless aprons guided on the same, and suitable driving rollers, of a rotary spring actuated mandrel arranged at one end of said holders, a tip-forming block having a longitudinally open cavity at the other end of the holders, and a rotary tip-finishing thimble located in the open end of the tip forming block and in line with the same end of the mandrel, substantially as set forth. 7th. The combination, with oscillating bunch-holders having guide rollers, and endless aprons guided on the same, and suitable driving rollers, of a rotary spring actuated mandrel at one end of said holders, a tip-forming block at the other end of the holders, said block having a cavity open at the outer end, a rotary and spring actuated tip finish thimble adapted to operate in said cavity, and means for locking said thimble in position so as to clear the cavity of the tip-forming block, substantially as set forth.

No. 33,043. Translucent Film for use in the Art of Photo-Engraving. (*Toile translucide pour servir à la photo-gravure.*)

Carl A. Muller and William Jahn, New York, N.Y., U.S., 4th December, 1889; 5 years.

Claim.—A translucent film for use in the art of photo-engraving provided with a number of small grain figures, each figure being composed of a series of bands of different shades representing different tints of tones, each band having the same shade throughout its area, and the area of one band being equal to the area of each of the other bands, substantially as described.

No. 33,044. Journal Box for Railway Cars. (*Boite à graisse pour les chars de chemin de fer.*)

Pactrick Brownley and James Stratbon, St. John, N.B., 4th December, 1889; 5 years.

Claim.—1st. In a journal-box of the character described, the combination of a body provided with a bushing in its upper portion, a horizontal partition below the axle opening forming a packing chamber, and lubricant reservoir inwardly inclined, distributing shelves above said packing chamber, a box on the outer end of said body into which the reservoir opens, ducts leading from said box onto said shelves, and an arm secured to the journal and fitted to rotate in said box, substantially as and for the purpose set forth. 2nd. In a device of the character described, the combination of a body, a bushing bearing upon the axle journal, a box in the outer end of said body provided with a door, a packing chamber in said body opening into said box, door for said chamber, a reservoir in the body opening into said box, ducts leading from said box onto inwardly inclined distributing shelves in the body, and a laterally projecting arm on said journal, fitted to rotate in said box and raise the lubricant to said ducts, substantially as described. 3rd. In a journal-box, a body provided with a bushing for supporting it on an axle-journal, a box on said body provided with a d oor, an oil reservoir leading into said box, ducts leading from the box onto inclined shelves in the body, for distributing the lubricant onto the journal, and an arm fixed to the outer end of the journal and rotating in said box, said arm having a forked head, whereby the lubricant from the reservoir may be conveyed to said ducts, substantially as described. 4th. In a journal-box, a body provided with a bushing bearing on the axle-journal, a circular box on the outer end of said body provided with a door, a packing chamber below said journal opening into said box, an oil reservoir opening into said box and provided with an outwardly inclined bottom, ducts leading from said box onto inwardly inclined distributing shelves in said body, and an arm projecting laterally from the outer end of said journal and fitted to rotate in said box, said arm having a forked head provided with curved prongs, whereby oil from the reservoir may be conveyed to said ducts, substantially as described. 5th. In a journal-box, the axle-journal C provided with the flange *d*, in combination with the body A having the bushing *g*, the box H on said body, the reservoir G opening into said box, the inclined shelves 17, the ducts 18 leading from said box to said shelves, and the arm *t* secured to said journal, all being arranged to operate substantially as described. 6th. In a journal box, the combination of the axle B, the body A having the bushing *g* bearing on the journal C, the box H provided with the inclined bottom *i* and door *p*, the partition *h* forming packing chamber D, and reservoir G opening into said box, the door 16 for said chamber, the ducts 18 leading from said box to inclined distributing shelves in said body, and the arm *t* provided with the forked head *w*, substantially as and for the purpose set forth and described. 7th. In a journal-box, an arm secured to the revolving journal, substantially as and for the purpose set forth.

No. 33,045. Heel Counter for Boots and Shoes. (*Contre-fort pour les chaussures.*)

George Beacock, Brockville, Ont., Thomas J. Claxton, Montreal, Que., and Charles H. McCrady, Brockville, Ont., 4th December, 1889; 5 years.

Claim.—1st. A rawhide heel counter having perforations C and transparent, as set forth. 2nd. A transparent rawhide heel counter having wrinkles B along the inturned edge, as set forth. 3rd. A rawhide heel counter, transparent and having the perforation C and wrinkles B, as set forth.

No. 33,046. Board or Table and Apparatus for Playing Parlour or Switch-back Skittles. (*Table et appareil de salon pour jouer aux quilles.*)

James S. Burroughes, London, Eng., 5th December, 1889; 5 years.

Claim.—1st. An improved board or table for playing parlour or "switchback skittles," constructed, combined and arranged substantially as hereinbefore described and illustrated on the accompanying drawing. 2nd. In a board or table for playing parlour skittles, a bed or playing surface A of a convex shape transversly, in combination with the gutters D, substantially as and for the purpose specified. 3rd. In a board or table for playing parlour skittles, the inclined conduit grooved way or "switchback" F curved to form various gradients, substantially as described and for the purpose specified.

No. 33,047. Process of Cleansing Granular Filter Beds. (*Procédé de nettoyage des couches granulaires des filtres.*)

John W. Hyatt, Newark, N. J., U. S., 5th December, 1889; 5 years.

Claim.—1st. The method of cleansing granular or comminuted filter beds, which consists in directing the current in succession through different portions of the filter bed until the whole has been agitated and cleansed, substantially as herein set forth. 2nd. The method of cleansing granular or comminuted filter beds, which consists in reversing the current of unfiltered water through the filter bed and directing the full force of the current first against one portion of the bed, and then against another portion, and so on until the whole has been agitated and cleansed, substantially as herein set forth. 3rd. The method of cleansing granular or comminuted filter beds, which consists in reversing the current of unfiltered water through the filter bed and directing the full force of the current first against one portion of the bed, and then against another portion, and so on until the whole has been agitated and partially cleansed, and finally directing the current against the whole of the bed at the same time to complete the cleansing, substantially as herein set forth.

No. 33,048. Vehicle Spring. (*Ressort de voiture.*)

Edward L. Norfolk, Kingston, N. H., U. S., 5th December, 1889; 5 years.

Claim.—1st. The combination of a vehicle body, provided with a central vertical dependent spindle, a sliding sleeve on said spindle, a spring interposed between said sleeve and body, hangers at the four corners of said body, and diagonal levers fulcrumed in bearings connected with the reaches, the outer ends of said levers being connected with said hangers and their inner ends with said sleeves. 2nd. The combination of a vehicle body, provided with a central vertical dependent spindle, a sliding sleeve on said spindle, a spring interposed between said sleeve and body, hangers at the four corners of said body, the vehicle gear provided with fixed bearings, diagonal levers fulcrumed in said bearings, links connecting the outer ends of said levers with said hangers, and links connecting the inner ends of said levers with said sleeve. 3rd. The combination of a vehicle body, provided with a central vertical dependent spindle, a sliding sleeve on said spindle, provided with a shoulder or stop, swivelling rings on said sleeve, provided with eyes, a spring interposed between said sleeve and body, hangers at the four corners of said body, the vehicle gear provided with fixed bearings, diagonal levers fulcrumed in said bearings, links connecting the outer ends of said levers with said hangers, and links connecting the inner ends of said levers with said eyes. 4th. The combination of a vehicle body, provided with a central vertical dependent spindle, having an attaching disk provided with a flange at its outer edge, a sliding sleeve on said spindle, a spring interposed between said sleeve and body and surrounded by said flange, hangers at the four corners of said body, the vehicle gear provided with bearings, and diagonal levers fulcrumed in said bearings, the outer ends of said levers being connected with said hangers, and their inner ends with said sleeve.

No. 33,049. Ash Sifter for Stoves.

(*Crible à cendres des poêles.*)

Edward E. Smith, New York, N. Y., U. S., 5th December, 1889; 5 years.

Claim—1st. The combination, with a stove or heater, of an ash-sifter fitted therein below the fire-pot for horizontal oscillation, consisting of an upper ash-receiving section, having an imperforate sloping floor, and a lower sifting section having a sloping perforated floor, and said sections relatively arranged to cause the upper section to discharge the mixed ashes and cinders onto the higher portion of the perforated floor of the lower section, substantially as herein set forth. 2nd. The combination, with a stove or heater, of an ash sifter fitted below the fire-pot for horizontal oscillation, consisting of a sifting section having a sloping perforated floor receiving the mixed ashes and cinders from the fire-pot, and with a lower ash-receiving section having an imperforate floor, receiving the ashes from the sifting section and discharging them at a place separate from the cinders falling from the sifting section, substantially as herein set forth. 3rd. The combination, with a stove or heater, of an ash sifter fitted below the fire-pot for horizontal oscillation, consisting of an upper ash and cinder-receiving section, having an imperforate sloping floor, an intermediate next lower sifting section, having a sloping perforated floor, receiving at its upper part the mixed ashes and cinders from the upper section, and a lower section having an imperforate floor receiving the ashes from the sifting section and discharging them at a place separate from the cinders discharged from the sifting section, substantially as herein set forth. 4th. An oscillatory ash sifter, consisting of a supporting shaft and three sifter sections thereon, or an upper ash and cinder receiving section having an imperforate sloping floor, an intermediate next lower sifting section, having a sloping perforated floor receiving at its upper part the mixed ashes and cinders from the upper section, and a lower section having an imperforate floor receiving the ashes from the sifting section and discharging them at a place separate from the cinders discharged from the sifting section, and bolts R holding the sifter sections together vertically, substantially as herein set forth. 5th. An oscillatory ash sifter, consisting of a supporting shaft and three sifter sections thereon, or an upper ash and cinder receiving section having an imperforate sloping floor, an intermediate next lower sifting section, having a sloping perforated floor receiving at its upper part the mixed ashes and cinders from the upper section, and a lower section having an imperforate floor receiving the ashes from the sifting section and discharging them at a place separate from the cinders discharged from the sifting section, bolts R holding the sections together vertically, and interlocking lugs and sockets at the section joints preventing independent axial movement of the sections during their oscillation, substantially as herein set forth. 6th. In a horizontally oscillating ash sifter, having upper, middle and lower sections, substantially as described, the section H having a perforated sloping floor h, provided with one or more steps or shoulders h^4, substantially as herein set forth. 7th. In a horizontally operating ash sifter, having upper, middle and lower sections, substantially as specified, the sifter section H having a sloping floor perforated at h^3, and provided with shoulders h^4, and having plain portions h^5 next its upper edge h^1, and the shoulders h^4, substantially as herein set forth. 8th. The combination, in an ash-sifting apparatus for stoves, of a partition E at the base of the stove forming compartments C, D therein, a vertical spindle F having supports or shoulders, as T, sifter-sections I, H, G, supported on said shoulders and on each other, and said section G formed with an imperforate floor g, and said section H formed with a floor h, mainly perforated and having an imperforate portion H^1 next its edge, discharging the cinders into the compartment D, and said section I having an imperforate floor i receiving ashes from the section H and discharging them into the compartment C, and all three sections held together for simultaneous horizontal oscillation, substantially as herein set forth. 9th. The combination, with a casing or frame having a slot, and an oscillatory sifting device supported in said casing and provided with a shaker bar entering the casing slot, of a spring held to the casing and against which the shaker bar or a connection therewith may strike, substantially as described, whereby the resistance of the spring will prevent noisy contact of the shaker bar at the ends of the slot in which it works, substantially as herein set forth. 10th. The combination, with a casing or frame having a slot, and an oscillatory sifting device supported in said casing and provided with a shaker bar entering the casing slot, of a spring held to the casing, and stop-lugs on the casing for the clamped end or part of the spring, substantially as described, whereby the spring will be held in a manner to have greater resistance against the movement of the bar in one direction than in the other direction, as and for the purposes set forth. 11th. The combination, with the shaker bar, of an ash-sifting device passed through a slot in the sifter support, of a dust guard plate K on the bar at the slot and provided with shoulders o, o, and a spring held to the sifter support and in the path of said shoulders to be struck thereby, to prevent contact of the shaker bar with the ends of the slot through which it works, substantially as herein set forth. 12th. The combination, with the shaker bar of an ash sifting device passed through a slot in the sifter support, of a dust guard plate K on the bar at said slot, and provided with shoulders o, o, and a spring M held in lugs m^1, m^2, m^3, on the sifter support and in the path of said shoulders, substantially as shown and described, whereby the resisting power of the spring will be increased and diminished at opposite strokes of the shaker bar, substantially as herein set forth.

No. 33,050. Sickle Bar for Harvesters.

(*Port-couteaux pour moissonneuses.*)

William H. Palmer, Yale, Mich., U.S., 5th December, 1889; 5 years.

Claim—1st. In a sickle bar for harvesters, the combination, with a sickle bar, of sickles A detachably assembled thereon and clamped together in series of sections in the longitudinal direction of the bar, substantially as described. 2nd. In a sickle bar for harvesters, the combination, with a sickle bar B constructed in two parts secured together parallel to each other and at a distance equal to the thickness of the sickles, of sickles A detachably assembled between the two bars by clamping or wedging them together endwise, substantially as described. 3rd. In a sickle bar for harvesters, the combination of a sickle bar B in two parts secured together by rivets, of sickles A detachably assembled in a longitudinal slot formed between the two parts of the bar, and having notches to engage with the rivets, and the wedge F, or its equivalent, to clamp them together endwise in series, substantially as described.

No. 33,051. Tricycle for use on Land and Water. (*Tricycle pour servir sur terre et sur l'eau.*)

George Pinkert, Munich, Germany, 5th December, 1889; 5 years.

Claim—1st. In a tricycle for use on land and water, the driving wheels A, A, consisting of hermetically closed hollow rings secured to the driving axle i, and provided on their circumference with paddles a, as described and for the purpose set forth. 2nd. In a tricycle for use on land and water, the lanticular hollow guide wheel B, as and for the purpose specified. 3rd. In a tricycle for use on land and water, the combination of the hollow driving wheels A, A and the hollow guide wheel B, with projecting annular flanges or tspes u, as and for the purpose set forth.

No. 33,052. Manufacture of Boot and Shoe Soles. (*Fabrication des semelles de chaussures.*)

Guillaume Boivin, Montréal, Qué., 5th Décember, 1889; 5 years.

Résumé.—1o. Une semelle courte ameliorée formée de la semelle a, de la rallonge de talon b et du remplissage d, telle que décrite. 2o. En combinaison avec la semelle courte a, le remplissage d et la rallonge b, la rallonge supplementaire f, telle que décrite. 3o. En combinaison avec une semelle de chaussure, la rallonge f aminoie a son extrêmité interne et posée dans le talon entre la semelle et l'empeigne, telle que décrite. 4o. En combinaison avec la semelle courte, les embouvetages à jointure superposée ou à rainure et languette, pour relier les pièces entre elles, ainsi que décrite.

No. 33,053. Skate. (*Patin.*)

Hermann Heinze, Chicago, Ill., U.S., 5th December, 1889; 5 years.

Claim.—1st. A skate provided with laterally-adjustable side clamps, which are engaged by, and operated from, a longitudinally adjustable sole plate, having a normally raised rear extension arranged so that, when depressed by the act of putting on the skate, it will be engaged by and pushed forward by the heel of the boot or shoe, so as to move forward the sole plate and thereby adjust the side clamps, substantially as set forth. 2nd. The combination of the laterally adjustable side clamps, the longitudinally adjustable sole plate engaging the side clamps, so as to operate the same, as set forth, the spring F extending rearwardly from the sole plate as an extension thereof and together with the guard G, providing a clamp for the heel, and a suitable locking device for the spring F when depressed, substantially as set forth. 3rd. The combination of the laterally adjustable side clamps, the longitudinally adjustable sole plate engaging the side clamps, so as to operate the same, as set forth, the spring F extending rearwardly from the sole plate as an extension thereof and together with the guard G, providing a clamp for the heel and a locking device for the spring F when depressed, comprising a rack H, rigid with spring F, and a ratchet movable as a whole with the longitudinal movement of the sole plate, substantially as set forth. 4th. The skate-holding device M adapted for engaging the ice, so as to hold the skate, for the purpose set forth.

No. 33,054. Water Heater. (*Calorifère à eau.*)

Herbert E. Harrington, Walden, Vt., U. S., 6th December, 1889; 5 years.

Claim.—1st. The combination, in a water-heater, of an outer shell, a draft flue opening into the side of the shell and extending upward clear of it to give off its heat independently, a fire-box supported in the shell and with its side walls separate therefrom, to provide a hot air space ranging entirely around between the box and shell and with which space the draft flue communicates, and said fire-box having a fuel chamber communicating with the space between the box and shell and also having a downwardly-extending air-flue leading to its fuel chamber, and a cover formed in two parts, one adapted to cover the fuel chamber and the other adapted to cover the fire-box air flue and form a damper thereto, substantially as herein set forth. 2nd. The combination, in a water heater, of an outer shell or casing, a draft flue fitted thereto, a fire-box supported in the shell, so as to provide an air space between the box and shell, and said fire-box having a fuel chamber communicating by a side opening with the shell, and also having a downwardly-extending air-flue leading to the fuel chamber, and a radial plate or plates fitted in the air space between the shell and fire-box, and providing by turning the box for either a direct or circuitous draft from the fuel chamber of the box to the casing draft flue, substantially as herein set forth. 3rd. The combination, in a water heater, with an outer shell or casing, a draft flue fitted thereto, a fire-box supported in the shell, so as to provide an air space between the box and shell, and said fire-box having a fuel chamber communicating by a side opening with the shell, and also having a downwardly-extending air-flue leading to the fuel chamber, and a radial plate fitted in the air space between the shell and fire-box, and providing by turning the box for either a direct or circuitous draft from the fuel chamber of the box to the casing draft flue, of a stop lug and notches locking the cut-off plate or plates to assure an indirect draft, substantially as herein set forth. 4th. The combination, in a water heater, of a shell A, having a draft flue a and plate F, and a ring or flange a^1, a fire-box supported by a flange on the flange a^1, and providing a space E between the box

and shell, and having a side opening b^1 to said space, and said draft flue communicating with the lower part of the shell and extending upward clear of it to give off its heat independently, a plate G on the fire-box adapted to the shell plate F, and said box also provided with a partition H, forming in the box a fuel chamber J and air supply flue I, and providing a lower draft opening i, substantially as herein set forth. 5th. The combination, with a casing, having a draft flue and a fire-box supported therein, and providing an air space E, of plates F, G, held to the casing and fire-box respectively, and the fire-box support in the casing provided with notches a^3, and the plate G having a lug g adapted to said notches, substantially as herein set forth.

No. 33,055. Caster. (*Roulette de meuble.*)

John E. Treat, Orion, Mich., U.S., 6th December, 1889; 5 years.

Claim.—1st. A caster consisting of a supporting shank with a horizontal shaft journalled therein, a ball having an axial shaft journalled in the former shaft at right angles therewith, said latter journal housed within the confines of the ball, substantially as described. 2nd. A caster consisting of a shaft journalled in a supporting shank, another shaft at right angles thereto journalled in the former shaft with their axes intersecting said latter shaft housed between two semi-spheres, substantially as described. 3rd. A ball composed of two semi-spherical sections joined upon an axial shaft at right angles to the dividing plane, with a space between the opposite edges, a flattened shaft passed between said sections through which the shaft of the ball is journalled, said flattened shaft journalled at its ends in a supporting shank, substantially as described. 4th. The combination, with the ball sections E, E^1, and shaft D, of the shaft C journalled in the supporting shank of the caster, said shaft C flattened and widened at c and enlarged within the ball at c^1, to afford a large bearing for the shaft of the ball, substantially as described, 5th. The combination, with a ball, and its shaft D, of the shaft C made thin and broad at c, and enlarged at its extremities at c^2, substantially as and for the purposes described. 6th. The ball consisting of segments E, E^1, said segments strengthened by an intermediate piece e, substantially as and for the purposes described. 7th. The combination, with the segmental sections E, E^1, of one or more grooves e^1, for the purpose described.

No. 33,056. Automatic Mast Supporter.

(*Support automatique de mat.*)

Joel Couch, Clayton, N.Y., U.S., 6th December, 1889; 5 years.

Claim—1st. The combination of a mast, a socket adapted to receive the lower end of the mast, a stationary deck or cross-bar above the socket, and an opening and closing clasp for engaging the mast above the socket and securing it to the deck or cross-bar. 2nd. The combination of a mast, a socket adapted to receive the lower end of the mast, a stationary deck or cross-piece above the socket, and an automatically closing clasp or catch for engaging the mast above the socket and securing it to the deck or cross-piece. 3rd The combination of a mast, a socket adapted to receive the foot of the mast, the supporter-piece, and the bifurcated pivoted lever-catch upon the supporter-piece adapted to engage the mast above the foot and secure the same. 4th. The combination, in a mast-supporting device, of the mast, the socket adapted to receive the lower end of the mast, the supporting-piece above the socket having a recess adapted to receive the mast, a clasp for securing the mast in the recess, and a catch for securing the clasp on engagement with the mast. 5th. The combination, in a mast-supporting device, of a mast, a socket adapted to receive the lower end of the mast, a stationary supporter-piece above the socket, an automatically closing and an opening clasp for engaging the mast above the socket and securing it to the supporter-piece. 6th. In a mast-supporting device, the combination of a mast, a socket adapted to receive the lower end of the mast, a supporter-piece above the socket, an automatically closing and an opening catch for engaging the mast above the socket and securing it to the supporter-piece, and a catch for securing the clasp in closed position. 7th. The combination of a mast having a shoulder 14 thereon adjacent to its lower end, a socket having a projecting edge adapted to engage the shoulder on the mast from above, and a mast-supporter engaging the mast above the socket. 8th. The combination of a mast, a socket having a deeper portion, and opposed walls 11 extending therefrom, and an opening and closing mast-supporter above the socket, substantially as set forth.

No. 33,057. Process and Apparatus for Making Gas. (*Procédé et appareil de fabrication du gaz.*)

Herbert Cottrell, Newark, N.J., U.S., 6th December, 1889; 5 years.

Claim—1st. In an automatic gas machine, the combination, with a generator for vaporizing a volatile liquid, of inlet and outlet valves, and suitable mechanism for intermittently applying heat and cold alternately to said generator, the whole arranged and operated to alternately vaporize the said liquid and to condense the vapor thereof within the generator, as and for the purpose set forth. 2nd. In a hydro-carbon vaporizing apparatus, the combination, with the generator, of a contiguous receptacle for retaining hot and cold fluid in contact with the generator pipes, for supplying hot and cold fluid to the said receptacles, and a gas receiver with a movable part arranged and operated to shift such valves, as and for the purpose set forth. 3rd. In a hydro-carbon vaporizing apparatus, the combination, with a cylindrical generator, of a jacket for hot and cold fluid surrounding the same, a distributer inserted in the receptacle with notches adjacent to the shell of the generator, and a discharge pipe from such receptacle, as and for the purpose set forth. 4th. In a hydro-carbon vaporizing apparatus, the combination, with a cylindrical generator g, of the cylindrical jacket i surrounding a portion of the same, stuffing boxes applied to the ends of the generator and clamped upon the ends of the jacket and pipes for supplying hot and cold fluid to the jacket, as and for the purpose set forth. 5th. In a hydro-carbon vaporizing apparatus, the combination, with a cylindrical generator g, of the cylindrical jacket i surrounding a portion of the same, stuffing boxes M applied to the generator, with flanges f grooved to fit the ends of the jacket i, glands M^1 fitted to the stuffing boxes, rods R^1, with nuts applied to the flanges of the glands, and springs S^1 applied to the rods to press the flanges f elastically together upon the receptacle i, and pipes to supply hot and cold fluid to the receptacle, as and for the purpose set forth. 6th. In a hydro-carbon vaporizing apparatus, the combination, with the generator, of a contiguous receptacle for retaining hot and cold fluid in contact with the generator pipes for supplying hot and cold fluid to the said receptacle, valves with passages for internately connecting such pipes with the receptacle, a gas receiver with a movable part arranged and operated to shift such valves, a generator supply pipe connected with the reservoir of hydro-carbon fluid, a valve chamber inserted in such supply pipe, and a pump connected with such valve chamber to force the hydro-carbon fluid into the generator when starting the apparatus, as and for the purpose set forth. 7th. In the art of generating vapor from a hydro-carbon liquid, the method of drawing the liquid intermittently into the generator, which consists in intermittently heating and cooling the generator and forming a partial vacuum therein to lift the liquid from its reservoir, substantially as herein set forth. 8th. The process of generating vapor from a hydro-carbon liquid, which consists, first in supplying the liquid to the generator, secondly, heating the generator to vaporize the liquid, thirdly, cooling the generator to condense the contained vapor and form a partial vacuum, and, fourthly, drawing the liquid into the generator from its reservoir, substantially as herein set forth. 9th. The process of manufacturing an illuminant with hydro-carbon vapor, which consists, first, in supplying the hydro-carbon fluid to the generator, secondly, heating the same to vaporize the liquid, thirdly, discharging the vapor from the generator against a regulated pressure, fourthly, cooling the generator when such pressure rises too nigh to produce a partial vacuum, and, fifthly, drawing the liquid into the generator from its reservoir by such vacuum, substantially as herein set forth.

No. 33,058. Paving Block Cutting Machine.

(*Machine à tailler les blocs de pavage.*)

Lorenzo T. Southworth, Evart, Mich., U.S., 6th December, 1889; 5 years.

Claim.—1st. The combination of the horizontal reciprocating followers, the fixed graduated trimming-dies in axial line therewith, and the centering rests in front and below said dies, substantially as described. 2nd. The combination of the horizontally reciprocating followers provided with heads, the graduated fixed trimming-dies secured in axial line therewith, the well in which each die and follower operates, and the centering rests in said wells, substantially as described. 3rd. The combination of the revolving main shaft, the revolving cams secured therein, the reciprocating followers operated thereby to delay at their point of greatest retraction, the fixed graduated trimming-dies and the centering rests below said dies, substantially as described. 4th. The combination of the following elements, the horizontally reciprocating followers, the fixed graduated trimming dies, the centering rests and the roll-ways provided with automatic feeding devices, substantially as described. 5th. The combination of the following elements, the horizontally reciprocating followers, the fixed graduated dies, the centering rests, the inclined roll-ways communicating therewith, and the oscillating feed-shafts provided with the two sets of stops or arms, substantially as described. 6th. In a paving block machine, the combination, with the frame A, of the main shaft B, the grooved cam E, the reciprocating follower F engaging therewith, the fixed die K, and the centering rest M, substantially as described. 7th. In a paving block machine, the combination, with the frame A, of the grooved cam E provided with a tappet T, the reciprocating follower F, a fixed die E, the centering rest M, the well L in which the centering rest and die are located, the inclined roll-ways N communicating therewith, the oscillating feed shaft O provided with the arms P and P^1, and the stop d^1, substantially as described. 8th. In a paving block machine, substantially as described, the combination of the inclined roll-ways N, the feed shafts O provided with the arms P and P^1, the crank disks Q, the lever S, pitman R, the retracting weight U, the chains V, V^1, and the retracting springs W, all combined to operate, substantially as described.

No. 33,059. Horse Hay Fork. (*Fourche à cheval.*)

Joseph S. Durning, Emsworth, Penn., U.S., 6th December, 1889; 5 years.

Claim.—1st. In harpoon horse hay forks, the combination of a case having an oblong pivoted dog therein, and a plunger moving within said case and having a slot within which said dog fits, said slot having seats or enlargements therein, substantially as and for the purposes set forth. 2nd. In harpoon horse hay forks, the case having the side rib a, provided with a block e, carrying the point d at the end, and the side rib b having the block g, fitting into the block e to form the point, said blocks being secured together, substantially as and for the purposes set forth. 3rd. In harpoon horse hay forks, a case having the side rib a, provided with the block e, carrying the point d and having the inwardly inclining face f, and the side rib b, having the block g fitting against the block e and into the dove-tailed seat formed by the inclining face f, substantially as and for the purposes set forth. 4th. In harpoon horse hay forks, the combination, of the case having the two side ribs secured together at the upper end by the rivet c, and having the oblong locking dog r pivoted therein above said rivet, and the plunger k having the slot m through which which said rivet c and dog r extend, said slot having the seat n at the upper end, and the enlarged seat p near the lower end, and having an extension m below the seat p into which the rivet c fits, substantially as and for the purposes set forth,

No. 33,060. Sleigh. (*Traîneau.*)

John D. Thomas, Petoskey, Mich., U.S., 6th December, 1889; 5 years.

Claim.—1st. A sleigh comprising a body, a runner secured to the centre of the bottom of the body and projecting from the ends thereof, and runners pivoted to the sides of the body, substantially as herein shown and described. 2nd. In a sleigh, the combination, with the body, of brackets secured to the sides thereof, the bars 19 mounted to rock in the said brackets and provided with the straps 20, the slotted levers 21 provided with feet 24, and the bolts 22 passing through the straps 20 and the slots of the levers 21, substantially as herein shown and described.

No. 33,061. Tug Holder. (*Porte-trait.*)

Arden D. Kimball, Miles, Iowa, U.S., 6th December, 1889; 5 years.

Claim.—In a harness, the combination, with the hip strap C, the short strap *b* having ring B adjustably connected with the hip strap, the side straps D D having buckles at their ends, the short straps E, E connected with the ring B and adapted to be buckled to the upper ends of the straps D, D, and the straps F connected with the lower ends of the straps D and adapted to be buckled around the tug, substantially as and for the purpose described.

No. 33,062. Adjustable Elbow Rest for Telephones. (*Appui-coude mobile pour les télêphones.*)

Louis Hammerslough and Julius J. Wolf, Kansas, Mo., U.S., 6th December, 1889; 5 years.

Claim.—1st. The elbow-rest for telephones, comprising the concave-piece A having the depending-tube B, the arm or rod C telescoped in said tube, the wall-plate *f*, and suitable connections between the rod or arm C and said wall-plate, substantially as described. 2nd. The elbow-rest for telephones, comprising the concave-piece A having the depending tube B, the spring *a* located in said tube, the arm or rod C telescoped in the tube B, with its upper end in contact with the spring, the wall-plate *f* and suitable connections between the said rod or arm C and said wall-plate, as and for the purposes set forth.

No. 33,063. Suspended Switch and Travelling Contact Device for Electric Railways. (*Commutateur suspendu et appareil de contact courant pour les chemins de fer électriques.*)

Charles J. Van Depoele, Lynn, Mass., U.S., 6th December, 1889; 10 years.

Claim.—1st. The combination of a car, an overhead conductor above the car, an upwardly extending and laterally movable arm carried by the car and having its upper end free, and a contact device carried by the arm at its free end and making underneath contact with the conductor. 2nd. The combination of a car, an overhead conductor above the car, a contact device making underneath contact with the conductor, and an arm carried by the car and carrying the contact device and pivoted so as to swing about a vertical axis. 3rd. The combination of a car, an overhead conductor above the car, a contact device making underneath contact with the conductor, and an arm hinged to the car on a transverse axis and carrying the contact device, and a spring to press the contact device upward against the conductor. 4th. The combination of a car, an overhead conductor above the car, a contact device making underneath contact with the conductor and an arm on the car moving on both a vertical and a transverse axis and carrying the contact device. 5th. The combination of a car, an overhead conductor above the car, a contact device making underneath contact with the conductor, an arm on the car movable on both a vertical and a transverse axis and carrying the contact device, and a spring for pressing the contact device against the conductor. 6th. In an electric railway, the combination, with suitable contact carrying arm, of the grooved contact wheel, and fender spring L, substantially as described. 7th. In an electric railway, the combination, of the pivoted arm, and the contact wheel E¹ formed with a deep groove to receive the conductor, and with notched edges E. 8th. The combination of a track having switches, an overhead conductor above the track, and having switches, a car on the track provided with contact carrying arm arranged to engage the conductor at a point in rear of the front wheels of the car. 9th. The combination, with crossing or branching overhead wires, of a plate along the top of which said wires pass, and deflecting ribs at the lower side of said plate at its extremities. 10th. The combination, with an overhead conductor arranged to receive a travelling underneath contact, of a switching device secured to, and depending from the conductor. 11th. The combination, with an overhead wire for receiving an underneath contact, of a switch-plate attached to the wire in about the horizontal plane as the wire.

No. 33,064. Switch for Overhead Conductors. (*Commutateur pour les conducteurs suspendus.*)

Charles J. Van Depoele, Lynn., Mass., U.S., 6th December, 1889; 10 years.

Claim.—1st. A switch for electric conductors comprising a contact plate or surface, and conductors in electrical connection therewith, said conductors being cut to allow the passage of a travelling contact device between their ends and in contact with the plate. 2nd. A switch for electric conductors comprising a contact plate or surface, ribs or arms attached to said plate and separate at their inner extremities to allow a contact device to pass from one to the other between them in contact with the plate, and electrical conductors secured to the ribs or arm. 3rd. A switch for electric conductors comprising a contact plate or surface, ribs or arms electrically connected therewith, and conductors secured to the ribs or arms and arranged to permit the passage of a contact wheel from one to the other across the space between said conductors bridged by the plate or surface. 4th. A crossing or switch for electric conductors comprising arms connected with, and radiating from a plate or surface in electrical connection with said arms, and a conductor attached to each arm, the extremity of an entering conductor being located opposite to the continuation of said conductor leaving the crossing. 5th. A crossing or switch for electric conductors comprising arms connected with, and radiating from a plate or surface in electrical connection with said arms, a conductor attached to each arm, the extremity of an entering conductor being located opposite to the continuation of said conductor leaving the crossing, and a projection or flanges upon the plate to prevent lateral displacement of the trolley-wheel. 6th. A crossing or switch for electric conductors comprising arms connected with, and radiating from a centrally-located plate or surface in electrical connection with said arms, a conductor attached to each arm, the extremity of an entering conductor being located opposite to the continuation of said conductor leaving the crossing, and a projection upon the central plate arranged to engage the contact device to prevent lateral displacement thereof, when passing upon the plate between the ends of the conductors.

No. 33,065. Arched Suspender for Overhead Electric Conductors. (*Appareil de suspension coudé pour les conducteurs électriques.*)

Charles J. Van Depoele, Lynn, Mass., U.S., 6th December, 1889; 10 years.

Claim.—1st. A suspending device for electric conductors comprising a metallic arch spanning the conductor and adapted to be secured to transverse supports, and an ear depending from the arch and connected to the conductor to be suspended. 2nd. A suspending device for electric conductors comprising a metallic arch spanning the conductor and secured to transverse wires or cables, and having an ear depending from the arch and connected to the conductor in the same horizontal plane as the transverse supports. 3rd. The combination, with a suitable conductor, of means for suspending the same comprising an arch spanning the conductor and adapted to be secured to a cross-wire at its extremities, and having a conductor supporting device depending from the under side of the arch. 4th. A supporting device for suspended conductors comprising a metallic arch having a wire-securing part depending from its under side, and adapted to sustain a wire in substantially the same horizontal plane as the supports to which the arch is connected. 5th. The combination, with a suspended conductor, of an ear adapted to be permanently secured upon the upper side of said conductor, and a metallic arch spanning the conductor secured to said car and to the cross wires. 6th. Means for suspending an electric conductor in positions other than a straight line, comprising a cross-wire and an arched suspender spanning the conductor and secured at its ends to, and forming part of the transverse support, and having a wire-sustaining part depending from its under side into substantially the plane of the transverse support. 7th. An ear adapted to be attached to, and and to support a suspended conductor and formed with anchorage lugs for attachment to traction-cables exerting a longitudinal strain upon the conductor, and a suspending device spanning said ear and connected to the transverse support. 8th. An ear adapted to be attached to, and to support the conductor, and provided with anchorage lugs for attachment to a traction cable or cables, and a metallic arch crossing said car and having its extremities in substantially the same transverse plane as the conductor when secured to the ear. 9th. The combination of ears permanently secured upon the conductor, a metallic plate or bar connecting the ears, and a metallic arch spanning the bar and formed with a bracket at its under side for attachment thereto. 10th. Means for making a smooth joint in a suspended conductor comprising two or more ears adapted to be secured upon the conductor, a plate or bar to which the ears are connected, and an additional ear grooved to receive the extremities of the conductor and to be permanently secured thereto, and also attached to the plate or bar.

No. 33,066. Constant Upward Pressure Contact for Overhead Conductors. (*Contact à pression montante constante pour les conducteurs suspendus.*)

Charles J, Van Depoele, Lynn, Mass., U.S., 6th December, 1889; 10 years.

Claim.—1st. An upward pressure contact for electric railways, comprising, the combination, with a universally movable arm, of a sloping cam attached thereto, and a tension spring connected with said cam and acting to exert a practically constant force upon said arm throughout its operative range of movement. 2nd. An upward pressure contact for electric railways, comprising the combination, with a movable arm carrying a contact device at its outer extremity, of a cam at its lower extremity, and a tension spring connected with said cam and acting to exert a practically constant upward pressure upon the outer extremity of said arm throughout its operative range of movement. 3rd. An upward pressure contact for electric railways comprising the combination, with a movable arm, of a cam adjustably connected thereto, and a tension spring connected with the cam and acting to exert a constant force upon said arm throughout its operative range of movement. 4th. An upward pressure contact for electric railways, comprising the combination, with a hinged arm carrying a contact at its outer extremity, of an adjustable cam connected to its lower extremity, a spring connected to said cam for imparting upward movement to the contact carrying arm, and movable clamping devices for connecting the arm and cam or eccentric in any desired relation. 5th. An upward pressure contact

for electric railways comprising the combination, with a hinged arm carrying a contact at its outer end, of a cam at its lower extremity, and a tension spring connected to said cam and acting to press the outer end of the contact arm upward with a constant pressure throughout its operative range of movement. 6th. An upward pressure contact for electric railways comprising the combination, with a hinged arm carrying a contact at its outer end, and a sloping cam at its lower extremity, of a tension spring connected to said cam, whereby, as the tension of the spring decreases with the elevation of the arm, its leverage thereon will be increased. 7th. An upward pressure contact for electric railways comprising the combination, with hinged arm, of a hinge-support for the lower end thereof, an eccentric also mounted upon said support and adjustably connected to the arm, and a tension spring connected to the face of the eccentric for imparting uwward movement to the outer portion of the arm. 8th. An upward pressure contact for electric railways comprising the combination, of a hinged arm carrying a contact at its outer extremity, the cam J at its lower extremity, the tension spring K, and a flexible connection extending from the spring and engaging the face of the cam. 9th. An upward pressure contact for electric railways comprising the combination, of a contact carrying arm, a sloping cam at its lower extremity, a tension spring connected to the face of the cam for imparting upward motion to the outer extremity of the arm, and a fixed support, and a movable support sustained thereon and carrying the arm, cam, and tension spring. 10th. A contact carrying arm mounted upon a hinged support, and having a flexible end portion to which the contact device is secured. 11th. A contact arm composed of side rods secured in cross plates and forming a rigid structure, and a flexible end rod centrally disposed and secured in one of the plates, and passing loosely through the end plate and carrying the contact device. 12th. The combination of an arm carrying a contact at its outer extremity, and a cam at its inner end, a fixed support B, a tubular support rotatably mounted thereon and hinged at its upper extremity to the lower part of the contact arm, a tension spring connected to and acting upon the face of the cam, and a support for the tension spring adjustably mounted upon the rotatable support. 13th. An upward pressure contact for electric railways comprising, the combination, of the hinged arm, the cam, the tension spring connected to the cam for imparting upward movement to the outer portion of the arm, and a stop for limiting said upward movement. 14th. A contact arm composed of a truss, having a flexible rod secured in its end portion and carrying a contact device at its outer extremity. 15th. A contact arm mounted upon a hinged support and having a portion of its length rigid or semi-rigid, and a flexible whip-like end to which the conract trolley is secured.

No. 33,067. Duplex Upward Pressure Contact. (*Contacte double à pression montante.*)

Charles J. Van Depoele, Lynn, Mass., U.S., 6th December, 1889; 10 years.

Claim.—1st. An upward-pressure contact arm provided with two independent insulated contact making devices. 2nd. The combination, with a plurality of suspended supply conductors, of an upward pressure contact device comprising a plurality of independent insulated contacts adapted to engage the said supply conductors. 3rd. The combination, with an upwardly spring-pressed movable arm, of one or more independently-movable spring-pressed insulated fingers mounted upon said arm and carrying a contact trolley or trolleys. 4th. The combination, with a movable upwardly spring-pressed contact arm, of a pair of insulated upwardly spring-pressed contact carrying fingers separately mounted in the outer extremity thereof. 5th. The combination, with an upwardly spring-pressed movable arm, of contact fingers provided with trolleys at their outer extremities, said trolleys engaging parallel supply conductors, and tension springs for independently pressing said fingers upwardly against the conductors. 6th. The combination, with an upwardly spring-pressed movable arm, of duplex independent contact, carrying upwardly spring-pressed fingers, and separate adjustable tension-springs for pressing said fingers upwardly against the conductors. 7th. The combination of a contact arm, springs and compensating devices for applying a substantially constant pressure thereto throughout its range of movement, independent contact-carrying fingers at the outer extremity of the arm for engaging the conductors, and springs for maintaining upward pressure of the fingers, said springs exerting substantially the same upward pressure as the springs controlling the supporting arm. 8th. The combination, with a moving vehicle, and a motor propelling the same, of an upward pressure contact arm, insulated independent contacts at the outer extremity thereof, adapted to engage positive and negative supply conductors, and positive and negative branch conductors extending from the separate contacts to the motor. 9th. The combination, with an upward pressure contact arm, contact-carrying fingers mounted upon said arm and provided with means for separately pressing said fingers against the conductors, and stops for limiting the upward movement of the fingers.

No. 33,068. System of Suspending Electric Conductors. (*Mode de suspension des conducteurs électriques.*)

Charles J. Van Depoele, Lynn, Mass., U.S., 6th December, 1889; 10 years.

Claim.—1st. In a system of suspended electric conductors, the combination, with the curved portions of the conductor or conductors, of a support or cable at the outside of the curve, supporting wires extending from the cable to the conductors to be supported, and cross wires, as J^1, attached to and sustaining said conductors at or near the extremities of the curve. 2nd. In a system of suspended electric conductors, the combination, with the curved portions of the conductor or conductors, of a cable extending along the inside of the curve, a cable extending across the outer part of the curve, wires, as J, secured to the conductors and to the latter cable for sustaining the curve, and transverse supports secured to the two cables and provided with suspending devices attached to the conductors at or near the extremities of the curve. 3rd. In a system of suspended electric conductors, the combination of a cable extending along the inside of a curve and to a point along the straight track, a cable extending diagonally across the outer portion of the curve to a corresponding point on the opposite side of the straight track, curve-supporting transverse connections between the conductors and the outside cable, and anchorage cables extending from the termini of the cables and attached to straight portions of the conductor, whereby the cables supporting the curve and the straight portions of the conductor are braced and connected. 4th. In a system of suspended electric conductors, the combination of a pole at the innermost part of the curve, poles at right angles therefrom and adjacent to straight portions of the track, a cable connecting the poles, poles located exterior to the curve and substantially opposite to the extremes thereof, and poles located in line with said last-mentioned poles and opposite to poles along the straight part of the track, a cable extending between poles at the outer extremities of the curve and to the poles in line therewith, transverse supporting wires extending between the outside cable and the curved conductors and secured thereto, transverse or cross wires secured to the cables and to the straight parts of the conductors at the extremities of the curve, and anchorage cables connecting the end poles of the system to anchorage, bails secured to straight portions of the conductor, whereby the curve supporting structure is mechanically united to the straight portions of the suspended system. 5th. In a system of suspended electric conductors, the combination, with main and branch conductors at a turn-out, of suitable frogs or switches near its extremities, supporting poles at or near said extremities, cables extending between the poles along the turn-out in the direction of the line of way, and transverse conductor supporting wires connected to said cables. 6th. In a system of suspended electric conductors, a crossing comprising two metallic channels following the direction of the crossing conductors, said channels being in the form of a metallic frame or open bottom box depending from the intersecting conductors at the point of intersection and in electrical connection therewith. 7th. In a system of suspended electric conductors, a duplex turn-out comprising separate switches for the positive and negative main and branch conductors, and an insulating crossing at the point of intersection of the branch negative and main positive conductors. 8th. In a system of suspended electric conductors, a duplex turn-out comprising separate switches for the positive and negative conductors, and an insulating crossing at the point of intersection of the branch negative and main positive conductor, comprising a plate of insulating material interposed between the supporting and positive and negative main conductors at the point of intersection. 9th. In a system of suspended electric conductors, a crossing for conductors of opposite polarity, comprising a plate of insulating material secured to the under side of one of said conductors, the other of said conductors being supported at the lower side of the plate and depressed below the surface thereof at the point of intersection. 10th. In a system of suspended electric conductors, a crossing for conductors of opposite polarity, comprising a plate of insulating material to the upper side of which one of said conductors as the negative is secured, metallic ribs secured to said conductor and extending to the under side of the plate, and provided with separated extremities of insulating material, bails secured to the under side of said plate for supporting the other conductor, and a recessed part at the point of intersection into which a portion of the conductor crossing at the under side of the plate is depressed. 11th. In a system of suspended electric conductors, a crossing for conductors of opposite polarity, comprising an insulated plate, upon the upper side of which the negative conductor is secured, ribs extending from the negative conductor near to the central portion of the under side of said plate in line with the said conductor, bails depending from the under side of said plate for attachment to the other conductor, a recessed portion at the point of intersection of said conductor, into which the lower conductor is depressed, and a guard or guards at the point of intersection, for preventing diversion of the trolleys when crossing the open space between the depressed conductor and the ends of the ribs. 12th. In a system of suspended electric conductors, a crossing for conductors of opposite polarity, comprising an insulated plate upon the upper side of which the negative conductor is secured, ribs extending from the negative conductor near to the central portion of the under side of said plate in line with the said conductor, bails depending from the under side of said plate for attachment to the other conductor, a recessed portion at the point of intersection of said conductor into which the lower conductor is depressed, and a guard or guards for preventing lateral diversion of the contact trolley at the point of intersection of the conductor and ribs. 13th. In a system of suspended electric conductors, the combination, with a portion of the main conductor deflected from a straight line, an arched metallic support therefor spanning said conductor and having its extremities in line therewith, and transverse supporting wires for sustaining the same. 14th. In a system of suspended electric conductors, a transverse support for suspending electric conductors, comprising a metallic arch between the extremities of which the conductor is secured, supporting wires secured to the extremities of the ear and to the poles or cables along the line of way, and link insulators included in and forming part of the transverse supporting wires. 15th. In a system of suspended electric conductors, a supporting wire having a loop or attachment to the parts to be sustained, said loop formed of a bent portion of the extremity of the wire, and a collar or sleeve encircling and uniting the main and return parts of the wire. 16th. In a system of suspended electric conductors, the combination, with a supporting wire and an ear or bail to which said wire is to be attached, of a collar or sleeve encircling and uniting the main and return bend of said wire. 17th. A link insulator, having a longitudinal body piece or pieces of insulating material, and a re-enforcing washer or ferrule at either end adapted to receive the transverse supporting wire. 18th. A turn buckle, the body portion of which is composed of insulating material. 19th. A turn buckle formed of longitudinal side pieces of insulating material, and having screw-threaded metallic ends attached thereto, and reversely screw-threaded rods engaging the metallic ends.

No. 33,069. Hooked Suspender for Electric Railway Conductors. (*Appareil de suspension à crochet des conducteurs électriques de chemins de fer.*)

Charles J, Van Depoele, Lynn, Mass.. U. S., 6th December, 1889; 10 years.

Claim.—1st. A suspending device for electric conductors, consisting of a metallic hook having a downwardly extended part adapted for attachment to a conductor to be supported, and a laterally extending supporting wire or cable connected to the hook, substantially as described. 2nd. The combination, with a suitable conductor, of a suspending device therefor, comprising a metallic hook provided with a downwardly extending part adapted to engage and be attached to the conductor to be supported, and an arched portion extending laterally therefrom and downward into the plane of its support, and a laterally extending supporting wire or cable connected to the hook, substantially as described. 3rd. In combination with a suitable conductor and a supporting ear attached thereto, a suspender device therefor, consisting of a metallic hook having a downwardly extending part adapted for attachment to said ear, substantially as described. 4th. In combination, with a suitable conductor and a supporting ear attached thereto, a suspending device therefor, consisting of a metallic hook, having a downwardly extending part detachably secured to said ear, substantially as described. 5th. In combination with a suitable conductor and a supporting ear or ears attached thereto, a suspending device therefor, consisting of a metallic hook having a downwardly and laterally extending part connected to said ear or ears, substantially as described.

No. 33,070. Suspension Device for Electric Railway Conductors. (*Appareil de suspension des conducteurs de chemins de fer électriques.*)

Charles J. Van Depoele, Lynn, Mass., U.S., 6th December, 1889; 10 years.

Claim.—1st. A device for suspending electric conductors, consisting of an arch secured to a transverse support or supports, and an ear or bail connected to the conductor to be suspended and adjustably secured to the arch. 2nd. A device for suspending electric conductors, consisting of an arch secured to transverse supports, and an ear or bail depending from said arch and connected to the conductor to be suspended, said arch being adjustably secured to the ear and insulated therefrom. 3rd. A device for suspending electric conductors, consisting of an arch secured to transverse supports, an ear or bail depending therefrom, the upper end of said ear forming a bearing upon which the arch rests, and a bolt secured to said ear and passing through the arch, whereby the same may be adjusted, and insulating material between the ear and its support. 4th. A device for suspending electric conductors, consisting of an arch secured to a transverse support or supports, an ear depending therefrom supporting the electric conductor, said ear having a horizontal flange formed at or near its upper part, upon which the arch is adapted to rest, and a bolt passing through said flange and arch, whereby the same is rendered adjustable. 5th. A device for suspending electric conductors, consisting of a metallic arch spanning the conductors to be supported, an ear attached to said conductor, insulating material secured to the arch, and means securing the conductor supporting ears to the said insulating material. 6th. A device for supporting electric conductors, consisting of an arch, supported so as to prevent its opening below an ear secured to the conductor to be carried, means for connecting the ear and arch, and an insulating medium interposed between the ear and the arch to prevent passage of the main current to be supporting devices.

No. 33,071. Dental Plate. (*Plaque dentaire.*)

John J. Stedman, LaPorte, Ind., U.S., 7th December, 1889: 5 years.

Claim—1st. The method of preparing partial dentures, having a vulcanite base and retaining clasps thereon, which method consists in fitting the clasps to the teeth in the mouth, taking an impression with the clasps *in situ*, removing the impression and clasps together, forming counter-model, and transferring the clasps thereto in parting the mould, and applying the soft rubber, setting the teeth and vulcanizing as usual, substantially as described. 2nd. Partial dentures, having a vulcanite base with retaining clasps thereon, conformed to the natural teeth embraced thereby, substantially as described.

No. 33,072. Parallel Ruler. (*Règle parallèle.*)

William B. Blackhall, Toronto, Ont., 7th December, 1889; 5 years.

Claim.—1st. A ruler, consisting of a roller fitted with bands of rubber or other suitable material suitably journalled in a frame work, having a fixed ruling surface in front of the roller, substantially as and for the purpose specified. 2nd. A ruler, consisting of a roller fitted with bands of rubber or other suitable material suitably journalled in a frame work having a fixed ruling surface in front of the roller and a finger rest behind, substantially as and for the purpose set forth. 3rd. A ruler, consisting of a roller fitted with bands of rubber or other suitable material suitably journalled in a frame work having a fixed ruling surface in front of the roller, and a finger rest having a graduated scale and paper cutter behind the roller, substantially as and for the purpose set forth.

No. 33,073. Trunk Lid or Trunk Top.

(*Couvercle ou dessus de coffre.*)

Harriet Stevens, Winnipeg, Man., 7th December, 1889; 5 years.

Claim.—1st. The combination of a trunk flat on top, having a hinged lid, one-half as wide, or less than one-half as wide, as the trunk itself, substantially as and for the purpose hereinbefore set forth. 2nd. The combination of a hinged trunk lid, one half as wide, or less than one-half as wide, as the trunk, and hinged to the trunk along the top thereof, substantially as and for the purpose hereinbefore set forth. 3rd. The combination of a trunk with a hinged lid, one-half as wide, or less than one-half as wide, as the trunk, having in the lid divisions which may be opened upwards when the lid is thrown completely back, and which are covered by thin covers opening from the middle to opposite ends of the lid, substantially as and for the purpose hereinbefore set forth. 4th. The combination of a trunk with a hinged lid, one-half as wide, or less than one-half as wide, as the trunk itself, having divisions in the lid thereof and with drawers in that part of the top of the trunk, which part is directly behind and equal in depth to the depth of the lid, substantially as and for the purpose hereinbefore set forth. 5th. The combination, of a trunk with a hinged lid, one-half as wide, or less than one-half as wide, as the trunk itself, having divisions in the lid thereof with drawers in that part of the top of the trunk, which part is directly behind and equal in depth to the depth of the lid, and of a thin cover 5 fitted into the mouth of the trunk B and kept in place by clasps, substantially as and for the purpose hereinbefore set forth.

No. 33,074. Purification of Water and Apparatus therefor. (*Purification de l'eau et appareil pour cet objet.*)

William Anderson, Westminster, Eng., 7th December 1889; 5 years.

Claim.—1st. In an apparatus for purifying water, the combination, with a revolving cylinder with hollow trunnions, which serve as the inlet and outlet of shelves A^1, A^2, set in short lengths in echelon, as and for the purposes set forth. 2nd. In an apparatus for purifying water, the combination, with the revolving cylinder A with inlet and outlet pipes F and G, of the perforated pipe I, as and for the purposes set forth. 3rd. In an apparatus for purifying water, the combination, with a revolving cylinder having hollow trunnions, which serve as the inlet and outlet, of a perforated air pipe passing up into the delivery pipe, all as herein set forth and for the purposes described. 4th. In a water purifying apparatus, the combination, with a revolving cylinder through which the water passes, of pairs of perforated division plates L, L, the spaces of which are filled with metallic iron in division or other purifier, all as herein set forth.

No. 33,075. Ornamental Structure for Monuments. (*Structure d'ornement pour les monuments.*)

Gabriel Konigsberg, Denver, Col., U. S., 7th December, 1889; 5 years.

Claim.— The ornamental structure, as described, consisting of a base or interior foundation of a common rough-faced material, cut or moulded into a shape approximating that to be given the finished article, an ornamental covering 2 of tiles, &c., over the surface thereof, and secured thereto, plaques 4 and metal tracery or frame work 5 secured upon such covering and aiding where applied in retaining such covering, substantially as described.

No. 33,076. Device for Evaporating Liquids. (*Appareil d'évaporation des liquides.*)

John W. Lloyd, Cincinnati, Ohio, U.S., 7th December, 1889; 5 years.

Claim.— In an apparatus for evaporating or concentrating liquids or solutions, the heating plate A inclined towards its discharge orifice, the trapped outlet pipe D, the surrounding rim and cover E encasing said plate, said rim being provided with liquid supply pipes B and air supply pipes K, and the cover E being provided with air outlet F, whereby a current of air is passed over the surface, and of the moving liquid and the resultant vapors removed, substantially as and for the purpose specified.

No. 33,077. Paper Garment. (*Vêtement de papier.*)

The R. C. Mudge Paper Clothing Company, Port Huron, (assignee of Richard C. Mudge and Edgar M. Wasson, Detroit,) Mich., U.S., 7th December, 1889; 5 years.

Claim.— As a new article of manufacture, a garment consisting of layers of cloth and flexible sized paper having its outer edges inclosing a binding-tape, and stitched as described, and provided with approximately horizontal rows of perforations, and tapes secured to the garments at or near the perforations of each row farthest from the front opening of the garment and passing alternately through the said series of perforations, whereby the said tapes are adapted to act as gathering ends, substantially as described.

No. 33,078. Scarf and Neck Tie Holder. (*Agrafe de cravate et de col.*)

Henry W. Atwater and Stanley L. Gedney, East Orange, N.J., U.S., 7th December, 1889; 5 years.

Claim.—The scarf and necktie holder constructed substantially as herein described, with the clips *a* and hooks *b* united by the cross-bar *c*, arranged to extend between the clips above the stud or button hole when applied to the collar.

No. 33,079. Buckle. (*Boucle.*)

The Syracuse Specialty Manufacturing Company, (assignee of John Nase,) Syracuse, N.Y., U.S., 7th December, 1889; 5 years.

Claim.—1st. A buckle consisting of a plate A provided with slotway in its front end, a plate B provided with a flange 8 on its front end, and a finger-lever provided with a cross-bar 11, fitting between the plates and behind the flange 8, substantially as described. 2nd.

A buckle consisting of the plate A constructed with a plane inner face, a plate 8 secured beneath the plate A and provided with a transverse recess in its outer end, and a finger-lever provided with a cross-bar 11 fitting within the recess, substantially as described. 3rd. In a buckle, a lower plate bent at its outer end to form a transverse rectangular recess, a plate A secured upon the plates B and having a plane inner face and closing the recess, and a lever slotted across its inner end to form a cross-bar, and the cross-bar mounted in said recess, in combination substantially as described.

No. 33,080. Sewing Machine.

(Machine à coudre.)

Charles Goodyear, Jr., (assignee of Zachary T. French and William C. Meyer,) Boston, Mass., U.S., 7th December, 1889; 5 years.

Claim—1st. In a sole sewing machine, a hooked needle to enter the upper and sole and emerge therefrom in the inner channel thereof, and a thread guide to supply the hook of the needle with thread, combined with a take-up, as b^2, and a cam to operate it, whereby the thread is drawn upon by the take-up to set the stitch while the needle is in the material, and to also draw off thread from the thread supply, substantially as described. 2nd. In a sole sewing machine, a hooked needle to enter the upper and sole and emerge therefrom in the inner channel thereof, and a thread guide to supply the hook of the needle with thread, combined with a main take-up, a cam to actuate it to draw the thread and set the stitch while the needle is in stock, and the loop of the thread last drawn through the stock is yet on the shank of the needle, and at the same time to draw off thread for a new stitch, and with an auxiliary spring actuated take-up to take up the slack in the needle thread drawn off by the main take-up, and thereafter give up the said slack thread to the needle as the latter acts to draw a loop of thread through the stock, substantially as described. 3rd. In a sole sewing machine, the take-up, the the thread guide and the hooked needle, combined with the thread holder and its attached rocking shaft, whereby the thread holder is made to act upon the needle thread between the thread guide and the stock, and while the needle is in the stock and the last loop of thread drawn through the stock is yet on the shank of the needle, the said thread holder taking from the take-up through the thread guide, before the thread guide acts to lay the thread into the hook of the needle, a sufficient quantity of thread to prevent it rending through the hook of the needle as the loop is being drawn by the needle through the stock, substantially as described.

No. 33,081. Sewing Machine.

(Machine à coudre.)

Charles Goodyear, Jr., (assignee of Zachary T. French and William C. Meyer), Boston, Mass., U.S., 7th December 1889; 5 years.

Claim.—1st. In a sewing machine, a work support combined with a clamp and a pull-off, the clamp acting to hold the needle thread between the pull-off and the needle, the said pull-off at such time acting to draw from the thread supply a sufficent quantity of thread to form the next stitch to be made, substantially as described. 2nd. The work support, the clamp and the pull-off to draw from the thread supply enough thread for the next stitch, combined with a take-up, to operate substantially as described. 3rd. In a sewing machine, a work support combined with a clamp and a pull-off, the clamp acting to hold the needle thread between the pull-off and the needle, the said pull-off at such time acting to draw from the thread supply a sufficient quantity of thread to form the next stitch to be made, and with the main and the auxiliary take-up devices, to operate substantially as described. 4th. The work support and the pull-off combined with variable motion mechanism, substantially as described, made adjustable automatically by or through the variations in thickness of the stock being operated upon, to thereby vary the length of the loop according to the thickness of the stock, substantially as described. 5th. The work support, the pull-off consisting essentially of a lever having a roll, the shoe mounted upon one arm of the said lever, and an adjustable connecting rod or link, substantially as described, whereby the depth to which the locking point of the stitch is sunk into the material from its upper side may be regulated, substantially as described. 6th. The looper having a hollow shank, and means to hold the said shank, combined with means, substantially as described, to both reciprocate and also to partially rotate the said looper to carry its thread about and present t to the usual hook and needle, substantially as described.

No. 33,082. Manufacture of Horse Shoes.

(Fabrication des fers à cheval.)

Charles J. LeRoy and Jonas H. Roskilly, St. Louis, Mo., U.S., 7th December, 1889; 5 years.

Claim.—1st. The improvement in the manufacture of horse shoes herein described, consisting in, first casting a blank having the toe calk and heel calks thereon, and then bending the blank to the desired shape, substantially as and for the purposes set forth. 2nd. The herein described improvement in the manufacture of horse shoes, consisting in casting the blank with the toe calk and heel calks thereon, bending the blank to the desired shape and then swaging the bent blank to finish it, substantially as and for the purposes set forth. 3rd. The herein described improvement in the manufacture of horse shoes, consisting in casting the blank with the toe calk and heel calks thereon, bending the blank to the desired shape and swaging the blank and punching the nail holes therein, substantially as and for the purposes set forth.

No. 33,083. Telephonic Transmitting Instrument. (*Appareil transmetteur téléphonique.*)

Robert D. Unger, Wm. L. Copeland, Horatio Keeler, Chicago, and Allison H. Keeler, Belvedere, Ill., U. S., 7th December, 1889; 5 years.

Claim.—1st. The combination, substantially as set forth, of the diaphragm and the amplifying lever acted upon by the diaphragm, and composed of the base bar 5 having fulcrum points 6 resting in the bracket 4, and the arm 7 carrying the contact piece at its free end. 2nd. The combination, substantially as set forth, of the diaphragm, the amplifying lever having a yoke 9 at its free end, the contact pencil 10 supporting independently of the diaphragm and resting against the pencil 10, the hanging pencils 13. 3rd. The combination, substantially as set forth, of the diaphragm, the lever to amplify its vibrations, the contact pencil carried by the lever, and the hanging contact pencils resting against the lever pencil, and adjustable as to their angles of inclination, so as to vary the pressure with which they bear against the lever pencil. 4th. The combination, substantially as set forth, of the diaphragm, the contact pencil vibrating thereby, the hanging pencils resting against said first mentioned pencil, and the rod and brackets moving up and down, upon which rod the hanging pencils are suspended and may be adjusted, to regulate the pressure of the same upon the first mentioned pencil.

No. 33,084. Device for the Manufacture of Pure Ice. (*Appareil de fabrication de la glace pure.*)

Gustave Des Trois Maisons, (co-inventor with Delphis Oligny), Montreal, Que., 7th December, 1889; 5 years.

Claim.—1st. A shallow basin A provided with a filtering apparatus connected with a water supply, and having drain pipes and their necessary valves and valve stems, substantially as herein shown and described. 2nd. The basin A provided with a filtering apparatus, the air pumps D, tubes E and mouth pieces F, and the drain pipes G, with their valves and valve stems H, all substantially as herein described and for the purpose set forth.

No. 32,085. Electro Regulator.

(Electro regulateur.)

Alfred Gartner and Carl A. Noack, Dresden, Germany, 7th December, 1889; 5 years.

Claim.—1st. In an electrical speed-regulator, the combination of a rotary shaft, an insulated collar, conductors j, j^1, a hoop fixed to said insulated collar and moving longitudinally on said shaft under the influence of centrifugal force, and a contact-bearing adapted to engage the hoop and complete an electrical circuit, substantially as and for the purposes set forth. 2nd. In an electrical speed-regulator, the combination of a shaft d, an insulated hoop a, and a collar k arranged on said shaft and adopted to transmit the current from the said hoop to the shaft, substantially as and for the purposes set forth. 3rd. In an electrical speed-regulator, the combination of an insulating-sleeve C^1 arranged on a rotary shaft d^1 a collar C arranged on said sleeve, a hoop fixed to said collar and to a sliding collar, insulated as at e^1 from said shaft, and a collar k adapted to make a contact with said sliding collar, and conductors j, j^1, connected with the shaft and collar C respectively, said parts being arranged and combined substantially as and for the purposes set forth.

No. 33,086. Workman's Time Register.

(Régistre du temps des ouvriers.)

William K. Bassford and Edwin B. Maynard, New York, N.Y., U.S., 9th December, 1889; 5 years.

Claim—1st. In a workman's time register, a paper registering-sheet graduated into spaces indicating fixed periods of time by transverse lines, and moved longitudinally by clock-work so that the said time-spaces of the sheet are required to pass an indicating point or line in exact periods of time corresponding with the actual clock-time, in combination with magnets indicating hammers or markers arranged to make imprints on the said time card or paper by means of a carbon or inked tape-ribbon, the actuating magnets for the hammers or markers, the electric circuit, the battery or generator, a turnstile, devices for making and breaking the circuit separated by the turnstile, and the push-buttons for closing the circuit through the hammer-actuating magnets, substantially as set forth. 2nd. In a workman's time register, the combination of the graduated record-receiving sheet, clock-work devices for moving the sheet, the hammers or markers, electro-magnetic devices for operating them, the battery or generator, the electric circuit, the switch-board, the turnstile, devices operated by the turnstile for opening and closing the circuit from the generator to the switch-board, and the push-buttons for closing the circuit through the electro-magnetic devices for operating the hammers or markers, substantially as set forth. 3rd. A carbon or inked tape wound on retaining-rollers affixed respectively to the opposite ends, and drawn tightly across the face of a time-card or sheet and in close juxtaposition thereto, and provided with actuating mechanism driven by clock-work so as to move the said ribbon slowly across the face of the time-sheet in fixed periods of time, in combination with said time-sheet and electro-magnetic marking hammers arranged to strike against the said carbon ribbon and make impressions therefrom on the face of the time-sheet said electro-magnetic marking device actuated or set in operation by a turnstile, and circuit closing keys, substantially as described and set forth. 4th. An electro-magnetic time-marker provided with a regularly moving time-sheet, electro-magnetic marking hammers, and a turnstile arranged so that but one person at a time can pass the marking-point and operate the machine, as described and set forth. 5th. The mechanism for coupling or uncoupling the shaft O with the main roller or drum B, consisting of the cogged-pinions O^1 and O^{11}, actuating-lever H attached to the shaft or axle O, combined and arranged as described.

No. 33,087. Atmospheric Thermo-Electric Generator. (*Générateur thermo-électrique atmosphérique.*)

William S. de L. Roberts and James S. Mollison, Sydney, N.S.W., 9th December, 1889; 5 years.

Claim.—1st. In thermo-electric generators, the air tight hot air chamber in combination with the projecting thermo-electric couples, substantially as described and as illustrated in the drawings. 2nd. In thermo-electric generators,the combination of the hot air chamber and thermo-electric couples with a pyro safety valve and pyro gauge, substantially as described and for the purpose set forth. 3rd. Making thermo-electric couples of two metals or alloys which melt at different temperatures, so that the metal or alloy of which the element is composed shall, while in process of casting, cause the partial fusion of the metal or alloy of which the connecting pieces are composed, and another alloy be thus formed at the point of union of the metals or alloys, substantially as described and for the purpose therein set forth.

No. 33,088. Appliance for Addressing Trunks, etc. (*Appareil pour adresser les coffres, etc.*

Joseph A. Bégin, Quebec, Que., 9th December, 1889; 5 years.

Résumé. La combinaison d'un cadre en métal muni de grouves ou coulisses pour recevoir une platine qui a des côtés qui se ferment au moyen de jointures sur les bords de la carte adressée afin de la tenir en place, cette platine poussée dans les coulisses est retenue au moyen du ressort fait ou plié en forme de V a l'extrémité du quel le bord plié en crochet sert de prise pour retirer la platine des coulisses, tel que cidessus décrit et pour les fins indiquées.

No. 33,089. Game and Board for use in Playing Same. (*Jeu et table de jeu.*)

John J. Ridge, Enfield, Eng., 9th December, 1889; 5 years.

Claim.—The herein described construction of game board for playing a game with a ball or marble, and consisting of a flat circular disc of wood, cardboard or other suitable material, having a rim extending sufficiently above the surface of the disc to permit the ball rolling off, and whose circumference is divided into a number of separate divisions of a size just sufficient to admit the ball, the said divisions being lettered or otherwise marked, substantially as and for the purpose described.

No. 33,090. Baling Press. (*Presse d'empaguetage.*)

Charles E. Whitman and Henry L. Whitman, St. Louis, Mo., U.S., 9th December, 1889; 5 years.

Claim.—1st. The combination, in a baling-press, of a traverser, jointed pitman connected to the traverser at one end, means for imparting movement to the traverser and to which the pitman is connected at the other end, and means connecting the pitman to a fixed object for the purpose of accelerating the movement of the traverser. 2nd. The combination, in a baling-press, of a traverser, jointed pitman connected to the traverser at one end, means for imparting movement to the traverser and to which the pitman is connected at its other end, an arm connected at one end to the pitman at the joint, and connected at its other end to the frame of the machine, for the purpose set forth. 3rd. In a baling-press, the combination, with a traverser, means for imparting movement to the traverser, and a jointed connection between the traverser, and means for imparting the movement, of a means for accelerating the movement of the traverser by throwing the jointed connection out of line. 4th. In a baling-press, the combination of a traverser, jointed pitman connected to the traverser at its inner end, a driving-shaft, means for connecting the outer end of the pitman to said shaft, and an arm for connecting the pitman to a fixed object for the purpose of accelerating the movement of the traverser. 5th. In a baling-press, the combination of a traverser, jointed pitman connected to the traverser at its inner end, cog-wheel to which the pitman is connected at its outer end, driving-shaft to which the cog-wheel is secured, and an arm connecting the pitman to a fixed point for the purpose of accelerating the movement of the traverser. 6th. In a baling-press, the combination of a traverser, jointed pitman connected to the traverser at its inner end, driving-shaft, cog-wheel secured to the shaft and to which the pitman is secured at its outer end, and an arm pivoted to the pitman at the joint at one end, and pivoted at its other end to the frame of the machine, substantially as and for the purpose set forth. 7th. In a baling-press, in combination with a friction-pulley and a brake, a lever connected both to the pulley and to the brake, whereby the two are operated simultaneously, substantially as set forth. 8th. In a baling-press, the combination with a friction-driving pulley and brake-mechanism, a single lever connected to said pulley and brake for simultaneously operating the parts, substantially as specified. 9th. In a baling-press, the combination of the friction-pulley, a brake wheel mounted on the shaft, a brake for engaging the wheel, a lever connected both to the pulley and to the brake to simultaneously operate the parts, substantially as set forth. 10th. In a baling-press, the combination of the main driving-shaft and friction-pulley on said shaft, the latter consisting of an outer rim or member, an inner ring made in parts, each of said parts having a tree and a fixed end, pivoted levers engaging the free ends of the innor part of the inner ring, the sliding collar, means for connecting the collar to, the free ends of the inner ring, and means for sliding the collar, substantially as and for the purpose set forth. 11th. In a baling-press, the combination of the main driving-shaft and friction-pulley the latter consisting of an outer ring, an inner ring made in parts, one end of each part being fixed and the other free, pivoted levers in contact with the free ends of the inner ring, a sliding-collar, rods connecting the collar to the free ends of the levers, and means for sliding the collar, substantially as and for the purpose set forth. 12th. In a baling-press, the combination of the main driving-shaft and friction-pulley, the latter consisting of an outer ring, an inner ring made in parts, one end of each part being fixed and the other free, lugs on the free ends of the parts of the inner ring, pivoted levers, lugs on the pivoted ends of the levers bearing against the lugs on the parts of the inner ring, sliding-collar, connection between the collar and the free ends of the levers, and means for sliding the collars, substantially as and for the purpose set forth. 13th. In a baling-press,the combination of the driving-shaft and friction-pulley, the latter consisting of an outer ring, an inner ring made in parts, one end of each part being fixed and the other free, pivoted levers in contact with the free ends of the parts of the inner ring, sliding-collar, adjustable rods connecting the sliding-collar to the free ends of the levers, and means for moving the sliding-collar, substantially as an for the purpose set forth. 14th. In a baling-press,the combination of the driving-shaft and pulley, the latter consisting of an outer ring, an inner ring made in parts, one end of each part being fixed and the other end free, bushing located between the inner and outer rings, lugs on the free ends of the inner ring, levers pivoted to arms on a hub fitting on said shaft, lugs on the pivoted ends of said levers, sliding collar, adjustable rods connecting the collar to the free ends of said levers, right and left hand nuts for adjusting the lengths of said rods, and means for sliding said collar, substantially as and for the purpose set forth. 15th. In a baling-press, the combination of the driving-shaft, friction-pulley on the shaft, a rock-shaft provided with an operating lever or levers, connection between the rock-shaft and friction pulley for throwing the latter in and out of gear, a brake-wheel of the driving shaft, a brake for coming in contact with said wheel, and connection between the brake and said rock-shaft, whereby, when the friction-pulley is disengaged, that brake will be applied and *vice versa*, substantially as and for the purpose set forth. 16th. In a baling-press, the combination of the driving-shaft, friction-pulley, rock-shaft provided with an operating-lever, connection between the friction-pulley and said rock-shaft, whereby the latter is thrown in and out of gear, brake-wheel, brake-shoe pivoted near the wheel, and a cam on said rock-shaft for bearing against the brake-shoe and forcing it into frictional contact with said brake-wheel, substantially as and for the purpose set forth. 17th. In a baling-press, the combination of the driving-shaft, brake-wheel on the shaft, brake-shoe, rock-shaft, the rock-shaft being provided with an operating lever, and the cam on the shaft bearing against the shoe and pressing it against the brake wheel, substantially as and for the purpose set forth. 18th. In combination with a baling-press, an indicator mechanism consisting of a serrated wheel adjustably held in contact with the bales, substantially as and for the purpose set forth. 19th. In combination with a baling-press, an indicator consisting of a frame, a serrated wheel journaled in the frame, a gong, and a pin on the wheel for engaging and sounding the gong, substantially as and for the purpose set forth. 20th. In combination with a baling-press, an indicator consisting of a frame, a serrated wheel journaled in the frame gong operated by the wheel, and a spring connection between one end of the frame and the press, substantially as and for the purpose set forth. 21st. In a baling-press, in combination with a traverser and means for operating it, a packer and means for connecting the packer to the means for operating the traverser, whereby the packer is operated by a positive intermittent movement substantially as and for the purpose set forth. 22nd. In a baling-press, the combination of the traverser, grooved wheel or wheels for operating the traverser, packer and connection between the packer and the grooved wheel or wheels, substantially as set forth. 23rd. In a baling-press, the combination of the traverser, vertical wheel 8 having cam-grooves 114, packer and connection between the cam-groove in the wheel and the packer, substantially as set forth. 24th. In a baling-press, in combination with the traverser and means for operating it, an intermittently movable packer, and means connecting the packer to the means for operating the traverser, said connecting means consisting of a pivoted lever and a rod 112 between the lever and packer, substantially as and for the purpose set forth. 25th. In a baling-press, in combination with the traverser and means for operating it, a packer and a connection between the packer and the means for operating the traverser, said connection being provided with a spring to avoid danger of breaking the packer, substantially as set forth. 26th. In a baling-press, in combination with a traverser and means for operating it, a plate 105, pivoted lever 106, rod 112 connected to the lever, a compressible spring on the latter allowing movement to the plate 105 when offered too much resistance, and mechanism for operating the traverser, substantially as set forth. 27th. In a baling-press, in combination with the traverser and means for operating it, plate 105, pivoted lever 106, counterbalance on the lever, suitable steadying device connected to the plate and a fixed object, and connection between the lever and means for operating the traverser, substantially as and for the purpose set forth. 28th. In a baling-press, in combination with the traverser and means for operating it, plate 105, pivoted lever 106, connection between the lever and means for operating the traverser,and an arm 109 connecting the plate to a fixed object, substantially as set forth. 29th. In a baling-press, in combination with the traverser and means for operating it, plate 105, pivoted lever 106, connection between the lever and means for operating the traverser, arm 109 connected at one end to the plate, and by the other end to a fixed object, and a spring 116, substantially as and for the purpose set forth. 30th. In a baling-press, in combination with the traverser and means for operating it, a folder having divergent faces 205, 206, spring-arms on the frame of the machine connected to said folder, and roller 203 journaled in the back of said folder and adapted to bear on the frame of the baling-chamber, substantially as and for the purpose set forth.

No. 33,091. Sight for Fowling Pieces and other Fire Arms. (*Mire pour les fusils de chasse et autres armes à feu.*)

Eben J. Cutler, Cleveland, Ohio, U. S., 9th December, 1889; 5 years.

Claim.—1st. In combination with a gun, a pair of sights attached thereto at the breech at opposite sides of the normal sight line of

the barrel or barrels, whereby the sight line to the object aimed at will extend across or diverge from the said normal sight line, substantially as set forth. 2nd. In combination with a gun, a pair of sights mounted at the breech thereof on opposite sides of the normal sight line of the barrel or barrels, and each capable of lateral adjustment, whereby the sight line to the object aimed at will extend across or diverge from the said normal sight line, and the angular adjustment thereto may be varied at will, substantially as set forth.

No. 33,092. Loose Pulley Lubricator.

(*Graisseur de poulie folle.*)

Jay B. Rhodes, Kalamazoo, Mich.. U. S., 9th December, 1889; 5 years.

Claim.—1st. The combination of a loose pulley having the internal channel, and the incline passages leading from the end of the pulley hub into said channel, the collar having the oil cup and passage leading from said cup to the outer ends of said channels, and a spring exerting a pressure on said collar to keep it in contact with the end of pulley hub, substantially as set forth. 2nd. The combination of a loose pulley having the internal channel and incline passages leading from the end of the pulley hub into said channel, a collar loose on the shaft side of the pulley and having the oil cup on top, the balancing weight below the passage leading from said cup to the ends of said inclined passages, and a spring exerting a pressure against the collar to keep it in contact with the hub of the pulley, substantially as set forth. 3rd. The combination of a loose pulley having the internal channel, and inclined passages leading from the end of the pulley hub into said channel, the collar loose on the shaft side of the pulley, said collar having an oil cup and a passage, the latter leading from said cup to said incline passages in the pulley hub, and a balancing weight to keep the oil cup uppermost, a stuffing box to the outer end of said collar loose on the shaft, and a spring exerting a direct pressure against said stuffing box and thus an indirect pressure against the collar, substantially as set forth. 4th. The combination of a loose pulley having the internal channel and oil passages leading into it, the core at the end of the pulley hub being enlarged, the balanced collar loose on the shaft side of the pulley, said collar having an oil cup and a passage, the latter leading from said cup to the inclined passages of the pulley hub, and the tennoned end loose in the enlargement of the core of said hub, and a spring keeping said collar in contact with the pulley hub, substantially as set forth.

No. 33,093. Regulator for Electric Currents. (*Régulateur des courants électriques.*)

Joseph A. Vansant and Frank S. Anderson, Easton, Ind , U.S., 9th December, 1889; 5 years.

Claim.—1st. The electrical current regulator proper consisting of a cell or receptacle, a powdered material which is composed of conductive and non-conductive substances, which are in the form of dry powders, intimately mixed together and contained in said receptacle, a movable plunger by whose adjustment the said material may be compressed more or less for the purpose of securing the desired degree of conductivity, and metallic circuit connections which are in contact with the powdered material, substantially as shown and described. 2nd. The electrical current regulator proper consisting of a cell or receptacle, a powdered material consisting of carbon and mineral wool and contained in such receptacle, a movable plunger by whose adjustment the said material may be compressed more or less for the purpose of securing the desired degree of conductivity, and metallic circuit connections which are in contact with the powdered material, substantially as shown and described. 3rd. The multiple-cell regulator proper consisting of a series of cells or receptacles filled with powdered carbon and mineral wool, a metal plate forming the top of said cells, a movable plunger for each cell, and circuit wires which connect with said plate and the powdered material, as shown and described. 4th. The combination, with the regulator proper consisting of a series of cells containing a powdered conductive and non-conductive material, and a plunger for compressing it, of cells and the circuit-breaker formed of a series of metal fingers, and a rotatable cylinder whose periphery is divided into conducting portions, and a series of insulated circuit wires which connect the said cells and fingers, and a disconnected return wire, all substantially as shown and described, whereby the rotary adjustment of the cylinder graduates the strength of the current in the circuit or cuts off the current altogether, as specified 5th. A current regulator consisting of a receptacle containing a powdered substance having a certain degree of conductivity, a circuit breaker inclosed in said receptacle, and a compressor for varying the pressure upon, and the resulting density of said substance, as and for the purposes specified. 6th. The improved regulator shown in sheet 4, consisting of the large non-conducting cylinder 1, the circuit-breaker formed of the non-conducting cylinder 2, the electrical contact 5, an adjustable circuit connector 3, the powdered material 6, a piston for compressing the latter, and a rod for adjusting the piston, substantially as described. 7th. In an electric regulator sheet 4, the combination, with the conducting wire C, divided as specified, of the non-conducting cylinder 1, the metal rod 5 and the small non-conducting cylinder 2, the surrounding powdered composite material 6, the piston 7, the screw thread rod 3 working in a nut at the lower end of said cylinder, and provided with a suitable head for use in turning it, as specified.

No. 33,094. Automatic Governor for Electric Motors and for Dynamos. (*Gouverneur automatique pour les moteurs électriques et les dynamos.*)

Charles Norsworthy and John C. Lindop, (assignees of William Morrison), St. Thamas, Ont., 10th December, 1889 ; 5 years.

Claim.—The automatic governor C, substantially as and for the purpose hereinbefore set forth.

No. 33,095. Pessary. (*Pessaire.*)

Charles B. Butler, Springfield, Mass., (assignee of Alfred W. Sperry, Hartford, Conn.,) U.S., 10th December, 1889 : 5 years.

Claim.—As a new article of manufacture, a pessary consisting of a stem with an enlarged head rising from the centre of a cup-shaped base which has a concavity in its bottom, said concavity having a dependent screw-threaded stem, and a handle with a rounded end in which is a threaded socket adapted to engage the screw-threaded stem, substantially as specified.

No. 33,096. Sewing Machine for Making Two Lines of Sewing Simultaneously. (*Machine à coudre faisant deux coutures simultanément.*)

Chappell, Allen & Co., (assignee of Thomas R. Rossiter,) Bristol, Eng., 10th December, 1889 ; 5 years.

Claim.—1st. In a sewing machine, the combination of a pair of needles, a needle plate, or a portion of a cloth plate, with holes or passages for both the needles, and a double arrangement of rotatory shuttles, substantially as hereinbefore described. 2nd. In a sewing machine, the combination of a pair of needles adjustable and fixable with respect to each other, a needle plate, or a portion thereof, or of the cloth plate, with holes or passages for the needle therein and removable and replaceable in position, and a double arrangement of rotatory shuttles, the one adjustable and fixable with respect to the other, and provided with adjustable and fixable driving gear, substatially as hereinbefore described and illustrated by accompanying drawings.

No. 33,097. Sieve for Flour and Similar Substances. (*Sas pour la farine et les substances similaires.*)

Morris Lary, New York, N.Y., 10th December, 1889 : 5 years.

Claim.—1st. In a flour receptable and sifter, a closed case divided into two compartments by a tapering spout, and hooks pivoted to the sides of said spout, in combination with a sieve connected to said spout by said hooks, said sieve consisting of a cup with a bottom screen, and a handle for said cup mounted to oscillate in bearings thereon, an agitator constructed to move over the screen and provided with a stem, extending thence vertically to the top of the cup, and thence horizontally above the handle, and thence downwardly into and through the handle axially thereof and fastened thereto, whereby the stem of the agitator forms the axle of the handle, a cover closing the bottom of said cup, said cover being hinged to said cup, and fitting against its bottom below the screen, a link hinge for connecting the cover to the cup, and a fastening for holding the cover against its bottom, substantially as set forth. 2nd. In a flour receptacle, the csae A provided with a sieve and constructed with a supporting bail on one of its sides, such bail constructed with a face parallel with the side of the case and with two oppositely inclined faces extending in planes at angles of forty-five degrees relatively thereto, whereby the bail will fit both parallel and angular surfaces.

No. 33,098. Unloading Attachment for Cars.

(*Appareil de déchargement des chars.*)

Jonathan S. Harshman, Harshman, Ohio, U. S., 10th December, 1889 ; 5 years.

Claim.—1st. The combination, with a car body, provided with aligned bearings, of a shovelling board hinged to a rod resting in said bearings, substantially as specified. 2nd. The combination, with a car body having aligned bearings near its upper edge at its end, of a hinged shovelling board or guide supported by a rod resting in said aligned bearings, substantially as specified. 3rd. The combination, with a car body having aligned bearings near its end in its side walls, of a shovel board provided with a longitudinal sleeve or half hinge along its upper edge, and a hinge rod passed through said aligned bearing and sleeve or half hinge, and provided with a head at one end and a threaded portion at the other end, having a securing nut turned thereon, substantially as specified. 4th. The combination, with a car body having bearings in its side walls, of a shoveling board provided with a downwardly-turned sleeve along its upper edge, and a hinge rod having a head and a threaded portion, and a nut turned on the threaded portion of the hinge rod, substantially as specified. 5th. The combination, with a car body, provided with aligned bearings, of a shoveling board provided with an integral sleeve along its upper edge, and a headed threaded hinge rod having a securing nut on its threaded portion, substantially as specified. 6th. The combination, with a car body, of a shoveling board hinged to one of the walls thereof and adapted to turn within the body, substantially as specified.

No. 33,099. Closet Cistern.

(*Réservoir de latrines.*)

David L. Dwinnell, George A. Miller and Charles H. Miller, Montreal, Que., 10th December, 1889 ; 5 years.

Claim.—1st. In a water closet cistern, the combination, with the discharge pipe, of a bell or cover adapted to normally surround the inner projecting end thereof in such manner that, as said bell or cover is raised and immediately dropped, the water in the cistern will be discharged through said pipe, substantially in the manner specified. 2nd. The combination, with the cistern, having inlet E and a device for controlling same, of the upwardly-projecting discharge pipe F, bell G, lever M and pull-down O, substantially as and for the purpose specified.

No. 33,100. Water Closet and Reservoir therefor. (*Cabinet à l'eau et réservoir.*)

Smith E. Hughes, Philadelphia, Penn., U. S., 10th December, 1889; 5 years.

Claim.—1st. The combination of the reservoir, having a supply pipe, a discharge regulating valve in the lower portion, and a vent opening in the top, with a valve closing said opening, and a lever carrying said valve and connected to a yielding diaphragm, which closes an opening in the top of the reservoir and is acted upon by the pressure of water in said reservoir when the latter is filled with water, all substantially as specified. 2nd. The combination of the reservoir, having a supply pipe, a discharge regulating valve in the lower portion, and a cap having a vent passage communicating with an overflow pipe, and a vent opening between said passage and the interior of the reservoir, with a valve closing said vent opening, and a valve lever having a diaphragm adapted to another opening in the cap of the reservoir, all substantially as specified. 3rd. The combination of the reservoir, the cap having a vent passage with an open discharge pipe, a valve for closing communication between said passage and the reservoir, and an overflow pipe surrounding the discharge pipe, but providing a space between the two, all substantially as specified. 4th. The bowl, having a down-turned flange around the top, in combination with the water supply box discharging downward into the bowl and laterally behind the flange, as set forth. 5th. The combination of the valve with the side guides having spring rods overlapping the side wings of the valve, as set forth.

No. 33,101. Barrel and similar Package.

(*Baril et vaisseau semblable.*)

William Armstrong, Markdale, Ont., 10th December, 1889; 5 years.

Claim.—A barrel or other cylindrical package, composed of an inner skin made of vertical staves, encircled and enclosed by an outer skin formed by a thin sheet of wood, bent lengthwise, so that its grain shall extend round the inner skin at right angles to the grain of the vertical staves, substantially as and for the purpose specified.

No. 33,102. Circular Brush. (*Brosse circulaire.*)

Norman Knowles, Bolton, and William Philipson, Astley Bridge, near Bolton, Eng., 10th December, 1889; 5 years.

Claim.—In circular brushes, the combination of the block or body B having the slots or recesses C, to receive the adjustable bristle stocks D, the perforated plates E fixed on the block or body B, and means for raising and lowering the adjustable bristle stocks D, to determine the amount of bristle that is required to project through the perforations G in the plates E, substantially as shown and described.

No. 33,103. Method or Process for obtaining Aluminum. (*Mode ou procédé de production de l'aluminum.*)

Martin Wanner, Robinson, Col., U.S., 11th December, 1889; 5 years.

Claim.—1st. The process of obtaining the metal aluminium herein described, consisting in treating a fused aluminous fluoride or fluorides, while in a molten metallic bath, and protected from oxidizing agents, with a re-agent, whose elements disassociate at a temperature below the fusing point of the aluminous fluoride or fluorides, and having an element of such affinities that it displaces the aluminium in the fluoride or fluorides, but having no element adapted to unite with the aluminium, substantially as set forth. 2nd. The process of obtaining aluminium, by treating a base of fused aluminous fluoride or fluorides while in a bath of molten metal and protected from oxidizing agents with a sulphide of silicon or equivalent re-agent, substantially as set forth and described.

No. 33,104. Coal Washing and Cleaning Machinery. (*Machine à laver et nettoyer le charbon.*)

Carl Luhrig, Dresden, Saxony, and John C. Cunningham, Glasgow, Scotland, 11th December, 1889; 5 years.

Claim.—1st. The herein described process for treating coal, so as to obtain separate products therefrom, the said process consisting of the following successive operations, separating the crude coal into various sizes by a screening drum, washing the separate sizes in separate jiggers or sets of jiggers, draining the washed coals, separating the heavy mineral matters and recovering the sludge as sediment. 2nd. In the process referred to in the preceding claim, after washing intergrown or stoney coal, breaking it up by a crusher and again washing by jigger or jiggers. 3rd. In combination with a sediment collector and water clarifier, a fine meshed screening drum for separating the sludge material into larger and smaller particles.

No. 33,105. Means for Exterminating Gophers, Moles and other Rodent Animals. (*Moyens de détruire les gaufres, taupes et autres rongeurs.*)

James D. Millen and John T. Dixon, Winona, Minn., U.S., 11th December, 1889; 5 years.

Claim.—1st. The combination, with cylinder A, cone-shaped cap B and perforated cap F, of plunger rod G and plunger H, as set forth. 2nd. The combination, with cylinder A, divided into an air and a combustion chamber, and caps B and F, of plunger rod G and plunger H, as set forth. 3rd. The combination, with cylinder A perforated, as described, and provided with sliding cover E and caps B and F, of plunger rod G and plunger E, as set forth. 4th. The combination, with cylinder A and caps B and F, of plunger rod G and plunger H, cap F provided with valve J, H, with valve I, as set forth.

No. 33,106. Dress Chart. (*Patron de vêtement.*)

Julia Penley, Boston, Mass., U.S., 11th December, 1889; 5 years.

Claim.—1st. In a dress chart, the combination of a shoulder scale C, graduated by numbers thereon, a neck scale B, the latter being composed of a series of intersecting lines and numbers at the intersections of said lines, and connecting lines between the numerals on scale B and C, whereby a measurement of the neck of a garment being laid off by number on the neck scale, the number on the shoulder scale connected thereto indicates the proper shoulder measure, substantially as set forth. 2nd. The combination, with the sleeve scale A^1, of the separate scales P, P^1, said scales being graduated by numbers, the numerals on the scale P corresponding with those on the scale A^1 and the numerals on the scale P^1 corresponding with similar numbers on the scale P, whereby, when a certain number on the scale P is applied in the manner set forth in the specification to its equivalent number, said number having been ascertained by measurement, the same numeral on the scale P^1 indicates the extreme point of the upper end of the under part of a dress sleeve, substantially as set forth.

No. 33,107. Process of and Means for Curing or Preserving all kinds of Fish, Flesh and Fowl and Apparatus therefor. (*Procédé, moyens et appareil de conservation du poisson, de la viande et des volailles.*)

Stephen Marmont, Christiania, Norway, 11th December, 1889; 5 years.

Claim.—1st. The preparation or solution composed of salt, salt petre, sugar and vinegar, or acetic acid, as and for the purposes herein set forth. 2nd. The arrangement of apparatus consisting of a tank A, with filters B, pressure boiler D, with perforated shelves E, pressure pump G, and extractor H, as and for the purposes herein set forth.

No. 33,108. Mode of Marking Confectioneries and apparatus therefor. (*Mode de marquer les bonbons et appareil pour cet objet.*)

Gilbert W. Ganong, St. Stephen, N.B., 11th December, 1889; 5 years.

Claim.—1st. In the mode of marking confectionery, as described, a mould *b* having thereon raised or sunken letters or designs G, etc., substantially as described. 2nd. The herein-described mode of marking confectionery in chocolate, cream or other like substances, and laying them on a mould *b* having thereon raised or sunken letters or designs G, etc., for imparting said designs or letters to the confectionery, substantially as and for the purpose hereinbefore set forth.

No. 33,109. Attachment for Coffee or Tea Pots. (*Disposition aux cafetières ou théières.*)

Ephraim A. Thompson, Thomaston, Me., U.S., 11th December, 1889; 5 years.

Claim.—A condensing device for coffee and tea pots, consisting of an outer conical or funnel-shaped shell open at its lower end, an inner conical vessel connected at its upper edge to the upper edge of said outer shell, and an elastic gasket or band surrounding the said outer shell, and adapted to be adjusted upon the latter, and to form a steam tight joint with the vessel upon which it may be placed, substantially as set forth.

No. 33,110. Wire Drawing Machine.

(*Machine à étirer le fil de fer.*)

Herbert Smith, Worcester, Mass., U.S., 11th December, 1889; 5 years.

Claim.—1st. In a wire-drawing machine, the combination of a series of adjustable rotary friction driving-disks, and a series of rotary friction driven disks, driven at varying speeds from the first named disks, with a series of friction-cones the same shafts as the friction-driven disks, a series of friction-cones driven at varying speeds from the first-named cones through the medium of a series of adjustable belts arranged one between each pair of cones of the series, a series of drawing-through pulleys and the wire-drawing block, said pulleys being on the same shafts as the driven cones, and the block on an independent shaft driven in turn from the shaft of one of said driven cones, all having suitable supports, as well as constructed and arranged for operation substantially as and for the purpose set forth. 2nd. In a wire-drawing machine, the combination of a series of adjustable rotary disks, and a series of rotary disks driven at varying speeds from the first-named disks, with a series of friction-cones on the same shafts as the driven disks, a series of friction-cones driven at varying speeds from the first-named cones through the medium of a series of adjustable belts arranged one between each pair of cones of the series, a series of drawing-through pulleys and the wire-drawing block, said pulley being on the same shafts as the driven cones, and the block on an independent shaft driven in turn from the shaft of one of said driven cones, a series of adjustable die-holders and the dies, all having suitable supports, as well as constructed and arranged for operation substantially as and for the purpose set forth. 3rd In a wire-drawing machine, the combination of the adjustable rotary friction driving-disks D, mounted on and keyed to driving-shaft B, so as to slide but not turn thereon, and adapted to be moved longitudinally and fastened after adjustment, each independently on said driving-shaft, with the rotary friction-driven disks H mounted on said shafts arranged at right angles to shaft B, and having means for forcing said disks H against disks D, friction cones J, L, the cones J on the same shafts with disks H, and

cones L on shafts parallel to said first-named shafts, adjustable friction-belts M interposed between the peripheries of each pair of cones J, L, and having means for moving the same laterally between the ends of the cones, the drawing-through pulleys N, and block P, said pulleys mounted on the same shafts as the friction-driven cones L, and the block on an independent shaft driven from one of the shafts of said driven cones, the stationary adjustable die-holders O arranged between the drawing-through pulleys in line therewith, the dies *l* held in position in said die-holders, suitable means for supplying the lubricating fluid to said dies and for discharging or carrying off the waste, a suitable reel for holding the wire as it is drawn forward into the machine, and suitable means for supporting the various parts, substantially as and for the purpose set forth. 4th. In a wire-drawing machine, the combination of the adjustable rotary friction driving disks D, mounted on and keyed to driving shaft B, so as to slide but not turn thereon, and adapted to be moved longitudinally and fastened after adjustment, each indpendently on said driving shaft, with the rotary friction-driven disks H mounted on shafts arranged at right angles to shaft B, and having means for forcing said disks H against disks D, friction cones J, L for the cones J on the same shafts with disks H, and cones L on shafts parallel to the first-named shafts, adjustable friction-belts M interposed between the peripheries of each pair of cones J, L, and having means for moving the same laterally between the ends of the cones, and the drawing-through pulleys mounted on the same shafts as the driven cones L, substantially as and for the purpose set forth. 5th. In a wire-drawing machine, a die-holder comprising in combination, the vertical plate *m* having a vertical holding slot in its front side, and secured to a stationary support, the angle-plate *n* adjustably fastened in the slot in said plate *m*, and having the horizontal arm n^1 provided with the vertical slot n^2, and the swivel die-receptacle *p* adjustably fastened to said arm n^1, substantially as set forth. 6th. In a wire-drawing machine, the combination of the die *l* with a die-holder O, consisting of a stationary holding plate *m*, an angle plate *n* adjustably fastened to said plate *m*, and a swivel receptacle *p* in turn adjustably fastened to plate *n*, substantially as set forth. 7th. In a wire-drawing machine, the combination of the disk *t*, frame r^1, block P and its shaft *r*, with a spring device, substantially as described, for depressing or forcing down said block, and a suitable lever pivoted to a fixed bearing, and adapted to engage with the under side of the block also preferably having friction rolls mounted on its inner end, substantially as set forth.

No. 33,111. Electric Circuit Switch.

(*Commutateur de circuit électrique.*)

Francis A. Côté, Ottawa, Ont., 12th December, 1889; 5 years.

Claim.—1st In an electric circuit switch, the combination of a base of non-conducting material, a pivot secured to said base upon which the movable tongue and handle are pivoted and to which a pole connecting plate is connected, a pole connecting plate connected with said pivot, a movable tongue centred upon said pivot in contrct with the pole connecting plate and adapted to engage a brush, a handle centered upon said pivot, a tension spring connecting said tongue and handle by posts secured upon said tongue and handle, a stop secured to the base to limit the action of the tongue and handle on one side, a stop or stops to limit the action of the tongue and handle on the other side, and a pole connecting brush or contact piece adapted to be engaged by the end or ends of said tongue, substantially as set forth. 2nd. In an electric circuit switch, the combination of the base A, the stud or pivot B, connecting plate C, tongue D, handle E, E^1, studs D^1, E^{11}, spring F, stops G and H, and brush I, substantially as set forth. 3rd. In an electric circuit switch, the combination of a base A, a pivot B, a tongue D centered upon said pivot, a handle E, E^1 centered upon said pivot, posts D^1, E^{11} upon tongue and handle, spring F on said posts and stops to limit the action of the tongue and handle, substantially as set forth.

No. 33,112. Toy. (*Jouet.*)

Frederick W. Dennis, Omaha, Neb., U.S., 12th December, 1889; 5 years.

Claim.—1st. The puzzle board consisting of the base A, rim B, inside partitions C and D, having the corner opening $c\ c^1\ d$ and d^1, corner pieces E, F, G and H, having the houses I, J, K and L, respectively, the ring fence M mounted on posts *m*, and centre house N, said houses having doors *i*, *j*, *k*, *l*, *n*, respectively, for marbles to play in and out of, substantially as shown and described. 2nd. A puzzle consisting of the board having the base A, rim B, inside partitions C, D, having the corner openings $c\ c^1\ d$ and d^1, corner pieces E, F, G and H, having the houses I, J, K and L, respectively, the ring fence M mounted on the posts *m*, and centre house N, and marbles 1, 2, 3, 4 and 5, said houses having doors *i*, *j*, *k*, *l* and *n*, respectively, for said marbles to play in and out of, substantially as shown and described.

No. 33,113. Foot Rest for Steam Radiators.

(*Appui-pied pour les calorifères.*)

Jacob A Sohn, Wichita, Kan., U.S., 12th December, 1889; 5 years.

Claim.—1st. The combination, with the steam pipes, of the clamps C and F, the rods or arms H passed through the latter and screwed to the inner clamp C, the washer L screwed on the said rods or arms and bearing against the outer clamp F, the coupling attached to said rods or arms, and the tube or rod N supported in the said couplings, substantially as described. 2nd. The combination of the clamps C, F, having the two vertical grooves on their inner sides, adapted to engage the front and rear faces of the steam pipes of the radiator, the rods or arms H having the screw-threads I, for the purpose set forth, the washers L, the couplings attached to the rods or arms H and having the set screws R, and the tube or rod N adapted to be secured in the said couplings, substantially as described.

No. 33,114. Device for Detaching Horses.

(*Appareil pour dételer les chevaux.*)

Charles L. Rice, East Granite Falls, Minn., U.S., 12th December, 1889; 5 years.

Claim.—1st. In combination with a reversible whiffletree, automatic trace hooks or loops secured to the ends thereof and provided each with a pin or stud to enter the eye of the trace, all substantially as shown, whereby, when the whiffletree is reversed the traces will be positively detached from the pins or studs. 2nd. In combination with a hinged or pivoted whiffletree or doubletree, an automatic locking device therefor, and automatic trace-hooks applied to the ends thereof. 3rd. In combination with a reversible doubletree, an automatic releasing device therefor, whiffletrees secured to the doubletree, and automatic trace hooks or loops secured to the ends thereof. 4th. In combination with plate C, plate D provided with a bolt or stem, and iron G hinged to the plate C. 5th. In combination with perforated plate C, plate D provided with a stem or bolt, iron G hinged to the plate C, and a bolt F passing throught the plates C, D. 6th. In combination with plate B, plate C fitting thereon, and provided with a curved slot, plate D provided with a bolt or stem, iron G, hinged to the plate C, and a bolt F passing through the plate. 7th. In combination with plate C, having a slotted pin, iron G, provided wtih a stud and pivoted or hinged to plate C, and a weight having a slotted hub. 8th, In combination with plate C having lugs *h* and *g*, the former slotted as shown, and provided with a slotted pin *i*, and a recess *k*, iron G provided with a flattened stud *m*, and hinged to the lug *g*, and a weight provided with a slotted hub *l*. 9th. In combination with the socket piece K provided with sockets *n*, *o*, and a rigid draw-pin *q*, the loop or hook L having the inclined slots *r*, and a pin or stud *s* working in the slots. 10th. In combination with a socket-piece, as K, provided with a draw-pin *q*, and pin or stud *s*, the trace loop or hook provided with spiral slots and mounted and free to slide upon the draw-pin.

No. 33,115. Car Coupling. (*Attelage de chars.*)

Patrick McEntee, Montgomery, Minn., U.S., 12th December, 1889; 5 years,

Claim.—1st. In a car coupling device, the combination, with a rocking-rod and a segmental frame carrying a chain on its face, of the slotted angle-iron for engaging the head of a couping pin, substantially as set forth. 2nd. In a car coupling, a quadrantal frame carried by a rocking-rod that is provided with a lateral arm, cranks at the sides of the car, and a rod extending from said arm to the top of the car for operating said rocking-rod, a chain attached to said frame and engaged by the curved surface thereof, and an angle-iron carried by the chain for engaging the head of a coupling pin, substantially as set forth. 3rd. A car coupling device consisting of a rocking-rod bent at its middle to form a quadrantal frame at right angles thereto, and bent also at one side of the middle to form an arm, cranks on the ends of the rod, and a vertical lever connected to said arm, a curved plate secured to the arc of said frame, and a chain secured to its outer angle for raising and lowering a coupling pin, substantially as set forth. 4th. In a car coupling device, a horizontal rocking-rod bent at its middle to form a quadrantal frame at right angles thereto, and the arc of such frame provided with lateral bends adapting it to serve as a bearing surface for a chain, substantially as set forth. 5th. In a car coupling, the combination, with a rocking-rod having a lateral portion, and a chain attached thereto, of a draw-head having a pin-hole provided with a shouldered recess and a coupling pin connected to said chain, and arranged to be operated in the manner set forth. 6th. In a car coupling, a rocking-rod twisted and bent to form a curved arm adapted to first draw a pin vertically, and then tilt its head toward the car, in combination with a chain, a coupling pin, and a draw-head having a shouldered opening adapted to temporarily support the pin in its inclined position, for the purpose set forth. 7th. In a car coupling, the combination, with a draw-head, a coupling pin and a chain, of a rocking-rod for operating the pin having its middle portion twisted and bent to form a suitable connection and bearing surface for the chain, and another portion twisted to form an arm for connecting a lifting rod, substantially as set forth, 8th. In a car coupling, the combination, with a rocking-rod provided with an arm having an inward pendant portion, of a chain, and a yoke or frame for holding a coupling pin, for the purpose set forth. 9th. In a car coupling, a draw-head having a pin hole provided with a recessed side, adapted to temporarily seat a coupling pin in inclined position, in combination with a coupling pin, a chain and mechanism for drawing the pin and seating it in the recess of said pin hole, substantially as set forth.

No. 33,116. Root Cutter. (*Coupe-racine.*)

Walter Willoughby, Almonte, Ont., 12th December, 1889; 5 years.

Claim.—1st. The combination, with the hopper A, of a rotating drum or cylinder D having radially projecting knives K, and horizontal knives I to score and slice the roots, as set forth. 2nd. A root cutter comprising a frame B, standing on legs C and supporting a hopper A, in which is a drum or cylinder D, having scoring and slicing knives K, I, and a shaft E carrying the drum journalled to the frame, and provided with a power wheel F and crank handle G, as set forth.

No. 33,117. Reciprocating Propeller for Vessels. (*Propulseur alternatif pour les vaisseaux.*)

Samuel Snellenburg, Philadelphia, Penn., U.S., 12th December, 1889; 5 years.

Claim.—1st. In a reciprocating propeller for vessels, the combination of a suitable frame having horizontal guide-ways, a sliding frame mounted on said guide-ways and provided with a series of

transverse bars upon which are hinged floats or paddles, vertically-sliding bars carrying transverse rods or stops against which the ends of the blades abut so as to be held in a vertical position, and a notched bar supported in hangers having V shaped portions upon which said notches lie, for vertically moving said sliding bars so that the floats may pass under the transverse bars or stops carried thereby, substantially as shown and for the purpose set forth. 2nd. The combination, in a reciprocating propeller, of a casing having an open bottom and ends sliding frames carrying a number of paddles or floats arranged in vertical or horizontal series, said floats or paddles being hinged to rigid cross-bars, bars *f*, *f*, and movable bars said carried by vertically moveable bars G, and means for adjusting bars, the sliding frames being mounted upon interlocking ways having anti-friction rollers, substantially as shown and for the purpose set forth. 3rd. The combination of two or more sliding frames carrying vertically adjustable bars having stops thereon, said bars having slots for limiting the vertical movement thereof, a series of hinged paddles carried by the frames so as to swing upwardly upon the said pivots, a notched bar I supported in loops *j*, said bar passing beneath transverse bars attached to the vertically sliding bars G, so that said bars G may be raised when the bar I is moved rearwardly, to permit the paddles to swing under the stops *i*, substantially as shown and for the purpose set forth. 4th. The combination, with a sliding frame carrying a series of paddles, of a vertically moving frame G, and a sliding bar I for operating the frame G, said bar having adjacent to its support two notches to engage with the loops *j*, so that, when the bar I is moved, the frame G will be raised and lowered substantially as described. 5th. The combination, with the sliding frame carrying a series of hinged paddles and permanent or immovable stops therefor, of a vertically moving frame G carrying stops or cross-bars, and loops through which passes the sliding bar I, said bar being suspended in loops *j*, the cross pieces of which are angular, said bar I having two sets of notches to engage with the loops *j*, and a lever for operating said bar, the parts being organized substantially as set forth.

No. 33,118. Car for the Conveyance of Ships on Ship Railways. (*Char pour le transport des navires sur les chemins de fer à navires.*)

William Smith, Aberdeen, Scotland, 12th. December, 1889 ; 5 years.

Claim—1st. In a ship carrying railway car, the combination, with a U-shaped cradle or superstructure, of hydrostatic cushions lining said cradle, and formed of juxtaposed tubes of compressible material extending across beneath and up the sides of the vessel, said tubes containing water and being open at the top and serving as a water bed whereon the weight of the vessel is loated or counterbalanced by hydrostatic pressure, substantially as specified. 2nd. In a ship carrying railway car, the herein described construction of cradle-like superstructure formed of U-shaped sections, lined with U shaped hydrostatic cushions, and hinged together by transverse hinges at the base so as to permit of vertical flexibility of the cradle, substantially as specified. 3rd. In a ship carrying railway car, consisting of a cradle-like superstructure formed of U-shaped sections hinged together and lined with hydrostatic tubular cushions, as described, the construction of the upright members of said U sections separate from the base and adjustable in the lateral direction to suit the breadth of the ship, substantially as specified. 4th. In a ship carrying railway car, consisting of a cradle-like superstructure formed of U-shaped sections, hinged together and lined with hydrostatic tubular cushions, as described, the hinging of the upright members at one side of said U sections so as to swing downwards and outwards, to admit of the ship floating into position on the cradle, as specified. 5th. A ship carrying railway car, constructed of U-shaped sections, lined with hydrostatic tubular cushions and hinged together, as described, and supported on sets of compound bogies, each set composed of a bogie proper swivelling on a centre pin and of any number of trucks, on which the superstructure rests, through the medium of rollers, to permit lateral guidance of said trucks by the rails independently of the car, substantially as specified.

No. 33,119. Snap Hook. (*Crochet a ressort.*)

Philetus A. Waldron, St. Louis, Mich., U.S., 12th December, 1889 ; 5 years.

Claim.—1st. A snap hook consisting of two members pivoted together and provided with coinciding hooks at one end, and at the opposite end with loops at right angles to the hooks, said loops each having one end wall projecting beyond the adjacent end wall of the other loop on opposite sides, as set forth. 2nd. A snap hook consisting of two members pivoted together and each having a loop at one end, and a hook at the other end, and provided on its inner face with a longitudinal groove, and a U shaped spring having its arms fitted in said grooves, as set forth.

No. 33,120. Draft Regulating Device.

(*Appareil pour régler le tirage.*)

John Rockafeller, Asbury Park, N.J., U.S., 12th December, 1889; 5 years.

Claim.—1st. The combination with the furnace having the dampers C and D, and the wire H connecting the said dampers, of the regulator placed close to and operated by the varying change of temperature of the said furnace, composed of the drums A and B, the drum B, having an inner and outer shell, between the space I is left and the drum A inverted and working in said space I, which is filled with liquid to form a seal, the guide yoke J secured to drum B, the stem *a* projecting from drum A and working through guide yoke J, and the arm *j* connecting stem *a* with the wire H, substantially as described. 2nd. The herein described regulator composed of two drums A and B, the drum B comprising two shells between which a liquid seal is formed, the drum A being inverted, and the upper edge of the inner shell of drum B being turned out or flared, to guide the drum A in its movements and prevent splashing of the liquid into the inner shell of drum B, substantially as described. 3rd. The combination, with the regulator comprising the two drums A and B, the drum B having two shells between which a liquid seal is formed, of the drain cock K connected with the inner shell of drum B, substantially as described.

No. 33,121. Grain Drill. (*Semoir en ligne.*)

Charles E. Patric and Frank R. Packham, Springfield, Ohio, U.S., 12th December, 1889 ; 5 years.

Claim.—1st. In a grain drill, a presser-foot pivoted to the shoe or hoe, and provided with a lower runner and an upper bearing support, and a connection from said bearing support to the lifting mechanism, substantially as described. 2nd. In a grain drill, a presser-foot having a lower flexible runner, an upper bearing support, and a stop projection to limit the upward movement of said bearing support, substantially as specified. 3rd. The combination, with a grain drill, of a presser-foot pivoted to a shoe or hoe and having a flexible runner and an upper bearing support, a connection from said bearing support to the raising and lowering mechanism, and means for adjusting said connection along said bearing support, substantially as specified. 4th. The combination, in a grain drill and with the shoes or hoes, of a series of presser-feet, one for each shoe or hoe pivoted thereto, said presser-feet each being provided with a lower flexible runner and an upper bearing support, a connection from each of said presser-feet to the raising and lowering mechanism, and means for connecting said presser-feet rigidly to the shoes or hoes, substantially as specified. 5th. The combination, with a grain drill shoe, of a pressure-foot having a flexible runner and an upper bearing support, a series of openings in said bearing support to connect the raising and lowering mechanism, a stop on said presser-foot, and means, substantially as described, for connecting said presser-foot rigidly to said hoe or shoe in different positions of adjustment, substantially as specified. 6th. The combination, with a grain drill shoe having a backwardly extending flange with a series of openings therein, and a boss or projection on the same side with said flange, or a presser attachment pivoted to said boss or projection having a lower flexible runner and an upper bearing support, said bearing support being provided with a series of openings adapted to be connected by a link-connection to the respective openings in said flange, substantially as specified. 7th. The combination, with a grain drill shoe or hoe, of a presser-foot pivoted thereto, said presser-foot being provided with a lower flexible runner and an upper bearing support, a connection from said bearing support to the raising and lowering mechanism, said connection being provided with an elastic or yielding portion adapted to exert a pressure on said presser-foot, substantially as specified. 8th. The combination, with a grain drill hoe having a backwardly extending flange with a series of openings therein, of a presser-foot pivoted to said hoe and provided with a lower flexible runner, and an upper bearing support having a series of openings adapted to be connected by a link to the openings in said flange, a stop on said presser-foot, and a yielding connection from said bearing support to the raising and lowering mechanism, substantially as specified. 9th. The combination, with a grain drill shoe or hoe, of a pressing attachment having a bearing support pivoted to said shoe, and a flexible runner connected to said bearing support, said runner being convex in cross section on its bottom surface, substantially as specified.

No. 33,122. Toy Gun. (*Fusil-jouet.*)

George H. Weston, St. Louis, M.T., U.S., 12th December, 1889 ; 5 years.

Claim.—1st. The combination, in a toy gun having the spring actuated follower, dog and trigger, of a stop and barrel extending therefrom, a breech block C mounted upon a horizontal pivot and grooved on its underside, to form a part of the barrel recess, and a bail or loop *c* pivoted to the stock to clamp said breech block, substantially as and for the purpose set forth. 2nd. The combination, in a toy gun, of a stock and barrel extending therefrom, a spring actuated follower, a dog having an upwardly projecting portion *f* to engage said follower, a spring pressed trigger to engage said dog, a breech block mounted upon a horizontal pivot and grooved on its underside, to form a part of the barrel recess, and a bail or loop pivoted to the stock to clamp said block, substantially as set forth. 3rd. The combination, in a toy gun, of a stock and barrel extending therefrom, a yoke shaped follower of spring metal, and elastic bands for actuating the same, engaging dog and spring trigger, a breech block mounted upon a horizontal pivot and grooved in its under side to form part of the barrel recess, and a bail or loop pivoted to the stock to clamp said breech, substantially as set forth.

No. 33,123. Churn and Churn Power.

(*Baratte et moteur de baratte.*)

William J. Griffin, Rutsford, Mich., U.S., 12th December, 1889 ; 5 years.

Claim.—The combination of a churn dasher capable of rotating in either direction, a double crank shaft and two cords wound in opposite directions around the dasher rod, each of said cords being connected to springs, and the springs being attached to one of the two cranks of which the double crank shaft is composed, substantially as herein shown and described.

No. 33,124. Door Lock. (*Serrure de porte.*)

Christopher Moody, Toronto, Ont., 12th December, 1889 ; 5 years.

Claim.—1st. Lock case provided with projections adapted to be engaged by extension bolts passed transversely through the escutcheons and door, substantially as described. 2nd. Door knobs with

shank ends secured within the escutcheons, in combination with the lock case provided with projections adapted to be engaged by extension bolts passed transversely through the escutcheons and door, as described and for the purposes set forth 3rd. The rubber springs U, V, in combination with the levers of a lock, as shown and described 4th. The escutcheons provided with recesses to receive the rubber springs *u*, *u*, adapted to engage the lug O of the knob shank A, substantially as set forth. 5th. The levers I, J, K, provided with pivots X, Y, Z at the fulcrums, adapted to engage corresponding holes on opposite sides of the lock case, as set forth.

No. 33,125. Dough Raising Tray.

(*Plateau pour faire lever la pâte.*)

Bazile Z. Dompierre, Cleveland, Ohio, U.S., 13th December, 1889; 5 years.

Claim.—A dough-raising tray mounted on wheels, having a doorway or opening of large size suitable for discharging the sponge from the tray, a slide or gate for closing such opening, suitable apparatus, preferably hooks and rings, as shown, for attaching hoisting mechanism, the parts being arranged substantially as set forth.

No. 33,126. Thill Coupling.

(*Armon de limonière.*)

Joseph H. Richardson and Frank M. Richardson, Claremont, Va., U.S., 13th December, 1889; 5 years.

Claim.—1st. As an improvement in thill couplings, the arm having the curved or hooked extension, the thill provided with the the T-end engaging said extensions, and the adjustable keeper plate, substantially as set forth. 2nd. As an improvement in thill couplings, the arm having the curved or hooked extensions, the thill provided with the T-end engaging said extensions, the adjustable keeper plate having a slot, and the screw projecting therethrough, substantially as and for the purpose stated. 3rd. As an improvement in thill couplings, the arm having the curved or hooked extensions, the thill provided with the T-end engaging said extensions, and the spring arm secured to said thill and bearing against said arm, substantially as set forth. 4th. As an improvement in thill couplings, the arm having the curved or hooked extensions, the thill provided with a T-end engaging said extensions, the spring arm adjustably secured at one end and having a shouldered portion engaging the end of said arm, substantially as set forth. 5th. The combination of the clip having the arm provided with the curved or hooked extensions, the thill provided with a T-end engaging said extensions, the keeper plate having a slot, the screw projected therethrough, and the spring arm having a shouldered end engaging said former arm, substantially as set forth.

No. 33,127. Vestibule Car. (*Char à vestibule.*)

John Krehbiel, Kalamazoo, Mich., U. S., 13th December, 1889; 5 years.

Claim.—1st. In a vestibule car, a vestibule constructed to form a rigid independent structure between two adjoining cars, and provided with self-adjusting supports between the platforms of the respective cars, to permit of the free relative movement of the two cars, substantially as described. 2nd. A car vestibule rigidly constructed in two separable halves supported upon, and free of the platform of two adjoining cars independent of the relative movement between the cars, substantially as described. 3rd. In a vestibule car, a vestibule rigidly constructed in two separable-like halves, each supported upon the platform of the car on a sliding pivot, and yielding lateral supports under the floor of the vestibule, substantially as described. 4th. In a vestibule car, a vestibule rigidly constructed in two separable halves provided with coupling devices on their meeting faces, adapted to rigidly secure them together, of central pivotal sliding supports and lateral yielding supports on the supporting platforms of the car, substantially as described. 5th. In a vestibule car, a vestibule constructed in two like halves separately secured together and forming an independent rigid structure between two adjoining cars, and having self-adjusting supports upon the respective platforms of said cars, of coupling devices adapted to rigidly secure the two halves together, of false thresholds pivotally secured to the respective ends of the floor of the vestibule, substantially as described. 6th. In a vestibule car, a vestibule consisting of two like halves, each provided with supports *a*, *b*, upon the platform of the car, the coupling devices, the aprons and the false threshold, substantially as described.

No. 33,128. Cooking Vessel.

(*Ustensile de cuisine.*)

Whitefield Ward, New York, N.Y., U.S., 13th December, 1889; 5 years.

Claim.—1st. A cooking vessel having a central opening in its bottom combined with a conical hood above said opening upon the bottom, and a central socket in said hood, substantially as and for the purpose described. 2nd. A cooking vessel having in its bottom a central hole for the passage of a gas burner, and a series of perforations around said hole, combined with a conical hood above both said hole and perforations upon the bottom to receive the burner, and a central socket in said hood for engaging the upper part of the burner, substantially as and for the purpose described. 3rd. A cooking vessel having in its bottom a central hole for the passage of a gas burner, and a series of perforations around said hole, combined with a conical hood above both said hole, and perforations upon the bottom to receive the burner, and a central socket rising from said hole of the bottom in the hood for engaging the upper part of the burner, substantially as and for the purpose described.

No. 33,129. Heating Drum or Radiator.

(*Poêle sourd.*)

Anson Wolcott, Wolcott, Ind., U.S., 13th December, 1889; 5 years.

Claim.—1st. In a heating drum comprising an exterior shell having oppositely arranged inlet and outlet openings, and a plurality of parallel horizontal partitions, or diaphragms forming a tortuous passage leading from said inlet to the outlet opening, one or more valves or dampers hinged to the ends of the alternate partitions or diaphragms, in alignment with said inlet and outlet openings, and arranged to close the passages between said diaphragms, substantially as described. 2nd. The combination, with a heating drum comprising an exterior shell or casing, provided with inlet and outlet openings, and with a plurality of horizontal parallel partitions or diaphragms forming a tortuous passage leading from the inlet to the outlet openings, said shell or casing being provided with an opening at one of its vertical sides extending from its top to its bottom wall, of a door closing said opening, substantially as described.

No. 33,130. Feed Water Regulator for Steam Boilers. (*Régulateur de l'eau d'alimentation des chaudières à vapeur.*)

Winfield O. Gunckel, Terre Haute, Ind., U.S., 13th December, 1889; 5 years.

Claim.—1st. In a boiler feed regulator, the combination, with a water regulating valve working in a cylinder, and provided with holes registering with orifices in the cylinder, of a casing for the said valve and its cylinder, an inlet pipe for the feed water, a safety valve connected to the said pipe, a float operatively connected with the regulating valve, a casing for the float connected to the said valve casing, and in communication with the steam space of the boiler, and a feed water delivery pipe connected to the regulator on the opposite side of the regulating valve from the inlet pipe, substantially as and for the purpose set forth. 2nd. In a boiler feed regulator, the combination, with water regulating valve working in a cylinder, provided with orifices which register with holes in the said valve, of a casing for the said valve and its cylinder, an inlet pipe for the feed water connected to the said casing, a safety valve connected to the feed pipe, a float operatively connected with the regulating valve, a casing for the float communicating with the steam space of the boiler, a junction connecting the float casing with the regulating valve cylinder, and a delivery pipe connected to the said junction piece, substantially as and for the purpose set forth. 3rd. In a boiler feed regulator, the combination, with a water regulating valve provided with holes and working in a cylinder having orifices registering with said holes, of a casing for said valve and its cylinder, an inlet pipe for the feed water, a safety valve connected to said pipe, a float operatively connected with the regulating valve, a casing for the float communicating with the steam space of the boiler, and connected to the regulating valve casing, a feed water delivery pipe, and a pipe provided with a stop valve and connecting the inlet water space with the delivery, so that the water may be pumped direct into the boiler if desired, substantially as set forth. 4th. In a boiler feed regulator, the combination, with a water regulating valve provided with holes, of a valve cylinder having a flange at one end, and orifices registering with said holes, a casing inclosing the valve cylinder, an inlet pipe condected to the said casing, a safety valve connected to the inlet pipe, a flanged junction piece bolted to the valve casing and holding the valve cylinder centrally therein, a delivery pipe connected to the junction piece, a float operatively connected with a rod extending through the junction piece and connected to the regulating valve, and a casing for the float connected to the said junction piece and in communication with the steam space of the boiler, substantially as described and shown. 5th. The combination, with the regulating valve of a steam boiler feeder, of a lever and a float for operating the valve and a hand actuated screw for altering the position of the fulcrum of the said lever, thereby permitting the water level of the boiler to be changed, substantially as and for the purpose set forth. 6th. The combination, with the regulating valve of a steam boiler feeder, of a lever, and a float for operating the valve, and an adjustable fulcrum for the said float lever, substantially as and for the purpose set forth. 7th. The combination, with the regulating valve of a boiler feeder, of the float provided with a lever, and operatively connected to said valve, a fulcrum stem for the said lever passing through the float casing, a connecting piece secured to the end of said stem, and a revoluble screwed spindle engaging with a stationary screw threaded projection, and journalled in the connecting piece for adjusting the fulcrum of the float, substantially as set forth. 8th. In a boiler feed regulator, the combination, with a water regulating valve provided with a rod, and a float operatively connected to the said rod, of an outer casing for the said valve, water inlet and delivery pipes upon opposite sides of the valve, a casing for the float connected to the steam and water spaces of the boiler, and a partition provided with a hole for the valve rod and arranged between the water space under the float, and the water space above the regulating valve, whereby the float may rest in still water, substantially as set forth. 9th. In a boiler feed regulator, the combination, with a water regulating valve, provided with inlet and outlet pipes, and a safety valve upon the said inlet pipe, of a float provided with a pivoted lever and working in a casing above the said water valve, a balanced steam supply valve for the pump working in a cylinder on top of the float casing, both valve and cylinder being provided with orifices for regulating the passage of steam, and a rod connecting the said steam and water valves with the float lever, substantially as and for the purpose set forth. 10th. In a boiler feed regulator, the combination, with a water regulating valve, provided with inlet and outlet pipes, and a safety valve on the said inlet pipe, of a float provided with a pivoted lever, a steam supply valve for the pump, a rod connecting the said steam and water valves with the float lever, and casings inclosing the said water valve and float and the steam valve, and having their internal spaces separated by partitions provided with small holes for the passage of the valve rod, whereby the float may work in still water, substantially as set forth. 11th. In a boiler feed regulator, the combination,

with a valve for regulating the supply of steam to the pump, a rod connected to said valve, and a float operatively connected with the said rod, of an outer casing for the said valve, provided with steam inlet and outlet pipes, a casing for the float connected to the steam and water spaces of the boiler, and a partition plate provided with a hole for the valve rod, and arranged between the steam spaces of the said valve and float casing, whereby the float will not be affected by the pulsations in the steam supply pipe of the pump, substantially as set forth. 12th. In a boiler feed regulator, the combination, with a valve provided with holes for regulating the supply of steam to the pump, and working in a cylinder having openings corresponding with said holes, a casing for said valve and its cylinder, a steam outlet pipe secured to said casing, a hollow stem supporting said valve and casing, a steam inlet pipe secured to said hollow stem, a float casing secured to said stem and connected with the steam and water spaces of the boiler, a float provided with a float lever pivoted in said casing, and a rod connecting said float lever with the steam valve and passing through the said hollow stem, substantially as and for the purpose set forth.

No. 33,131. Combined Boot Scraper and Wiper. *(Décrottoir.)*

Charles Boeckh, Toronto, Ont., 13th December, 1889; 5 years.

Claim.—1st. A frame composed of two sides and a bottom, combined with a flexible detachable mat of suitable material inserted within it so as to cover the interior of the said sides and bottom, substantially as and for the purpose specified. 2nd. A frame A having sides with ribs C formed on them, in combination with a flexible detachable mat B, designed to cover the interior of the bottom and sides of the frame and butt against the ribs C, substantially as and for the purpose specified. 3rd. A frame A having sides with ribs C formed on them, and a mat B designed to cover the interior of the bottom and sides of the frame and butt against the ribs C, in combination with a scraper D, located at the end of the mat B, and having a hole through it, with a pliable wiper E projecting from one side of the said hole, substantially as and for the purpose specified.

No. 33,132. Grain Binding Havester Frame.

(Bâti de mois sonneuse-lieuse.)

John S. Davis, Cleveland, Ohio, U.S., 13th December, 1889; 5 years.

Claim.—1st. The wheel frame of a harvester divided two into compartments, the inner or wheel compartment formed by a single bar composing its sides A^1, A^2, and closed front end, the outer compartment formed by a bar A^5 running parallel to the bars A^1, A^2, then turned at right angles at its front end to lap across the closed front end of the inner compartment to which it is rigidly bolted, substantially as shown and described. 2nd. The combination of the U-shaped bar A^1, A^2, forming the inner compartment of the wheel frame, the L-shaped bar A^6 forming its outer compartment and lapping across the closed front end of the inner compartment, the clip bracket a embracing both bars at their edges and bolted thereon, the ear on the bracket and the foot a^2 on the bar A^6, with the tongue and its pivot, substantially as hereinbefore set forth. 3rd. The combination of the side bars A^1, A^2 of the wheel frame, the bearing brackets, A^4, A^5, the main wheel, and its shaft mounted in the brackets, and truss rod f^1, f^2, attached to the front and rear ends of the frame respectively passing through perforations at the top of the bearing brackets, and provided with adjusting nuts, as and for the purpose hereinbefore set forth. 4th. The combination of the wheel frame, the driving wheel and its shaft journaled in fixed brackets A^4, A^5, attached to the side bars of the wheel frame, the tongue pivotally connected to the front inner corner of the wheel frame, and the inner truss rod f^1, passing directly from the pivot bracket at the heel of the tongue through an aperture in the top of the bracket A^4 with means for adjusting its length, substantially as hereinbefore set forth. 5th. The combination of the wheel frame, bars A^1, A^2 and the bearing brackets A^4 A^5 mounted thereon, the frame bar A^6 and the brace rods f^4, f^5, substantially as hereinbefore set forth. 6th. The combination of the wheel frame bars A^1, A^2 and the bearing brackets mounted thereon, the main shaft provided with a head a^4 on its outer end, the main wheel hub keyed to the shaft between the bearings to firmly hold it against endwise movement therein, with the frame bar A^6 and the brace rod f^5, substantially as and for the purpose hereinbefore set forth. 7th. The combination of the driving wheel, its shaft and the bearing bracket attached to the middle of the frame bars A^1, A^2, the tongue with the driver's seat mounted thereon, and the gear box B attached to the front side of the frame, and the platform and binder frame attached to the rear end of the frame bars, with the truss rods f^1, f^1, f^2, f^2, attached to the frame at its front and rear ends respectively and in line with hanger bearings to the tops of which they are also attached, substantially as hereinbefore set forth. 8th. The combination of the sill bar I, the platform frame to which it is rigidly attached, the loop casting N^1, the rail I^1 beginning at the loop casting and extending over the binding receptacle to the front end of the sill bar and firmly bolted thereto, substantially as hereinbefore set forth. 9th. The combination of the binder sill bars I, J, and the rail bar I^1 secured at its front lower end to the sill bar I with the gear plate C attached by a depending foot at its outer lower corner to the sill bar J, and at its inner lower corner to the rail bar I^1 at a joint above the sill bar I, substantially as and for the purpose hereinbefore set forth. 10th. The combination of the binder sill bar J and the gear plate C securely bolted to its front end, the binder sill I, the rail I^1 bolted to the inner edge of the gear plate, and at each of its depending ends to the sill bar I, the bracket K connecting the rail I^1, and the upturned rear end of the sill bar J, and the rail J^1 extending from the bracket K to the gear plate, substantially as hereinbefore set forth. 11th. The combination, of the binder sill J attached near its ends to the finger beam and the back bar of the platform, the guard bracket J^2 and the truss rod f^1, substantially as hereinbefore set forth. 12th. The combination of the gear plate, the overhead rail J^1, the sill bar J, the knotter box attached at its front inner corner to the gear plate, and at its rear inner corner to the bracket Q^1 from the sill bar, and the brace bar q from the overhanging edge of the box to the rail J^1, substantially as hereinbefore set forth. 13th. The combination of the gear plate, the sill bar J, the knotter box attached at its front inner corner to the gear plate, and at its rear inner corner to the bracket Q^1 from the sill bar and the brace bar q^1 attached to the lower overhanging rear corner of the box, substantially as hereinbefore set forth. 14th. The combination of the gear plate, the sill bar, the finger beam, the knotter box attached at its front end to the gear plate, and at its rear end to a bracket Q^1 from the sill bar, with the brace rod q^2 from the upper edge of the knotter box to the finger beam, substantially as hereinbefore set forth. 15th. The combination of the finger beam and the binder sill bars resting on its top, with the brackets H, H^2 H^6, bolted to the front face of the finger beam and to the sill bars, as shown, and the hooked clamping bolts which catch over the sill bars passing through the beam and are provided with nuts at its lower side, substantially as hereinbefore set forth. 16th. The combination of the sill bars, the knotter box, the bracket Q^1 attached at its base to the sill bar J, the brace rod J from the top of the bracket to the sill bar I, substantially as hereinbefore set forth. 17th. The combination of the binder sill bars, the back bar G^1 of the platform terminating at the inside of the binder frame, the extension G^3 overlapping the top edge of the back bar and rigidly fastened thereto and extending across the binder frame above the sill bars, the bracket L securely bolted to the sill bars and to the extension piece G^3, as shown. 18th. The combination of the back board G^1 and the extension piece G^3 secured thereto, the sill bars I, J with the connecting bracket L, and the loop bracket N^1 bolted to the back bar and its extension and to each other, substantially as and for the purpose hereinbefore set forth. 19th. The combination of the inner binder frame sill and rail I, I^1, constructed substantially as shown, with the tilting lever bolted to the front upright portion of the rail, and from thence extending diagonally to its upper horizontal portion to which it is also bolted, substantially as and for the purpose hereinbefore set forth. 20th. The combination of the driving wheel, the frame surrounding the same and rocking about its axle, the tongue pivotally connected to the front end of the frame, and the platform similarly connected to its rear end, the binder frame mounted upon the platform on the stubble side of the driving wheel, the castor wheel at the rear outer corner of the platform and tracking outside of the main wheel, and the tilting lever rigidly secured to the binder frame, substantially as hereinbefore set forth. 21st. The combination of the binder frame sill bars, the bracket T and the castor wheel with its locking device hereinbefore described, a tripping latch within reach of the driver in his seat, a flexible connection from said locking device to the trip latch passing over guide rollers on the binder sill bar in such manner as to be conducted below the plane of the binding receptacle, substantially as hereinbefore set forth. 22nd. The combination, of the binder frame sill, the crank plate and the sway bar in substantially the same plane, the pitman connecting the crank and the sway bar and the looped bracket in binder frame sill, substantially as hereinbefore set forth. 23rd. The combination of the finger beam and the back board of the platform, the heavy bottom board G^2, and the tie rod g^4 connecting the finger beam and back board above the bottom board G^2, substantially as hereinbefore set forth. 24th. The combination of the finger beam and the back board of the platform, the heavy bottom board G^2, the main frame bar A^6 connected to the finger beam, the tie rod g^4 connecting the finger beam and the back board above the bottom board G^2, in the line of draft of the frame bar, and the brace g^3 from the back to the bottom board, substantially as and for the purpose hereinbefore set forth. 25th. The combination of the bottom board G^2; the pivot post m and its base plate provided with depending lugs m^1, which take into recessess in the bottom boards, and the bolts m^2 for rigidly attaching the post to the board, substantially as hereinbefore set forth. 26th. The combination of the bottom board G^2, the hollow pivot post, the sleeve bearing mounted on the post, the sway bar secured to the sleeve, the strap or yoke piece m^5 extending across the sway bar, and pivoted and secured at each side thereof to the bottom board by its depending feet m^7, and the tie bolt m^6 passing through the strap, pivot post and bottom board, substantially as hereinbefore set forth. 27th. The combination of the counter shaft, the stud h^4 in axial line therewith the reel post mounted thereon, the reel shaft, the sprocket wheels, p^3, p^4 connected by a driving chain, the brace bar P^4, and the binder frame bar I^1 having a series of holes i^1, for the purpose hereinbefore set forth. 28th. The combination of the main wheel and its axle, the wheel frame rocking about the main axle, the platform pivotally connected to the rear end of the wheel frame, the brackets H, H^1 secured to the platform, and the counter shaft P^1 supported in bearings thereon, substantially in line with the pivotal connection of the wheel frame and platform, the sprocket wheels P, p^5 connected by a driving chain, substantially as and for the purpose hereinbefore set forth.

No. 33,133. Adjustable Bracket for Lamps.

(Porte-lampe mobile)

Fred O. Tarbox, Toronto, Ont., 13th December 1889; 5 years.

Claim.—1st. In a sleeve A, the combination of the disc hinges B and D, pivoted at G within the said sleeve A, and connected by a link wire F connected to each of the disc hinges at the same distance from the centre of the pivot pins, substantially as and for the purpose set forth. 2nd. The combination of the sleeve A having an enlargement or socket a at each end, in one of which is pivoted the disc hinge B of the bracket hinge C, and in the other is pivoted the disc hinge D of the lamp bracket E, and the link wire F connected to the disc hinges B and D at the same distance from the centres of their pivot pins G, substantially as and for the purpose specified. 3rd. The combination of the sleeve A, the hinge discs B and D, the link wire F connected to the hinge discs B and D at the same distance from the centre of their pivot pins G, and the lamp bracket E, substantially as and for the purpose specified. 4th. In the lamp bracket E, the combination of the section e having a tongue L, and the section e having a recess M into which the tongue L fits, substantially as and for the purpose set forth. 5th. The combination of

the sleeve A, the hinge discs B and D, the link wire F connected to the hinge discs B and D, the pivot pins G and the lamp bracket E, composed of section *e* having a curved tongue L, and the section e^1 having a curved recess into which the tongue L fits, substantially as and for the purpose set forth.

No. 33,134. Pulley. (*Poulie.*)

Chester W. Clark, Mishawaka, Ind., and Theron D. Keasey, Toledo, Ohio, U.S., 13th December, 1889; 5 years.

Claim.—1st. In a split pulley, the combination of the half-hubs provided with semi-circular flanges, the separable flanges, the spokes and the bolts *d*, *d* arranged between the spokes, substantially as set forth. 2nd. In a split pulley, the combination of the half-hubs provided with the semi-circular flanges, the separable flangs, the spokes, the clamping bolts, the segmental rim and the bolts h^1 near the outer ends of the spokes, substantially as set forth. 3rd. In a split pulley, the combination, with the spokes and the rim provided with the L-shaped seats of the clamps *h* having their outer ends seated in said seats, and their inner ends secured to the spokes, substantially as set forth. 4th. In a split pulley, the combination, with the spokes having their outer ends dovetailed upon one side only, of the rim provided with segments, their flat faces in contact and provided with dovetailed seats for the ends of the spokes, substantially as set forth. 5th. In a split pulley, the combination with the spokes having their ends dovetailed upon one edge, and the rim provided with correspondingly shaped dovetailed seats for the ends of the spokes, and with L-shaped recesses, of the clamps arranged upon the straight edges of the spokes, with their L-shaped ends projecting from that edge of the spoke which is opposite to the dovetail shaped part, substantially as set forth. 6th. In a split pulley, the combination, with the segmental rim provided with L-shaped seats for the clamps, of the spokes having their outer ends seated in the rim, the clamps having their outer ends in the L-shaped seats, and the bolts h^1 engaging with the spokes and the clamps, substantially as set forth.

No. 33,135. Mail Box. (*Boite à lettres.*)

Christ Reinhart, (assignee of Val J. Klase), Guelph, Ont. 13th December, 1889; 5 years.

Claim—1st. In a mail box, the combination, with the box A having the hinge block B and accessories, of the door or cover C, substantially as and for the purposes hereinbefore shown and described set forth. 2nd. In a mail box, the combination, with the box A, the door or cover C, the hinge block B and accessories, of the door or cover D, having the hasps G, substantially as and for the purposes hereinbefore set forth.

No. 33,136. Iron Ladder. (*Echelle de fer.*)

Edward H. English, Midland, Ont., 14th December, 1889; 5 years.

Claim—An improvement in iron folding extension and fire escape ladders, which are made to fold at every rung, extended or shortened, can be used on the roof of any building by means of foot and hand hold, and secured by means of hooks and tightened by bolts, substantially as and for the purpose hereinbefore set forth.

No. 33,137. Loom. (*Métier à tisser.*)

Alwill Urbahn, Brooklyn, N.Y., U.S., 14th December, 1889; 5 years.

Claim.—1st. In a loom, the lower warp *a b* and its heddles C and reed D, combined with an auxiliary warp *f*, with which the lower warp *a b* forms a shed *h* open at the back, as set forth. 2nd. In a loom, the lower warp *a b* and its heddles C and reed D, combined with the auxiliary warp *f*, its needle heddle H and the cord guide I, substantially as herein shown and described. 3rd. In a loom, the lower warp *a b* and heddles C and reed D, combined with the auxiliary warp *f*, its heddle H, the cord guide I and the shuttle P, substantially as herein shown and described. 4th. In a loom, the looped comb reed D having looped teeth in which the lower warp threads are confined, combined with the needle heddle H in which the upper or auxiliary warp threads *f* are confined, all arranged for forming a shed *h* open at the back as set forth.

No. 33,138. Chemical Engine. (*Machine chimique.*)

Randall T. Van Valkenburg, Muskegon, Mich., U.S., 14th December, 1889; 5 years.

Claim.—1st. In a chemical engine, the combination of the supporting frame, consisting of the longitudinal and cross-bars, the generator supported thereon, and the quadrilateral system of discharge pipes secured to said frame, substantially as described. 2nd. In a chemical engine, the combination of the supporting frame consisting of the longitudinal and cross-bars, the generator supported thereon, and the quadrilateral system of discharge pipes provided with the brackets b^1 at the corners secured to said frame, substantially as described. 3rd. In a chemical engine, the combination, with the generator, of a discharge pipe, and a perforated cup removably secured in a chamber or coupling in said pipe, substantially as described. 4th. In a chemical engine, the combination, with the generator, of a quadrilateral system, of discharge pipes divided by central partitions, and two independent discharge pipes connecting each half thereof with the generator, substantially as described. 5th. In a chemical engine, the combination, with the generator of a quadrilateral system of discharged pipes divided by central partitions, perforated cups contained in enlarged couplings or sections of said system, and two independent discharge pipes connecting said system with the generator, substantially as described. 6th. The combination, with the generator, of a quadrilateral system of discharge pipes provided with the couplings S, S^1 and S^{11}, the dividing partitions *e* in the couplings S^1 and S^{11}, the hose connections Q^5 and Q^6 on the couplings S^1, and the two independent discharge connections Q and Q^1 from the generator to the coupling S^{11}, substantially as described. 7th. The combination, with the generator, of the quadrilateral system of discharge pipes Q^3 and Q^4, the couplings S^1 and S^{11} in said system, the dividing partitions *e* in said coupling, the hose connections Q^5 and Q^6 on the couplings S^1, the corner couplings and the perforated cups T removably secured in the couplings S and S^1, substantially as described. 8th. The combination, with the generator, and its system of discharge pipes, of a coupling, such as S, provided with an opening on top closed by a screw cap *c*, and a perforated cylindrical cup T removably secured in said opening, substantially as described. 9th. In a chemical engine, the combination, with the generator, provided with the dome L, having the removable head L^1, and the acid-containing vessel M detachably secured in said dome, substantially as described. 10th. In a chemical engine, the combination of the generator, the dome L provided with the dome L^1, the acid-containing vessel detachably secured in said dome, the spider M^2 on the bottom of the vessel M and carrying the step M^3, the breaker shaft supported upon said step and carrying breaker arms M^5, substantially as described. 11th. In a chemical engine, the combination, of the generator, the dome I provided with the removable head L^1, the acid-containing vessel M detachably fitting therein, and provided with the ribs M^1 engaging into grooves in the cylindrical wall of the dome, and the acid-holding pockets secured to the walls of the vessel M, the breaker shaft M^4, provided with the breaker arms M^5, and the lever M^7, substantially as described. 12th. In a chemical engine, the combination, with the generator, of a mixing tub or vessel supported above the generator and provided with a stirring device, and a valve-controlled connection with the generator, substantially as described. 13th. In a chemical engine, the combination, with the generator, of a mixing cylinder U, provided with an axial shaft carrying the handle U^1 and stirrings wings U^{11}, and the connection with the generater controlled by the valve V^1, substantially as described. 14th. In a chemical engine, the combination, with the frame, consisting of the longitudinal bars D, and cross-bars E, the supporting springs H and I, the supporting wheels A, A, on the axle B, the draft appliances secured to said longitudinal bars, the generator J mounted between said longitudinal bars, and the mixing tub mounted in front thereof, substantially as described.

No. 33,139. Heater. (*Calorifère.*)

Francis Farquhar, Milton J. Farquhar and Henry B. Farquhar, Wilmington, Ohio, U.S., 14th December, 1889; 5 years.

Claim—1st. In a heater the combination, with any suitable fire pot and any suitable fuel magazine, of the hot blast flue which surrounds the fire pot, a second hot blast flue connected with the first and arranged adjacent to the flue magazine, and a water jacket about the mouth of the second hot blast flue, substantially as described. 2nd. In a heater, the combination, with any suitable fire pot and any suitable fuel magazine, of the hot blast flue which surrounds the fire pot, a second hot blast flue connected to the first which surrounds the fuel magazine and is annular in form, together with a water jacket about the mouth of the said annular hot blast flue, substantially as described. 3rd. In a heater, the combination, with a fuel conduit or magazine, of a hot blast flue arranged adjacent to the fuel conduit or magazine together with a water jacket about the mouth of the hot blast flue, substantially as described. 4th. In a heater, the combination, with a fuel conduit or magazine, of an annular hot blast flue which surrounds the same, and has an annular mouth which is adjacent to the mouth of the fuel magazine, together with a water jacket about the mouth of the hot blast flue, substantially as described. 5th. In a heater, the combination of the fuel conduit or magazine, with the hot blast flue arranged adjacent to the lower edge of the same, the water jacket surrounding the hot blast flue, the gas chamber at the top of the fuel magazine, and the pipe leading from said gas chamber back to, or nearly to, the mouth of the fuel magazine, substantially as described.

No. 33,140. Sugar Evaporator. (*Appareil évaporatoire du sucre.*)

Reid P. Small and James S. Small, Dunham, Que., 14th December, 1889; 5 years.

Claim.—The combination, with a sugar evaporator of the cover B B and heater E E, corrugated bottom at rear end opening into chimney J J, with its guides marked H, and steam heater for warming the cold sap before entering the evaporator, substantially as and for the purpose heretofore set forth.

No. 33,141. Apparatus for the Obtainment of Motive Power. (*Appareil pour l'obtention de la force motrice.*)

Frederick W. Cleveland and Lionel Dove, Chadwell Heath, Eng., 14th December, 1889; 5 years.

Claim.—1st. The combination, with a water holder A, and water and an air pressure in A acting on the water, and a suitable hydraulic engine for the utilization of the water, of the tapered tubes D and N, used as and for the purposes described and illustrated in the accompanying drawings. 2nd. The arrangement of apparatus and water with air pressure, substantially as described and illustrated in the accompanying drawings, for the obtainment of motive power. 3rd. The improved form of hydraulic engine consisting of two or more single-acting cylinders, with pistons and other usual parts having an inlet and exhaust slide valve working at end of each cylinder independent of each other, substantially as described and illustrated in the accompanying drawings.

No. 33,142. Split Pulley. (*Poulie d'assemblage.*)

Peter McNaughton, Kalamazoo, Mich., U.S., 14th December, 1889; 5 years.

Claim.—1st. In a split pulley, the two semi-hubs, each having three facings in the eyes, disposed as described. 2nd. In a split

pulley, the semi-hub provided with bolting flanges having bolt holes disposed at a right angle to each other, substantially as set forth. 3rd. In a split pulley, the arms D cast integrally with the hub and bolting flanges, and having their ends d^1 bent inwardly or away from the split line, substantially as set forth. 4th. In a split pulley, the ring-shaped ends d^{111} of the arms, substantially as set forth. 5th. In a split pulley, the semi-rims E, e, composed of flat semi-rings consisting of segments E^1 having ends matched radially, substantially as set forth. 6th. In a split pulley, the combination, with the rim E, e, of the dowels e^1, and dowel holes e^{11} at the joints, substantially as set forth. 7th. In a split pulles, the combination, of the hub A having internal facings a^1, a^{11}, a^{111}, disposed as described, the bolting flanges B having bolt holes b^1, b^{11}, b^{111}, b^{1111}, disposed as described, the central arms C, the arms D forming continuations of the flanges B, with bolt holes d and having bent ends d^1, the shoulders d^{11}, rings d^{111}, and bolt holes d^4, on the arms C and D, the bolts B^1, D^1 and D^{11}, and the rim E e, substantially as set forth. 8th. In combination, with the semi-hubs A, a^1 a^{11} a^{111} of a split pulley, the bushes F, f, substantially as set forth.

No. 33,143. Dynamo Regulator.

(Régulateur de dynamo.)

Elmer A. Sperry, Chicago, Ill., U S., 14th December, 1889; 5 years.

Claim.—1st. In a current regulator for dynamo-electric machines, the combination of a vibrating magnetic mass in proximity to the field magnet, with a movable current collector, and an elastic connection between the two. 2nd. In a current regulator for dynamo-electric machines, the combination, of a vibrating magnetic mass pivoted in proximity to the field magnet, with a movable current collector, and an elastic connection between the two. 3rd. In a current regulator for dynamo-electric machines, the combination of a magnetic mass responsive to the resultant of the magnetism of the field magnet and the currents of the armature, with a movable current collector, and a power transmitting connection between the collector and the mass. 4th. In a current regulator for dynamo-electric machines, the combination of a magnet mass in proximity to the field magnet, with a movable current collector connection between the two, a compensating motor and power-transmitting connections therefrom to the collector. 5th. In a current regulator for dynamo-electric machines, the combination of a magnetic mass in proximity to the field magnet, with a movable current collector connections between the two, a compensating motor and power-transmitting connections therefrom to the mass and thence to the collector. 6th. In a current regulator for dynamo-electric machines, the combination,of a magnetic mass in proximity to the field magnet, with a movable current collector and elastic connections between the two, and a compensating motor and connections therefrom to the mass. 7th. In a current regulator for dynamo-electric machines, the combination of a magnetic mass in proximity to the field magnet, a movable current collector, a shifter therefor connected therewith, and power-transmitting connections between such mass and shifter. 8th. In a current regulator for dynamo-electric machines, the combination of a magnet mass in proximity to the field magnet, a movable current collector, a shifter therefor connected therewith by an elastic connection, and power-transmitting connections between such mass and shifter. 9th. In a current regulator for dynamo-electric machines, the combination of a magnetic mass in proximity to the field magnet, a movable current collector, a shifter therefor connected therewith, a compensating motor connected with such mass, and power-transmitting connections between the shifter and the mass. 10th. In a current regulator for dynamo-electric machines, the combination of a magnetic mass in proximity to the field magnet, a movable current collector, a shifter therefor connected therewith by an elastic connection, a compensating motor connected with such mass, and power-transmitting connections between the shifter and a mass. 11th. In a current regulator for dynamo-electric machines, the combination of a magnetic mass responsive to the resultant of the magnetism in the field magnet, and the currents in the armature with a movable current collector, connections between the two, a compensating motor connected with the mass, and a controller for such motor moving with the collector so as, at a certain point in the motion thereof, to apply the said motor. 12th. In a current regulator for dynamo-electric machines, the combination of a movable current collector with a shifter theretor, a driving motor for such shifter, a magnetic mass in proximity to the field magnet, and mechanical connections from the mass to the motor to control the application of the latter to the shifter. 13th. In a current regulator for dynamo-electric machines, the combination of a movable current collector with a shifter therefor, an elastic connection from such shifter to such collector, a driving motor for such shifter, a magnetic mass in proximity to the field magnet, and connections from the mass to the motor to control the application of the latter to the shifter. 14th. In a current regulator for dynamo-electric machines, the combination of a movable current collector with a shifter therefor, the two connected by an elastic connection, and a driving motor for such shifter. 15th. In a current regulator for dynamo-electric machines, the combination of a movable current collecter with a shifter therefor, a driving motor for such shifter, a magnetic mass in proximity to the field magnet, a compensating motor, and connections from such magnetic mass and compensating motor to the driving motor to control the application of the driving motor to the shifter. 16th. In a current regulator for dynamo-electric machines, the combination of a movable current collector with a shifter therefor, having oppositely faced ratchets, a driving motor carrying oppositely acting dogs to engage such ratchets, a magnetic mass in proximity to the field magnet, and connection therefrom to the driving motor to control the application of the driving motor to the shifter 17th. In a current regulator for dynamo-electric machines, the combination of a movable current collector with a shifter therefor having oppositely faced ratchets, a driving motor carrying oppositely acting dogs to engage such ratchets, a magnetic mass in proximity to the field magnet, a compensating motor,and connections from such mass and compensating motor to the driving motor, to control its application to the shifter. 18th. In a current regulator for dynamo electric machines, the combination of a movable current collector, with a shifter therefor having oppositely faced ratchets, a driving motor for the shifter having oppositely acting dogs to engage such ratchets, said dogs movable in a line at an angle to said ratchets. 19th. In a current regulator for dynamo-electric machines. the combination of a movable current collector, with a shifter therefor having oppositely faced ratchets, a driving motor for the shifter having oppositely acting dogs to engage such ratchets, said dogs movable in a line at an angle to said ratchets, a magnetic mass in proximity to the field magnet,and connections therefrom to the driving motor to control its application to the shifter. 20th. In a current regulator for dynamo-electric machines, the combination of a movable current collector with a shifter therefor, a driving motor for such shifter, a pivoted magnetic mass in proximity to the field magnet, and an arm therefrom to the driving motor to control its application to the shifter. 21st. In a current regulator for dynamo-electric machines, the combination of a movable current collector with a shifter therefor, a driving motor for such shifter, oppositely faced ratchets on the shifter, and oppositely acting dogs on the motor, said dogs movable in a line at an angle to the line of the ratchets, a magnetic mass in proximity to the field magnet,a compensating motor, and connections from the mass and the compensating motor to the driving motor to control its application to the shifter. 22nd. In a current regulator for dynamo-electric machines, the combination of a movable current collector with a shifter therefor, a reciprocating block provided with oppositely acting dogs,oppositely faced ratchets on the shifter, driving connections from the block to the dynamo shaft, a magnetic mass in proximity to the field magnet, and connections therefrom to the block to control the application of its dogs to the ratchets. 23rd. In a current regulator for dynamo-electric machines, the combination of a movable current collector with a shifter therefor, connected therewith by a spring connection and having oppositely faced ratchets, with a motor having oppositely acting dogs to engage such ratchets, said dogs movable in a line at an angle to the line of the ratchets. 24th. In a current regulator for dynamo-electric machines, the combination of a movable current collector with a driving motor for such collector, a magnetic mass in proximity to the field magnet, and mechanical connection from the mass to the motor to control the application of the latter to the collector. 25th. In a current regulator for dynamo-electric machines, the combination of a movable current collector, a driving motor for such collector, a magnetic mass in proximity to the field magnet, a compensating motor, and connections from such magnetic mass, and compensating motor to the driving motor to control the application of the driving motor to the collector. 26th. The current regulator for dynamo-electric machines, the combination of a movable current collector, with a driving motor therefor having oppositely faced ratchets,and carrying oppositely acting dogs to engage such ratchets, a magnetic mass in proximity to the field magnet, and connections therefrom to the driving motor to control the application of the driving motor to the collector. 27th. In a current regulator for dynamo-electric machines, the combination of a movable current collector, with a driving motor therefor having oppositely faced ratchets, and carrying oppositely acting dogs to engage such ratchets, a magnetic mass in proximity to the field magnet, a compensating motor, and connections from such mass, and compensating motor to the driving motor to control its application to the collector. 28th. In a current regulator for dynamo-electric machines, the combination of a movable current collector, with a driving motor therefor having oppositely faced ratchets, and oppositely acting dogs to engage such ratchets, said dogs movable in a line at an angle to said ratchets. 29th. In a current regulator for dynamo-electric machines, the combination of a movable current collector, with a driving motor therefor, a pivoted magnetic mass in proximity to the field magnet, and an arm therefrom to the driving motor to control its application to the collector. 30th. In a current regulator for dynamo electric machines, the combination of a movable current collector, with a shifter therefor, a constantly moving motor to intermittently drive the same, and adapted to be connected therewith, a magnetic mass in proximity to the field magnet,and connections therefrom to such motor to control the application thereof to the shifter. 31st. In a current regulator for dynamo-electric machines, the combination of a movable current collector, a shifter therefor, a driving motor for said shifter, connecting parts between the shifter and motor and attached to one, and adapted to engage the other at varying intervals,and a magnetic mass in proximity to the field magnet, and connections therefrom to the motor to control its application to the shifter.

No. 3,144. Coin Freed Apparatus for Automatically Photographing Persons and Objects and for Developing and Delivering said Photographs. (*Appareil actionné par une pièce de monnaie pour photographier les personnes et les choses et pour développer et livrer les photographies automatiquement.*)

Isaac Joel, London, Eng., (assignee of Joseph Sacco, Paris, France), 14th December, 1889; 5 years.

Claim.—1st. In coin freed apparatus for automatically photographing persons and objects, the means for dipping and delivering the prepared plates after they have received the image, consisting in the construction and arrangement of a radially divided developing reservoir or chamber, having a cam path on its inner wall, together with a pivoted rotating cage, such as h, and with a pivoted lever carrying at one end a roller which travels around the said cam path, and whose other end operates a stud or pin, such as h^1, projecting from the cage so as to tilt the same as required, all substantially as described and shown in the accompanying drawings. 2nd. In coin feed apparatus for automatically photographing persons and objects, the means for retaining the prepared plates in position behind the lens until after they have received the image, and then conducting them into the rotating cage consisting in the construction and arrangement of the bent finger q, carried by the pivoted rocking bar q^1, the pin q^3 engaging with the weighted lever q^4, and the arm q^6 acted upon by the portion g^4 of the double cam, all substantially as de-

scribed and shown by the accompanying drawings. 3rd. In coin freed apparatus for automatically photographing persons and objects, the means for uncovering the lens, consisting in the construction and arrangement of the spindle p carrying the disc or shutter p^1, and the pendent finger p^2 acted upon by the portion o^3 of the double cam, all substantially as described and shown by the accompanying drawings. 4th. In coin freed apparatus for automatically photographing persons and objects, the means for bringing forward the prepared plates into position behind the lens so as to receive the image, consisting in the combination of the column or dark chamber l, the reciprocating pusher m, the aperture l^3 in plate l^1, and the guide o^1, all substantially as described and shown by the accompanying drawings. 5th. The manufacture and use of the improved coin freed apparatus for automatically photographing persons and objects, and for developing and delivering said photographs, having its parts arranged and combined and operating substantially as hereinbefore described and shown by the accompanying drawings.

No. 33,145. Process of Treating Hides and Skins. (*Procédé de traitement des peaux.*)

Joseph Hoelck and August C. Krueger, Nashville, Tenn., U.S., 14th December, 1889; 5 years.

Claim.—1st. The herein-described process in rapid tanning, consisting in unhairing the hides, swelling them, treating with catechu and common salt, treating them with a mixture containing alum, salt, borax, and flour, drying them and dampening them with catechu. 2nd. The herein-described process for the rapid tanning of hides, consisting in unhairing them, swelling them, subjecting them to the action of catechu and common salt, subjecting them to the action of a mixture containing alum, salt, borax, and flour, drying them, dampening them with catechu liquor, and stuffing them with a stuffing of tallow and wood tar.

No. 33,146. Manufacture of Tetrachloride of Carbon. (*Fabrication de tétrachlorure de carbone.*)

Lever Brothers, (assignees of Ernest G. Scott), Port Sunlight, Eng., 14th December, 1889; 5 years.

Claim.—1st. The process of making carbon tetrachloride, which consists in passing dry chlorine slowly and in fine streams through carbon bisulphide and iodine, separating the iodine and carbon tetrachloride which is formed from the sulphur chloride by distillation, whereby the sulphur chloride is left in a merchantable form, refractionating the tetrachloride and treating it with caustic alkali to remove the iodine, and redistilling, filtering and concentrating the solution of alkaline iodide resulting from the previous step, shaking it with carbon bisulphide, and using the resulting solution of iodine in carbon bisulphide for the first step in the process. 2nd. The improvement in the process of obtaining carbon tetrachloride, as described, which consists in drying the chlorine previous to passing it into the carbon bisulphite and iodine. 3rd. The improvement in the process of obtaining tetrachloride of carbon and chloride of sulphur, as described, which consists in passing the chlorine gas into the mixture of carbon bisulphide and iodine in fine streams, whereby the chlorine is broken up into minute particles and is enabled to combine with the liquid before it can escape therefrom. 4th. The improvement in the process of obtaining carbon tetrachloride by means of chlorine gas, bisulphide of carbon and iodine, which consists in passing the chlorine gas into the carbon bisulphide and iodine, and then fractionally distilling the resultant liquid, whereby the tetrachloride is separated from the chloride of sulphur without decomposing the latter, and thus the latter is obtained as a valuable lye-product. 5th. The improvement in the process of making tetrachloride of carbon by means of chlorine gas, which consists in forming the tetrachloride by passing chlorine into iodine and bisulphide of carbon, fractionally distilling off the iodine and tetrachloride and separating the iodine from the tetrachloride by means of caustic alkali lye. 6th. The improvement in the process of obtaining carbon tetrachloride by passing chlorine through iodine and bisulphide of carbon and fractional distillation, which consists in separating the iodine by means of cautic alkali, concentrating the aqueous solution of iodine thus formed, treating it with a strong mineral acid and chlorine to set free the iodine, extracting the resulting free iodine by shaking it up with bisulphide of carbon, and utilising the resulting mixture or compound of bisulphide of carbon and iodine for the first step in the process of a subsequent operation.

No. 33,147. Self-Locking Hinge for Window Blinds. (*Penture arrête-persienne.*)

The Byam Manufacturing Company, (assignee of James S. Baker), Toronto, Ont., 16th December, 1889; 5 years.

Claim.—1st. A hinge plate E having a fixed pintle, and a notch F, combined with the hinge plate C, formed with an eye having therein upon its inner surface a vertical slot, and a bolt independent of the pintle and arranged to move freely in the slot in the eye in close proximity to the pintle, substantially as described. 2nd. The hinge plate D formed with a fixed pintle, and with a notch F in its outer surface, and a projection D on one side of said notch, combined with the hinged plate C, formed with an eye having a rib G formed on its outer surface, and with a vertical slot in its inner surface, and a bolt A working loosely in said slot, substantially as and for the purpose specified.

No. 33,148. Flower Holder. (*Porte-bouquet.*)

Thos. B. Norgate and Henry G. Fox, Victoria, B.C, 16th December, 1889; 5 years.

Claim.—1st. The combination of the body B, rings A together with the eyes or pins D, all moulded together in course of manufacture, substantially as and for the purpose hereinbefore set forth. 2nd. The combination, of the body B, rings A, and the bulb F, substantially as and for the purpose hereinbefore set forth. 3rd. The combination of body B, rings A, eye D, and the expandable contracted neck E, substantially as and for the purpose hereinbefore set forth.

No. 33,149. Farm Waggon. (*Wagon de ferme.*)

John Herby and Mils Harris, Jamestown, N.Y., U.S., 16th December, 1889; 5 years.

Claim—1st. In farm waggons, the reach connecting the rear and front gear in the usual form, in combination with braces that take the king bolt above and below said reach at their front end, the rear end passing through clips secured to the reach and in which they turn, said braces being provided with nuts at each side the clip, substantially as shown and for the purpose set forth. 2nd. In farm waggons, the upper reach brace passing beyond the bolster and provided with an eye or suitable device to secure a chain, in combination with a pole, spring and chain attached thereto, and taking the pole or thrills of the waggon at such a distance from the hinge of the same that the pole or thills may be held at any desired height, to take the heft of the same from the team, substantially as shown and described. 3rd. In farm waggons, the pole support made and supported by braces, substantially as shown, in combination with a pole which passes through it, the rear end of pole being held in position by springs, substantially as shown and for the purpose set forth. 4th. In farm waggons, the pole support, substantially as shown, in combination with adjusting braces 9, 9, having nuts f, f, and suitable rear connections to secure to the front axle, substantially as shown and for the purpose set forth. 5th. In farm waggons, providing the front gear with a long heavy metal plate on top of the sand-board, said plate projecting considerably beyond the edges of said sand-board and securely attached thereto, in combination with a bolster which rests thereon, and braces above and below the reach, taking the king bolt at such distance above and below the reach that the bolster, sand-board and axle are held in an upright position, substantially as shown and for the purpose set forth. 6th. In farm waggons, the skein O having long extension supports t, t, with suitable means for securing the same to the axle wood, substantially as shown and for the purpose described. 7th. In farm waggons, the metal skein O having long extension supports t, t, with suitable means for securing the same to the axle wood either in a vertical or horizontal position, substantially as shown and for the purpose described.

No. 33,150. Heating Stove. (*Poêle de chauffage.*)

Henry G. Hagey, trustee, (assignee of Lewis W. Hagey), St. Louis, Mo., U.S., 16th December, 1889; 5 years.

Claim—1st. In a heating stove, the horizontal cylindric damper that projects in front of the stove near the bottom thereof, the outer cylinder having rotary movement around the inner one, and both cylinders being provided with U-shaped openings that are adjustable to regulate the draft, the outer casing and lining to the stove that supports the damper, substantially as and for the purpose set forth. 2nd. The combination of the stove body 1, lining 5 and projecting horizontal damper located near the bottom of the stove, consisting of the inner cylinder 9 formed with inner peripheral flangs 9a, secured to the lining, the U-shaped opening, and cap 10 having outer peripheral flange 11, and outer rotating cylinder 12 fitting around the inner cylinder and formed with flanged handle 13, and U-shaped opening, substantially as described and shown.

No. 33,151. Spike Pointing Machine.

(*Machine à faire les pointes des clous.*)

William Goldie, West Bay, Mich., U.S., 16th December, 1889; 5 years.

Claim—1st. In a spike pointing machine, the combination, with a reciprocating plunger provided on one end portion with one or more cutters, of an anvil die having an inclined die face for supporting the spike in a position oblique to the movement of the plunger, whereby the fiber of the rolled metal is divided obliquely in the direction of its length, substantially as set forth. 2nd. In a spike pointing machine, the combination, with a recriprocating plunger provided on its lower portion with cutters, and having a gauge stop projecting below and in rear of the said cutters, with an anvil die having an inclined face for supporting the spike with its end presented to the cutters, and in a position oblique to the movement of the plunger, substantially as and for the purpose set forth.

No. 33,152. Method of Pointing Spikes.

(*Mode de faire les pointes des clous.*)

William Goldie, West Bay, Mich., U.S., 16th December, 1889; 5 years.

Claim.—The herein described method of forming cutting edges on a spike point, consisting substantially of swaging the point to produce front and rear compressing surfaces, and then producing a sharp edge by shearing off the surplus metal obliquely across and in the direction of the length of the grain of fiber of the rolled iron, substantially as set forth.

No. 33,153. Secondary or Storage Battery.

(*Pile secondaire ou accumulateur.*)

The Electric Storage Battery Company, Gloucester, N.J., (assignee of Clement Payen, Philadelphia, Penn., U.S.) 16th December, 1889; 5 years.

Claim.—1st. A battery element consisting of a porous crystallized plate composed of active material, substantially as described. 2nd. A battery element consisting of a porous metal plate having the crystals existing in columns therein, substantially as described. 3rd. A battery element consisting of a metal plate having the crystals existing in a circular form, with cells between them, and the plate

provided with a supporting frame, substantially as and for the purpose set forth. 4th. A battery element consisting of a metal plate having the crystals existing in columns therein and cells between them, and the plate provided with a frame having a lug, substantially as and for the purposes set forth. 5th. An electric battery composed of two systems of porous crystallized metal plates mounted in a cell containing a fluid, and said plates held firmly in position therein, insulated from each other and the cell, substantially as described. 6th. An insulating device consisting of a horizontal bar provided with a series of vertical rods, substantially as and for the purposes set forth. 7th. An insulating device consisting of a horizontal tapering bar provided with recesses in the surface thereof, and vertical rods formed integral with said bar, substantially as and for the purposes set forth.

No. 33,154. Grain Drill. (*Semoir en ligne.*)

Charles E. Patric, (co-inventor with Frank R. Packham), Springfield, Ohio, U.S., 16th December, 1889; 5 years.

Claim.—1st. In a grain drill, the combination of the hoes and the pressure bar, bearing supports in said pressure bar, links passing through said bearing supports and attached to said hoes, and springs between said bearing supports and hoes, substantially as specified. 2nd. The combination of the hoes and pressure bar, the links attached on said hoes, springs in said links, and an adjustable collar below said springs on said links, and bearing supports journaled on said pressure bar through which said links pass, substantially as specified. 3rd. In a lifting device for grain drills, the combination, with a lifting bar, of a bearing support journaled on said lifting bar, and a vertical sleeve for the lifting links, and adjustable able stops on said links above and below said bearing support, substantially as specified. 4th. In a grain drill, lifting links attached to the shoes or hoes, a lifting bar adapted to be raised and lowered on the supporting frame, bearing supports on said lifting bar adapted to form a variable connection between said bar and links, substantially as specified. 5th. In a grain drill, the lifting links attached to the shoes or hoes, a lifting bar adapted to be raised or lowered on the supporting frame, and bearing supports in said lifting bar to form a variable connection between said links and bar, said bearing supports being each provided with vertical and longitudinal sleeves to form bearings for the links and bar respectively, said links and sleeves being joined together in close proximity so as to bring the strain as close as possible to the centres of said bar and links, substantially as specified. 6th. In a grain drill, the combination of the hoes or shoes and their drag-bars, and a movable bar arranged transversely across and above said drag-bars, lifting links pivotally secured to said drag-bars, bearing supports on said lifting bar and connected to said links, springs on said links, and adjustable stops above and below said bearing supports, substantially as specified. 7th. The combination, in a grain drill, of the shoes or hoes and their drag-bars, said drag-bars being attached at different points to the main frame to provide for a zig-zag adjustment thereof, lifting links pivotally secured to said drag-bars, a lifting bar above said drag-bars, bearing supports journaled on said lifting bar, and lifting links forming a connection between the same substantially as specified. 8th. The combination, in a grain drill, of the shoes or hoes and their drag-bars, lifting links pivoted to said drag-bars, adjustable collars on said links, springs above said collars, a lifting bar above said drag-bars, bearing supports journalled on said lifting bar and having a sleeve portion for said links above said springs, and adjustable stops on said links above said bearing supports, substantially as specified. 7th. The combination, in a grain drill, of the shoes or hoes and their drag-bars, lifting links pivoted to said drag-bars, adjustable collars on said links, springs above said collars, a lifting bar above said drag-bars, bearing supports connecting said links and lifting bar, rocking arms attached to said bar, and a lifting lever adapted to operate said lifting bar, substantially as specified.

No. 33,3155. Saw. (*Scie.*)

William Atkinson, (assignee of Benjamin F. Day), Philadelphia, Penn., U.S., 16th December, 1889; 5 years.

Claim.—In combination with a saw plate provided with peripheral recesses, the margins of which embody both tongues and rivet notches, teeth each embodying a corresponding rivet notch and lateral tongue grooves, and having shanks which are conformed to the plate recesses and fitted partly down within said recesses, rivets adapted to the aforesaid rivet notches, and serving to retain the teeth, and filling blocks embodying lateral tongue grooves and fitted within and against the tongued sides, and the bottoms of the recesses below the teeth to the end, that the teeth may be supported on both side by the solid metal of the plate and below by that of the filling block, substantially as set forth.

No. 33,156. Vehicle Axle. (*Essieu de voiture.*)

The Buffalo Patent Axle and Wheel Co., (assignee of Willis Jones), Buffalo, N.Y., U.S., 16th December, 1889; 5 years.

Claim.—The axle A having the double bearing fixed collar B^1 thereon, provided with the annular sand groove g, the movable flanged nut D screwing on the front of said fixed collars and having washers w, w, one each side of said flange, the swivel nut E revolving on the double bearing collar B^1 and screwing directly on the thread of the hub box F, and abutting squarely against the raised flange C thereof, and in combination with the end nut G, screwing on the front end of the hub box and against a washer or the web of the band N, all substantially as hereinbefore specified.

No. 33,157. Screw Door Safe.

(*Coffre-fort avec porte à vis.*)

Phineas F. King, Cincinnati, Ohio, U.S., 17th December, 1889; 5 years.

Claim.—1st. The rotative screw-door of a safe having a series of permutation disks or tumblers, and a locking bolt centrally mounted directly upon its outer face, in combination with each other and with means for manipulating these tumblers and locking bolt, substantially as hereinbefore specified. 2nd. A rotative safe-door constructed with a recess upon its outer face, and a permutation lock mounted in said recess, and adapted to arrest rotation of both door and lock, substantially as hereinbefore specified. 3rd. A rotative safe-door constructed with a circular recess upon its outer face, and a permutation lock composed of tumblers, and a locking bolt located within said circular recess and adapted to arrest relative rotation of the door and lock, substantially as hereinbefore specified. 4th. A rotative safe-door having an unbroken front surface and a lock-receiving recess constructed of heavy metallic rings secured thereon, one of said rings being capable of rotation with respect to the other, in combination with a permutation lock mounted in said recess, and adapted to lock said rings together and prevent rotative rotation of said rings and the door which carries them, substantially as hereinbefore specified. 5th. A rotative safe-door, in combination with an inner ring secured to its front surface, which ring forms a circular recess or depression upon said front surface of the door, and has a bolt-guiding slot in one edge, a non-rotative outer ring for connection with the hinge, and having a locking recess adapted to register with said bolt-guiding slot in said inner ring, permutation devices having a bolt and mounted in the recess formed by the inner ring, and the bolt of the permutation devices arranged to engage said locking devices in the outer ring, substantially as hereinbefore specified. 6th. A screw-door constructed with a screw upon its inner end, suitable hangings for permitting rotation of the door, and a permutation lock having tumblers that are centrally journalled with respect to the axis of rotation of said door, means for rotating the door, and a handle and connections for rotating the tumblers of the lock independently of the rotative movement of the door, substantially as hereinbefore specified. 7th. The screw-door of a safe constructed with a screw-thread upon its inner end, for engaging a corresponding thread upon the safe-body, a permutation lock located upon the front face of said door, and mechanism, such as a gear wheel, having a portion of its teeth omitted for limiting the rotative movement of the door, substantially as hereinbefore specified. 8th. The screw-door of a safe having a double screw-thread a upon its inner end, for engaging a like thread upon the safe-body, in combination with the ring D fixed upon the outer face of said door so as to form a lock-receiving recess thereon, and said ring provided with gear teeth upon its outer periphery, and a stop, and having a bolt-guiding slot 10 formed at a predetermined point in one edge, an outer non-rotative ring E which embraces and supports the inner ring, and to which the hinge is applied, a pinion 21 mounted upon said outer ring so that its teeth will mesh with the teeth of said inner ring, and said outer ring having a locking-recess 12 for reception of the bolt of the lock, a lock having a bolt and mounted in the recess upon the outer face of the door, so that its bolt may engage said locking recess in the outer ring, and means, substantially as described, for shooting and retracting the bolt of the lock. 9th. The screw-door of a safe having suitable screw-threads upon its inner end, in combination with means for imparting a partially rotative or rocking movement thereto, such as a pinion, and gear wheel having a stop, as herein described, a ring D fixed upon the outer face of said door so as to form a portion thereof, and having a bolt-guiding slot formed therein at a predetermined point, another ring having a locking recess for the reception of said bolt and locking the door against rotative movement, when same is to be so locked for a temporary purpose, and said last-named ring having an additional or second recess into which the bolt of the lock is to be shot after the door has been rotated to the limit of its inward movement, a lock having a bolt, and means, substantially a described, for shooting and retracting the bolt of the lock. 10th. The screw-door of a safe having a screw or pintle centrally mounted upon its outer face, and a series of permutation disks or tumblers journalled to rotate upon this screw or pintle, in combination with a spring-pressed dog, and a handle for manipulating these tumblers and bolt, substantially as hereinbefore specified. 11th. The screw-door of a safe having a screw or pintle 53 centrally mounted upon its outer face, and a series of circular tumblers m journalled on this pintle, in combination with a lock-bolt i also mounted on the outer face of said door between said series of tumblers and said outer door-face, a spring 14 which normally urges said lock-bolt toward a locked position, a spring-pressed dog which has a hook at one end, and is pivoted at its opposite end to said lock-bolt, a dial-carrying plate or disk F loosely mounted to be revolved with said series of tumblers, a dial mounted on this disk, and a handle H also mounted thereon and revoluble therewith, substantially as hereinbefore specified. 12th. The adjustable dial having a screw hole therethrough, in combination with a dial-carrying plate having an annular dovetail groove in its face, a threaded nut having its body correspondingly shaped in cross-section to the cross-section of the groove in said dial-carrying plate, and adapted for circular adjustment in said groove, and a screw for engaging the hole in the dial, and locking the nut, dial, and plate in the desired relative adjustment, substantially as hereinbefore specified. 13th. The screw-door of a safe having a permutation lock comprising a series of circular tumblers, and a locking bolt centrally mounted upon its outer face, a dial-carrying plate F mounted upon the outermost of the series of tumblers, and having removable-connection therewith, a dial adjustably mounted upon the outer face of this plate, and a lock-handle rigidly mounted upon the same plate, substantially as hereinbefore specified. 14th. In a safe of the class described, a screw-door mounted to be revolved by means of gearing, in combination with a bracket or journal box having a short crank-shaft journalled therein, and mounted upon a non-revoluble portion of the door, said shaft also having a squared socket, or being otherwise fitted to be engaged by a removable hand-crank, and a hand-crank adapted for loose engagement with the squared socket of the crank-shaft so mounted, substantially as hereinbefore specified. 15th. In a safe of the class described, a screw-door adapted to be revolved by means of gearing mounted thereon, in combination with a fixed bracket or journal box 20, carrying a crank-shaft 19, and pinion 21, said shaft having a rectangular socket 22, and a hand-crank 23 having a rectangular shank 24 adapted for removable engagement with the socket of said crank-shaft, substantially as hereinbefore specified. 16th. A screw-door adapted to be revolved by means of

gearing and fitted with suitable hanging and locking devices, and provided with automatic stopping mechanism, which arrests the rotative movement of said door at predetermined points during the "screwing-in" operation, substantially as hereinbefore specified. 17th. A screw-door adapted to be revolved by means of gearing, and fitted with suitable hanging and locking devices, and provided with automatic stopping mechanism, which arrests the rotative movement of said door at a predetermined point in the progress of the screwing-in operation, and which also arrests the backward rotative movement of said door after the screwing-out operation has been completed, substantially as hereinbefore specified. 18th. The screw door of a safe fitted with suitable hanging and locking devices, and arranged to be revolved during both screwing-in and screwing-out operations, and provided with stopping mechanism, substantially as described, which arrests automatically the rotative movement of said door at two predetermined points in the progress of the screwing-in operation, substantially as hereinbefore specified.

No. 33,158. Suspender Belt.

(Ceinture de bretelles.)

George Van Duzer, New York, N.Y., U.S., 17th December, 1889; 5 years.

Claim.—1st. The combination, with a nether garment having fasteners on its inner face, said fasteners being invisible from the outer side of the garment, of a suspender belt placed inside the garment and provided on its outer face with a series of complemental fasteners, substantially as set forth. 2nd. The combination, with a nether garment, of a suspender belt placed inside the garment at the waist band, and complemental series of fastenings secured respectively at the outer face of the belt and inner face of the waistband, each fastener having a sliding connection with its complementary fastener in the direction of the length of the belt, substantially as set forth. 3rd. The combination, with a nether garment having a series of buttons on the inside of the waistband and invisible from the outside thereof, of a suspender belt having a series of longitudinally-slotted complemental clasps on its outer face, substantially as set forth. 4th. In a suspender belt for nether garments, the band A having end fastenings and a series of button clasps on its outer face provided with longitudinally-extending slots *b*, the lower walls of which present unbroken surfaces through their lengths for the button shanks, and the upper walls having notches b^1 for the entrance of the button heads, substantially as set forth. 5th. A button clasp for suspender belts consisting of a body having a longitudinal slot *b*, and a notch b^1 at the top of the slot and opening into it, the lower wall of the slot presenting an unbroken surface throughout its length, substantially as set forth. 6th. The combination, in a suspender belt, of a band A having an end fastening, and clasp plates B held to the outer face of the band and provided with a slot *b*, a notch b^1, and a latch device adapted to close said notch, substantially as herein set forth. 7th. A button clasp for suspender belts consisting of a plate having a slot *b* and a notch b^1, and a latch sleeve C adapted to close said notch, substantially as herein set forth.

No. 33,159. Button. *(Bouton.)*

Eugene M. Chapman and Nathan D. Ingram, Holyoke, Mass., U.S., 17th December, 1889: 5 years.

Claim.—1st. The button herein described, composed of a rear portion or shank provided with pointed and barbed prongs adapted to be thrust through the fabric, and a front portion provided with holes to receive said prongs, and having adjacent to each of said holes a trough-shaped depression or recess to receive the barbs on said prongs, substantially as set forth. 2nd. The button herein described composed of a rear portion or shank having pointed and barbed prongs adapted to be thrust through the fabric, and a front portion having a collet which is provided with holes to receive said prongs, the surface of said collet at one side of each of said holes projecting to a point farther away from the fabric than at the opposite side of said holes, and entering the barbs on said prongs when the latter are inserted within said front portion of the button, substantially as set forth. 3rd. A button composed of a front part having a collet which is provided with holes and with inwardly bent strips stamped therefrom, located adjacent to each of said holes, and a rear part or shank having pointed prongs adapted to be thrust through the fabric and into said holes in the collet, said prongs being provided with barbs so located as to engage said strips on the collet, and lock the two portions of the button together, substantially as described. 4th. The button herein described, having its front portion provided with collet *b* having holes b^1 therein, and having adjacent to each of said holes a trough-shaped depression, one of the side walls of which depression is formed by deflecting a portion of the collet from the plane of the base thereof, and having its rear portion composed of a shank having the pointed and barbed prongs c^1, substantially as set forth. 5th. The button herein described having a front portion provided with holes, and having its rear portion provided with pointed and barbed prongs, said rear portion being formed from a single piece of wire, substantially as set forth. 6th. The button herein described having an independent shank composed of a single piece of wire having the central portion thereof bent to substantially an S-form, and having its ends bent at substantially a right-angle thereto to form prongs which are adapted to engage the body of the button, substantially as described. 7th. The button herein described having the shank *d*, comprising a base and one or more pointed and barbed prongs formed from a single piece of sheet metal, substantially as described.

No. 33,160. Machine for Screw Threading Sheet Metal Pipes. *(Machine à fileter les tuyaux de métal en feuille.)*

Ferdinand F. Voigt, Chicago, Ill., U. S., 17th December, 1889; 5 years.

Claim—1st. In a machine for screw-threading sheet metal pipe, the beading rollers *e*, *e*, a support *a* therefor, and a pipe holder or support R B, in combination with the supporting table A, and a pivot connection between said table and one of said members, the axis of which pivot passes vertically through said beading rollers and across the axis thereof, whereby the axis of the pipe in the holder crosses that of the beading rollers on a line with the axis of the pivot at all times, notwithstanding the lateral shifting of either of said members, substantially as described. 2nd. In a machine for screw-threading sheet metal pipe, the beading rollers *e*, *e* and the supporting table A, in combination with a pipe holder or support R, a base B for supporting said holder and a pivot connection G, between said base and the table, the axis of which pivot passes vertically through said beading rollers and across the axis thereof, substantially as described. 3rd. In a machine for screw-threading sheet metal pipes, the beading rollers *e*, *e* and the supporting table A, in combination with the base B, a pivot connection G between said base and the supporting table, the pipe holding trough R, and a vertically adjustable connection P between said trough and the base, substantially as described. 4th. In a machine for screw-threading sheet metal pipes, the beading rollers *e*, *e* and the supporting table A, in combination with the base B, a pivot connection G between said base and the supporting table, and the pipe holding trough R longitudinally adjustable upon said base, substantially as described. 5th. In a machine for screw-threading sheet metal pipes, the table A, the base B, a pivot connection G between one end of said base and the table, in combination with the pipe holding trough R, a frame I J supporting said trough, a sliding connection between said frame and base, and the vertically adjustable connection between said frame and the trough, substantially as described. 6th. In a machine for screw-threading sheet metal pipes, the pipe holding trough R, lugs or flanges Q thereon, and a frame I J supporting and carrying said trough, in combination with vertical screw-threaded rods O secured to said frame and passing loosely through said lugs or flanges, and screw-threaded sleeves P working on said rods intermediate said lugs and the frame, substantially as described. 7th. In a machine for screw-threading sheet metal pipes, a pipe holding device consisting of a series of semi-circular troughs R, S, of different diameters and nested one within the other in the order of sizes, and lugs or flanges Q on the largest trough R, in combination with a frame I J supporting and carrying said trough, vertical screw-threaded rods O secured to said frame and passing loosely through said lugs or flanges, and screw-threaded sleeves P working on said rods intermediate said lugs and the frame, substantially as described. 8th. In a machine for screw-threading sheet metal pipes, an elbow holder *h*, in combination with a supporting shank K L therefore, whereby said holder may have simultaneously an axial rotation and endwise or longitudinal movement, substantially as described. 9th. In a machine for screw-threading sheet metal pipes, an elbow holder composed of two sections *i*, *j*, hollowed to receive the elbow and hinged or pivotally connected together, substantially as described. 10th. In a machine for screw-threading sheet metal pipes, an elbow holder *h*, in combination with a shank *k l* therefor and a support for said shank, whereby said holder may have simultaneously a rotation upon its own axis, and an endwise or longitudinal movement, substantially as described. 11th. In a machine for screw-threading sheet metal pipes, an elbow holder *h* with the shank *k l* thereof, and a support therefor, whereby said holder may have sumultaneously an axial rotation and endwise movement, in combination with means for adjusting said holder laterally, substantially as described. 12th. In a machine for screw-threading sheet metal pipe, an elbow holder *h* with the shank *k l* thereof, and a support therefor, whereby said holder may have simultaneously an axial rotation and endwise movement, in combination with means for adjusting said holder laterally and vertically independent of its other adjustments, substantially as described. 13th. In a machine for screw-threading sheet metal pipes, the beading-rollers *e*, *e*, the trough R and means for laterally and vertically adjusting one of said members, in combination with an elbow holder *h*, the shank *k l* thereof, and a sliding connection between said shank and trough, substantially as described. 14th. In a machine for screw-threading sheet metal pipes, a table A, the beading rollers *e*, *e*, a support *a* therefor mounted on said table, the trough R, a pivot connection G between said trough and table, and means for vertically and longitudinally adjusting said trough, in combination with elbow holder *h* and the shank *k l* thereof, working in said trough, substantially as described. 15th. A two part elbow holder *h* and a shank *k l* therefor, said shank having a common axis with one arm of said holder, and a support for said shank, substantially as described.

No. 33,161. Tank *(Réservoir.)*

Hugh W. Harry, Dallas, Texas, U.S., 17th December, 1889; 5 years.

Claim.—As an improvement in tanks, the combination of the wooden bottom having cross braces on its under side, the sheet metal bottom arranged over the wooden bottom and having an annular flange nailed or secured to said wooden bottom and the metallic body, the lower end of which is connected to the bottom by nails while the extreme lower edge of said body is turned under the wooden bottom between the cross-braces of the latter, substantially as set forth.

No. 33,162. Sad Iron Heater.

(Poêle de chauffage des fers à repasser.)

Thomas W. McFarland, Chicago, Ill., U. S., 18th December, 1889; 5 years.

Claim.—1st. The combination, in a sad iron heater, of the central drum and a surrounding jacket with a vertically yielding coupling connection, said drum and jacket to compensate for the unequal degrees of longitudinal expansion between the drum and the jacket, substantially as described. 2nd. The drum in combination with a surrounding sectional jacket, and a vertically yielding coupling connecting each section with the drum, to compensate for the unequal degree of longitudinal expansion between the drum and the sections of the jacket, substantially as described. 3rd. The drum in combination with a surrounding jacket connected

at its base with the drum by a connection adapted to yield laterally with respect to the length of the drum, to compensate for the difference between the radial expansion of the drum and of the jacket, substantially as described. 4th. The drum in combination with a surrounding sectional jacket, the several sections of which are connected with the drum by a connection adapted to yield laterally with respect to the length of the drum, to compensate for difference between the radial expansion of the drum and of the jacket, substantially as described. 5th. The drum in combination with a surrounding jacket, a series of partitions dividing the space, between the drum and the jacket into compartments, and a sliding coupling and bolt connection between the drum and the jacket, substantially as described. 6th. The drum in combination with a sectional jacket and a series of partitions dividing the annular space between the drum and the jacket into compartments, the jacket sections being secured to the partitions, and the latter being connected with the drum by a sliding connection, substantially as described. 7th. The drum in combination with a surrounding jacket composed of sections, and a series of partitions dividing the space between the drum and the jacket into compartments, the jacket sections being secured to the partitions, and the latter being connected with the drum, substantially as described. 8th. The drum provided at its top with a series of notches, in combination with a series of partitions G surrounding the drum, and connected with the latter by couplings G^2, and a sectional jacket, the sections of which are secured to the said partitions, substantially as described. 9th. The drum and its surrounding jacket, in combination with a rest for the sad irons secured to the jacket and connected with the drum by a laterally sliding connection, substantially as described. 10th. The drum and the surrounding jacket, composed of sections separated from each other to form openings through which to project the irons, in combination with the bottom H, and a slot-and-bolt connection between said sections and the drum, substantially as described. 11th. The drum and the surrounding jacket, in combination with the bottom H for the heating compartments secured to the jacket and connected with the drum by slot-and-bolt connections, substantially as described. 12th. The drum and its surrounding heating compartments, in combination with the two part ring seated upon the drum and provided with hinged lids, substantially as described. 13th. The two part ring seated on the drum and provided with hinged lids for closing the heating compartments around the drum, the lower part of the ring being provided with lugs constituting bearings for the pintles of the line, substantially as described. 14th. The two part ring seated on the drum and provided with hinged lids for closing the heating compartments, said parts of the ring being bolted together by bolts serving to bolt the ring to the lugs at the top of the drum, substantially as described. 15th. In a sad-iron heater, a central drum in combination with a surrounding jacket composed of several independent sections separated from each other, whereby a passage is formed between the sections through which the sad-iron handle may project, substantially as shown and described.

No. 33,163. Process and Machinery for Making Nails for Shoeing Horses and other Animals.

(*Procédé et machinerie pour fabriquer les clous pour ferrer les chevaux et autres animaux.*)

Joseph M. Laughlin, Paris, France, 18th December, 1889 ; 5 years.

Claim.—1st. A nail plate for the manufacture of nails, for shoeing horses and other animals, on one or on both faces of which plate are produced indentations corresponding to the shank and bevel of the nail, substantially as described with reference to fig. 5, 5*a* and 6 sheet 1 of the drawings. 2nd. The hereinbefore described process of manufacturing nails for shoeing horses or other animals, consisting in employing a nail-plate, substantially as shown in fig. 21 and 22, sheet 1, in producing depressions either on one or both faces, substantially as set forth in claim 1, in cutting out the nails with the shank finished or partly finished, and finally subjecting the unfinished nail, as shown in fig. 26, 27 and 28, sheet 2, to the action of compressing heading and shaping dies, substantially as described. 3rd. In a machine for manufacturing nails, for shoeing horses and other animals, a spotting and shaping mechanism composed of one or more levers 5,5, fig. 7, 8, sheet 3, fig. 9, 10, 11 sheet 4, fig. 14, 15, sheet 5 fig. 16 sheet 6, fig. 17, sheet 7, and fig. 18, sheet 6, having a separate or a common fulcrum 6 6 and carrying at their lower end steel blocks 13, 13, the said levers being operated by a cam 8, or by any other equivalent mechanical means. 4th. In a machine for manufacturing nails, for shoeing horses or other animals, a block 7, fig. 7, 8, sheet 3, fig. 9, 10, 11 sheet 4, fig. 14, 15 sheet 5, fig, 16 sheet 6, fig, 17 sheet 7, and fig. 18 sheet 6, comprising the following instrumentalities :—(*a*) dies 18 adjustable lengthways and crossways according to the position of the nail plate 1, (*b*) adjustable steel pieces 17, 17 and (*c*) adjustable shank shaping tools 14, 14, all in combination with a punch-block 4, fig. 19 and 20 sheet 7, carrying the punches 16, 16 and bevelling tools 15, 15, substantially as described. 5th. A machine for manufacturing nails for shoeing horses or other animal comprising the following main parts :—(*a*) a device for feeding the nail plate into the machine ; (*b*) a shank shaping device composed of tools 14, 14 and bevelling tools 15, 15, (*c*) adjustable steel pieces 13, 13 and 17 17, (*d*) a movable punch holding block 4 and (*e*) adjustable dies 18, 18 for the punches. 6th. A punch for the manufacture of so-called "diamond head" horse nails or any other similar shaped nails composed of two or more parts 11, 12, fig. 12 and 13, the said punch operating together with corresponding dies 18, 18, fig. 17 sheet 7. 7th. A machine for manufacturing nails for shoeing horses or other animals comprising besides the feeding and other necessary devices, two or more plungers 3, 4 for carrying the shaping and beveling tools and the punches, the said plungers being operated from the common shaft or from two distinct shafts, the shaping and beveling being also effected from underneath if desired. 8th. A nail in which the major-part of the shank towards the point end with or without a bevel is completely finished, leaving the remaining portion of the shank together with the head in a rough state to be finished subsequently, see fig. 26, 27 and 28 sheet 2. 9th. The hereinbefore described process for manufacturing nails for shoeing horses and other animals, consisting in employing a nail plate or strip rolled to the section required, in producing on the said plate or strip depressions corresponding to the shanks of the nails with or without a bevel, in punching out the nails from the said plate or strip and in subjecting the unfinished nails thus obtained to the action of dies which give the requisite shape to the remaining unfinished portion of the nail. 10th. A machine for finishing nails for shoeing horses or other animals, comprising the following main instrumentalities : (*a*) a rotary disk 37 containing a set of dies 39 for holding and finishing the nails, (*b*) a device for intermittingly rotating the disk 37, the said device being composed of a pawl 40, ratchet wheel 42, rod 43, spring 44, roller 45 and cam 46 secured to the driving shaft 47, (*c*) squeezing dies 54, 54, operated by levers 56, 56, and a cam 58 secured on the driving shaft 47, (*d*) a heading tool 49, held in a block 66, operated from the cam 58, on the driving shaft 47, by a rod 67, a spring 68 and a roller 69, (*e*) a device for pressing together the two halves of the nail, holding and finishing dies 39, the said device being composed of a lever 62 pivoted at 63, and operated from the driving shaft 47 by a cam 64.

No. 33,164. Spinning and Twisting Machine.

(*Machine à filer et retordre.*)

Johann Boelsterli, Fussen, Germany, 18th December, 1889 ; 5 years.

Claim.—1st. A flyer provided with a tubular spindle rotating in bearings independent from the spindle which carries the spool. 2nd. A flyer for spinning machines having a tubular spindle integral therewith, adapted to rotate in bearings independent of the spindle which carries the spool, substantially as shown and described. 3rd. The combination, with fixed tubular bearings *c*, of the flyer *a*, a vertical tube which is connected with and supports the flyer, and a removable nut applied for securing said tube against vertical movement yet permitting it to be detached when rigid, as shown and described. 4th. The combination of a flyer and the vertical tube *l* formed integrally, as shown, with the pendent tubular tapered bearing *b* which passes through the flyer tube and a nut *k* secured on the lower end of said tube, as shown in Figures 6 and 7 and described. 5th. The combination, with the flyer and vertical tube *b*, rigidly connected as shown, the fixed tubular bearing *c*, a nut *k* applied to the upper end of said tube *b*, and a friction brake *d* applied to said nut, for use in the manner specified and as shown in Figures 4 and 5

No. 33,165. Air Grate Furnace.

(*Foyer à grille à air.*)

Robert Clark, Sr., Petrolea, Ont., 18th December, 1889 ; 5 years.

Claim.—1st. The tube E extending through the ash pit and provided with valve E^1, in combination with a perforated cylinder D placed at or near the bridge wall, substantially as and for the purpose set forth. 2nd. The tube E extending through the ash pit and provided with a valve E^1, and steam pipe F provided with valve F^1, in combination with a perforated cylinder D placed at or near the bridge wall, substantially as and for the purpose set forth. 3rd. The grates L^1 in combination with the supports K, one having a groove and sockets, and the other a rib or flange and studs, substantially as and for the purpose set forth. 4th. The grates L and supports K, K, in combination with the flanges J, J, either of which being cut away, as described, substantially as and for the purpose set forth. 5th. The grates L and the supports K, provided with arms K^3, in combination with the bar N, having sockets N^1 formed therein, and the furnace walls B formed with sockets B^1, and any suitable means for operating said bar N, substantially as and for the purpose set forth. 6th. The combination of the grates L and the hollow supports K perforated on the underside, annular flanges J, J, air chambers G, G^1, and furnace walls B having passages H, H^1 formed therein, substantially as and for the purpose set forth. 7th. The combination of the grates L^1 hollow supports K perforated on the underside, annular flanges J, J, air chambers G, G^1, tube I, perforated cylinder D, tubes E and F, provided with the valves E^1 and F^1 respectively, and the walls B having the passages H, H^1 therein, and the latter provided with valves or doors H^2, substantially as and for the purpose set forth. 8th. The elbow R in combination with the air chamber G, and means for conducting air or oxyhydrogen gas to said chamber, substantially as and for the purpose set forth. 9th. The hollow supports K perforated on the underside, annular flanges J, air chambers G, G^1, and means for conducting air or oxyhydrogen gas to said hollow supports and chambers, in combination with the elbow R, substantially as and for the purpose set forth.

No. 33,166. Buckle. (*Boucle.*)

Willis A. Meyer, Milwaukee, Wis., U. S., 18th December, 1889 ; 5 years.

Claim.—1st. In a buckle, the combination of a frame made from a single piece of metal, stamped out to present a horizontal slot, a depending portion having ears at the lower corners thereof, and laterial wings that are bent back parallel to the main portion of said frame, a wire bent to form a hook and having its ends confined by the bending back of said ears, a tongue slipped through the frame-slot and having its upper end turned over at a right angle, and its lower corners provided with lateral ears, and a wire bent to form a loop and having its ends confined by the bending back of the ears on said tongue, substantially as set forth. 2nd. In a buckle, the combination of the frame A having the bent back and overlapping wings *b*, the slot *d*, depending triangular portion c and ears *f*, the hook D secured by said ears, the tongue B having the serrated right angled flange *h*, provided with the lateral projections *i*, central recess *j* and ears in, and the loop F secured to said tongue by the ears on the latter, substantially as set forth.

No. 33,167. Cork Drawing Machine.

(*Tire-bouchon.*)

Cornelius Chambers, Birmingham, Eng., 18th December, 1889; 5 years.

Claim.—1st. In a cork drawing machine and in combination with the sliding piece *d*, rotating corkscrew *e* pivoted to the sliding piece *d*, and non-rotating nut *f* sliding on the corkscrew *e* thereof, the forked lever handle *i* jointed to the back of the barrel *a* and connected to the sliding piece *d* by the side links k^1, k^2, substantially as and for the purposes set forth. 2nd. In a cork drawing machine and in combination with the sliding piece and the rotating corkscrew, the ball *o* fitting between the sliding piece and the rotating corkscrew, these parts being adapted to receive the same, substantially as set forth. 3rd. In a cork drawing machine and in combination with the sliding piece *d* and the rotating corkscrew *e*, the ball *o* fitting between the sliding piece *d* and the rotating corkscrew *e*, these parts being adapted to receive the same and secured together by the cap *p*, substantially as described.

No. 33,168. Guard for Railway Bridges.

(*Garde pour les ponts des chemins de fer.*)

Oswald F. Jordan, St. Thomas, Ont., 18th December, 1889: 5 years.

Claim.—1st. A guard for railway bridges consisting of three or more guard rails placed equidistant from the main track rails and from each other, said guard rails extending parallel with each other and with the main track throughout their length, substantially as described. 2nd. A guard rail for railway bridges, consisting of a series of guard rails extending parallel between the track rails, the ends of said guard rails sloped downward so as to terminate at or below the surface of the ties, substantially as described. 3rd. A guard for railway bridges consisting of a series of guard rails placed equidistant from the main track rails and from each other, said guard rails extending parallel with each other and with the main track rails, and having their ends curved downward and held in position by an iron plate fastened to the ties, substantially as described. 4th. In a guard for railway bridges, an iron plate for holding the ends of the guard rails in position, said plate bolted or otherwise fastened to the ties, and having the ends of the rails passed through the same, substantially as described.

No. 33,169. Rubber Tooth Brush.

(*Brosse à dents de caoutchouc.*)

Herman E. Van Horne, New York, N. Y., U. S., 18th December, 1889; 5 years.

Claim.—1st. A tooth brush consisting of a handle, a back and a honey-combed brush of soft rubber secured to the back substantially as described. 2nd. As a new article of manufacture, a tooth brush consisting of a handle and a back of hard material, and a brush portion constructed of soft rubber secured to the back and honey-combed, substantially as described. 3rd. A tooth brush consisting of a handle, a back, and a vertically honey-combed brush of soft rubber attached to the back, substantially as described. 4th. In a tooth brush, a honey-combed brush portion formed of soft rubber adapted to be attached to a brush handle or back, substantially as described.

No. 33,170. Train Signal. (*Signal de train.*)

Albert C. Griggs, Welmington, Del., U. S., 18th December, 1889; 5 years.

Claim.—1st. In a railway train signal, a pipe leading from a steam or air receptacle to a whistle situated on the engine, in combination with a valve situated in said pipe, a spring or its equivalent acting to keep said valve seated, and an electro-magnet included in a normally open circuit and having an armature connected with the valve, the movement of attraction of said armature being transmitted to the valve in a direction opposed to the spring, the electro-magnet circuit consisting of an electric generator, electric conductors extending through the train, and circuit closers situated in the cars composing the train, whereby, when the magnet circuit is closed, the magnet-armature will be attracted and the valve raised against the pressure of the spring, substantially as and for the purposes specified. 2nd. In a railway train signal, a pipe leading from a steam or air receptacle to a whistle situated in the engine, in combination with a valve situated in said pipe, a spring or its equivalent acting to keep said valve seated, a pressure regulator situated in the pipe between the steam or air receptacle and the whistle, and an electro-magnet included in a normally open circuit and having an armature connected with the valve, the movement of attraction of said armature being transmitted to the valve in a direction opposed to the spring, the electro-magnet circuit consisting of an electric generator, electric conductors extending through the train, and circuit closers situated in the cars composing the train, substantially as and for the purposes specified. 3rd. In a railway train signal, a pipe leading from a steam or air receptacle to a whistle situated on the engine, in combination with a valve situated in said pipe, a spring or its equivalent acting to keep said valve seated, a pressure regulator situated in the pipe between the steam or air receptacle and the valve, and an electro-magnet included in a normaly open circuit and having an armature connected with the valve, the movement of attraction of said armature being transmitted to the valve in a direction opposed to the spring, the electro-magnet circuit consisting of an electric generator, electric conductors extending through the train, and circuit closers situated in the cars composing the train, substantially as and for the purposes specified. 4th. In a railway train signal, a pipe leading from a steam or air receptacle to a whistle situated on the engine, in combination with a balanced valve situated in said pipe, a spring or its equivalent acting to keep said valve seated, and an electro-magnet included in a normally open circuit and having an armature connected with the valve, the movement of attraction of said armature being transmitted to the valve in a direction opposed to the spring, the electro-magnet circuit consisting of an electric generator, electric conductors extending through the train, and circuit closers situated in the cars composing the train, substantially as and for the purposes specified. 5th. In a railway train signal, a pipe leading from a steam or air receptacle to a whistle situated on the engine, in combination with a balanced valve situated in said pipe, a spring or its equivalent acting to keep said valve seated, a pressure regulator situated in the pipe between the steam or air receptacle and the whistle, and an electro-magnet included in a normally open circuit and having an armature connected with the valve, the movement of attraction of said armature being transmitted to the valve in a direction opposed to the spring, the electro-magnet circuit consisting of an electric generator, electric conductors extending through the train, and circuit closers situated in the cars composing the train, substantially as and for the purposes specified. 6th. In a train signaling device, substantially as specified, the combination, with a railway car, of conductors I and H running through the car, and terminating in flexible ends having couplings adapted to engage with similar conductors on adjoining cars, circuit closing devices connected with the conductors, as described, an actuating cord *k* running through the car and attached to the actuating handle of the circuit closers, and a cord k^1 attached to the flexible end of one of the conductors and to the actuating cord *k*, said cord k^1 having less slack than the flexible conductor, all substantially as and for the purpose specified.

No. 33,171. Manufacture of Fagots for Lighting Fire. (*Préparation des fagots à allumer le feu.*)

Lucie J. Ribout, (asignee of Alexandre J. Ribout), Hull, Que., 18th December, 1889; 5 years.

Résumé.—Un fagot pour allumer le feu, composè de morceaux de bois enduits d'un mélange composè de résine, de térébonthine et d'huile, dans les proportions ci-dessus indiquées.

No. 33,172. Semaphore Signal for Railway and other Uses. (*Sémaphore de chemin de fer et autre.*)

Gustavus N. Reiff, Easton, Penn., U. S., 19th December, 1889; 5 years.

Claim.—1st. In a semaphore signal, the combination, with two pivoted semaphore arms, one of which is hid from view by the other when both are in horizontal position, of a lamp or other source of light, a colored glass fixed to, and moving with the outer or front semaphore arm, and a second colored glass pivoted to the rear semaphore arm and actuated from or by the front semaphore arm, at the times and in the manner substantially as and for the purposes hereinbefore set forth. 2nd. The combination, with the pivoted semaphore arms A, B, of the glass A^1 fixed to arm A, the glass B^1 pivoted to arm B and the gearing *c*, *d*, substantially as and for the purposes hereinbefore set forth.

No. 33,173. Railroad Signal Apparatus.

(*Appareil à signal de chemin de fer.*)

Gustavus N. Reiff, Easton, Penn., U.S., 19th December, 1889; 5 years.

Claim.—1st. The selector box provided with guide ways therein for the signal bars, in combination with the two signal bars B, each extending beneath the shifting bar and provided with the locking shoulder *e*, and the projection *g* in advance of said locking shoulder, the laterally sliding shifting bar C placed over the the signal bars, and having in its lower edge a recess *f*, and the operating bar D carried by, and guided in the shifting bar at all times, whether moving with or independently of the shifting bar, and provided at its front end in advance of the shifting bar with a head formed with a projection, to engage the projection *g* on one or the other of the signal bars, all constructed and arranged to jointly operate in the manner herein shown and described. 2nd. The selector box provided with guide ways therein for the signal bars, and with the longitudinal rib *c*, in combination with the two signal bars extending beneath the shifting bar, and provided each with a locking shoulder *e*, the laterally sliding shifting bar placed over the signal bars, and having a recess *f* in its under edge, and the operating bar carried by, and longitudinally movable in the shifting bar and adapted to interlock with the signal bars, and provided with a square head to operate in connection with the rib *c*, as hereinbefore set forth.

No. 33,174. Vehicle Wheel. (*Roue de voiture.*)

William J. Holland, Era, Texas, U.S., 19th December, 1889; 5 years.

Claim.—1st. A wheel provided with an axle box having the lateral flanges *b* at its sides, and the annular flanges b^1 at its ends, substantially as described. 2nd. The combination, in a wheel, of the hub, the spokes, the metal braces arranged on each side of the spokes, and having enlarged or wedge-shaped lower ends, and bands securing the upper ends of the braces, substantially as described. 3rd. A wheel comprising the sectional hub, the bands securing the sections together, the axle-box having the annular flanges b^1, and the lateral flanges *b*, wedge-shaped in cross-section, and the spokes wedged from inside of the hub, and the metal braces having their lower ends enlarged, substantially as described.

No. 33,175. Vestibule Car. (*Char à vestibule.*)

Newell P. Cowell, Cleveland, Ohio, U.S., 19th December, 1889; 5 years.

Claim.—1st. In a vestibule car, the combination, with open self-adjusting rectangular metal frame of rigid rim or flange connected with such frame, and extending toward the vestibule for closing the

space between the frame and vestibule, substantially as set forth. 2nd. In a vestibule car, the combination, with self-adjusting open rectangular frame, of a rigid rim or flange connected with such frame and projecting toward the vestibule, the sides of such rim being concentric with the axis of the frame, substantially as set forth. 3rd In a vestibule car, the combination, with open frame and rim, the latter extending toward the vestibule, of spring-actuated chafing strips adapted to engage the sides of such rim to form a tight joint therewith, substantially as set forth. 4th. In a vestibule car, the combination, with open self-adjusting frame and inclosing-rim, and chafing strips for engaging such rim, substantially as indicated, of sunken panels on the sides of such rim, substantially as described, whereby the exposed portions of the rim are not engaged by the chafing strips.

No. 33,176. Wood Turning Machinery.

(*Machine à tourner le bois.*)

Daniel H. Bacon, New York, N.Y., U.S., 19th December, 1889; 5 years.

Claim—1st. A device for communicating rotary motion to mechanism carried on a reciprocating plate without interfering with such reciprocation, which consists of a worm-threaded sleeve keyed to a shaft by means of a spline or other suitable device, which allows it to be pushed backwards and forwards upon said shaft by the gear with which it meshes, substantially as and for the purpose specified 2nd. A jointed journal-box frame provided with a cam by means of which one of the sides of said frame is raised or lowered to permit the frame to open and allow the detachable journal-box to be removed therefrom, or to close upon said box and hold the same immovable, substantially as and for the purposes specified. 3rd. In a turning machine, a cam which determines the outline to be given to the wood turned on said machine by controlling the motion given to the wood-plate, said cam being introduced between the driving gear and the wood-plate in such a position that the free end of the arm which drives said plate is caused to travel along the acting surface of said cam, substantially as and for the purpose specified. 4th. A wood turning machine which consists of mechanism for holding and rotating the wood upon a reciprocating bed-plate, and a worm-threaded sleeve keyed to a shaft or other suitable mechanism for imparting rotation to the wood chuck without interfering with the reciprocation of the wood-plate, mechanism for imparting when necessary a reciprocating motion to the wood-plate under the control of a cam, which determines the outline to be given to the wood introduced between the driving gear and the wood-plate, in such a way that the free end of the arm which drives the wood-plate shall travel over the acting surface of the cam, and mechanism for holding and rotating the cutting knives upon a bed-plate which can be caused to approach and recede from the wood-plate under the control of the operator, substantially as described and for the purpose specified. 5th. A wood turning machine provided with jointed journal-box frame for holding the journal-boxes in which the cutter head spindle is mounted, which are opened and closed by means of a cam acting upon a movable side of said frame, to facilitate the removal and replacing of said cutter head spindle and journal boxes, substantially as described and for the purposes specified.

No. 33,177. Railway Station Annunciator.

(*Indicateur des stations de chemins de fer.*)

Joseph A. Begin, Quebec, Que., 19th December, 1889 ; 5 years.

Claim.—The combination, in a railway annunciator, of the rollers B and C connected together by a chain D, and operated by a hand crank, with the gong F, hammer G, spring handle H, and spur wheel I, all substantially as set forth and aaranged as shown and described.

No. 33,178. Vehicle Seat. (*Siège de voiture.*)

Harlam P. Wells, Amesburg, Mass., U.S., 19th December, 1889; 5 years.

Claim.—1st. The within-described automatically reversible seat, which consists of the seat B having the braces b^3, levers b^2, and brackets b^6, and the lazy back C having the arm shanks a^9, with the slots b^4, and holes for the reception of the pivot bolts a^6, in combination with the pivot bolts a^2, a^4, a^6, connecting bars b^7, having the shoulders b^8, metallic braces b^1, brackets b and hinged rear end D, constructed and arranged substantially as described for the purposes set forth. 2nd. In a seat for vehicles of the class herein named, the automatically reversible lazy back C with the arm shanks a^9, having the slots b^4 and the hole for the reception of the pivot bolts a^6, in combination with said pivot bolt a^6 secured in the body A, and the brackets b^4 of the seat B, substantially as described and set forth.

No. 33,179. Door Spring. (*Ressort de porte.*)

Alfred Dudden, Santa Barbara, Cal., U.S., 19th December, 1889; 5 years.

Claim.—1st. In a door closer, the combination, with barrel 5 mounted in the bore of a door jamb, a spring 9*a* mounted within the barrel, a rod 12, and a set-nut threaded on the end of the rod for adjusting the spring, said rod terminating in an eye, of a curved extension arm 16 pivotally connected to said rod 12, and the nut 19, and a door plate 23 pivotally connected with the nut, substantially as specified. 2nd. In a door closer, the combination, with a plate 6 secured to the door-casing, and having a barrel 5 extending within a bore of the same, of a spring 9*a* mounted in the barrel, a tension rod 12 having a set-nut to bear against the spring, and adapted to adjust the same, said tension rod terminating in an eye, an extension arm 16 pivoted to the door and pivotally connected with the eye of the extension arm, and a short barrel 8 within the barrel 5 surrounding the same, and having a track 9, and a friction roller mounted upon the pintle at the intersection of the eyes of arm 16, and rod 12, substantially as specified. 3rd. In a door closer, the barrel 5 mounted in the door-jamb, a coiled spring within the barrel, an adjusting rod 12, and a washer 11, and nut 13 mounted thereon for adjusting the spring, and terminating at its outer end in an eye, a curved extension bar 16 also terminating in an eye, pivoted to the eye on the rod 12, and a threaded nut 19 having trunnions mounted on the opposite end of the bar 16, and a door provided with separable plates for the reception of the trunnions formed on the nut, substantially as specified. 4th. In a door closer, the plate 6 secured to the door-jamb, and the barrel 5 having the flared mouth 28, in combination, with the coiled spring 9*a* mounted in the barrel 5, the threaded adjusting bar 12 having bifurcated eye 14 at its front end, an adjusting nut and washer mounted thereon, and the curved extension arm 16 terminating in the bifurcated perforated eye 17, the pintle 15 passing through the perforation, and the roller 18 mounted on the pintle, the threaded nut 19 having the trunnions 27 mounted on the forward end of the extension bar, and the door plate 23 formed in sections 23 and 24, each having the lugs 25 perforated, as at 26, and curved to coincide with the exterior of the nut 19, and adapted to enter the flared mouth 28 of the barrel 5, substantially as specified. 5th. In a door closer, the barrel 5 fitted to the door-jamb, the spring 9*a* mounted in the barrel, the spring or tension arm 12 mounted in the spring, the extension arm 16 pivoted to said tension arm, as at 15, and connected pivotally to the door, and the roller 18 fitted on, and the pivot 15 for receiving the same, in combination, with the removable key 32 inserted within the barrel and impinged upon the roller 18, substantially as specified. 6th. In a spring door closer, the barrel 8, and the spring 9*a* inclosing one end of the same, combined with the arm 12 mounted within the spring and connected thereto, the pintle 15, the extension arm 16 pivoted thereby to the arm 12, and pivotally connected to the door, and a roller 18 mounted on said pintle, as set forth.

No. 33,180. Burner for Liquid Fuel.

(*Foyer à combustible liquide.*)

Gary G. Calkins, (assignee of William Vogel), Chicago, Ill., U.S., 19th December, 1889 ; 5 years.

Claim.—1st. A burner for liquid fuel provided with an oil-holding trough or receptacle, the side walls of the burners forming a combustion chamber above the said oil-holding trough, a closed passage within the side wall of the said combustion chamber, said passage communicating at its upper end with an oil supply pipe, and at its lower end with the oil-holding trough, all substantially as described. 2nd. A burner for liquid fuel provided with an oil-holding trough or receptacle, a casing forming a combustion chamber above said oil-holding trough, a closed passage in the side wall of said combustion chamber connected at one end with an oil supply, and at the other end with the oil-holding trough, and a chamber in the wall of the casing forming a trough for the overflow, said chamber being provided with openings for supplying air to the combustion chamber, substantially as described.

No. 33,181. Composition of Matter for Lining Journal and Axle Boxes.

(*Composition de matières pour garnir les boîtes des tourillons et des essieux.*)

Christian H. Koch and Don C. Joslyn, Chicago, Ill., U.S., 19th December, 1889; 5 years.

Claim.—The herein described composition of matter to be used for lining journal and axle boxes, consisting of paraffine, fibres of asbestos, powdered slate and mica, in about the proportions specified.

No. 33,182. Blast or Exhaust Appar tus.

(*Appareil à souffler ou épuiser.*)

The Smith Exhaust Pipe Company of New Jersey, (assignee of John Y. Smith, Doylestown, Penn.), U.S., 19th December, 1889; 15 years.

Claim.—1st. The combination, with a central air passage, steam nozzle, and a confining flue constituting the inner ejector, a second ejector surrounding the same provided with an air passage, a steam nozzle and a confining flue, substantially as and for the purpose described. 2nd. In an apparatus such as described, the combination of the inner and outer ejectors, each provided with a steam nozzle and an air passage, and both discharging into a common confining flue, substantially as described and for the purpose set forth. 3rd. In an apparatus such as described, the combination, with the flues, and uptake or chamber, of a blast apparatus such as indicated, comprising inner and outer ejectors, with air inlet passages located at different levels within the uptake or surrounding chamber, substantially as and for the purpose described. 4th. In a combination with the flues, and a chamber or uptake into which they discharge, an exhaust apparatus comprising inner and outer ejectors, with separate air passages and deflecting plates for distributing the draft, substantially as and for the purpose specified. 5th. In an exhaust apparatus such as described, the combination of the hollow base and central air tube, the flue supported upon and secured to the base, its lower end surrounding the air tube and communicating with the interior of the base, to form a steam nozzle communicating with the interior of the base, substantially as and for the purpose described. 6th. In an exhaust apparatus such as described, containing an inner and outer steam nozzle and separate air tubes or passages, adjacent to each of said nozzles and in combination therewith, and a steam chamber common to both of said nozzles, a valve controlling steam ports or passages leading to one of said nozzles, substantially as and for the purpose specified. 7th. In an exhaust apparatus such as described, the combination, of two ejectors, the one arranged within the other, and each provided with a separate confining flue, substantially as described and for the purpose set forth. 8th. The combination, with the two exhaust passages communicating with the cylinders, an ejector whose lower or receiving end is divided by a hollow wall or bridge into two sections, each communicating with one of the steam

passages and both opening into a steam passage leading to the nozzle, and an air tube connected to said hollow wall or bridge, substantially as described. 9th. The hereinbefore described improved blast or exhaust apparatus provided with a hollow base, central air tube, and tubes or partitions B^1, E^1 and D, forming the steam nozzles of the inner and outer ejectors, the air passage of the outer ejector, and the confining flues of both ejectors, substantially as and for the purpose specified.

No. 33,183. Oil Extraction.

(*Extraction de l'huile.*)

Lever Brothers (assignees of Ernest G. Scott), Port Sunlight, Eng., 19th December, 1889; 5 years.

Claim.—The use or employment of carbon tetra-chloride in lieu of carbon bisulphide in the extraction of oil or grease from seeds or other substances, substantially as described.

No. 33,184. Releasing Valve Gear.

(*Renvoi de mouvement du tiroir.*)

Robert Whitehill (assignee of Charles A. Dixon), Newburg, N. Y., U.S., 19th December, 1889; 15 years.

Claim.—1st. In combination with the lever and the spring-actuated catch thereon, the valve operating crank provided with a projection having an inclined face over which the catch rides, and which forces the latch outward as the lever swings in one direction, and an abrupt face to be engaged by the catch as the lever swings in the other direction, and a cam to operate the catch to release the projection on the valve crank, substantially as and for the purpose specified. 2nd. In combination with the lever having the spring-actuated catch with the beveled face, the valve crank provided with a projection having an inclined face and an abrupt face to engage the catch on the lever as the lever swings in one direction and the other, and a movable cam for actuating the catch to release the projection on the crank arm, and suitable connections whereby the position of the cam can be adjusted from the governor of the engine, substantially as and for the purpose set forth. 3rd. In combination with the valve crank arm, having a lug or bearing piece, the lever, the sliding block thereon carrying a catch plate to engage the lug on the crank arm, the spring actuating the block, a cam carried on an adjustable piece, and a roller on the sliding block adapted to be engaged by the cam, substantially as and for the purpose shown. 4th. In combination with the valve crank arm, provided with a bearing piece, the swinging lever, the sliding block thereon provided with a roller and with a catch plate, the spring engaging the block, and a rotary collar carrying a cam, substantially as and for the purpose set forth. 5th. In combination with the valve crank arm and the lever actuated by the valve-operating mechanism, the sliding spring actuated catch on the lever, an inclined face on the crank arm to engage and move the latch against the stress of the spring, as the lever moves in one direction, a shoulder on the crank arm to be engaged by the catch as the lever moves in the other direction, the cam collar carrying a cam to operate the spring catch to disconnect the lever and arm, and means for returning the valve crank arm into position to close the valve, substantially as and for the purpose described. 6th. In combination with the rotary collar adapted to be turned by suitable connections with the governor of an engine, and provided with a cam, the valve crank arm provided with a lug or bearing piece, the lever actuated from the valve operating mechanism, the sliding catch on the lever, the spring engaging the catch, and a roller on the catch adapted to engage the cam, substantially as and for the purpose specified. 7th. In combination with the lever actuated from the valve-operating mechanism and the sliding spring-pressed catch on the lever, the valve crank arm provided with a cam face to move the catch against the stress of its spring and a shoulder to be engaged by the catch, a collar provided with the two opposite cams and a suitable projection or arm on the catch for engagement with the cams, so that the latter shall move the catch against the stress of its spring out of position to engage the shoulder on the valve crank arm, substantially as and for the purpose set forth. 8th. In combination with the valve crank arm, provided with the bearing piece having the rounded outer side, the lever, the sliding spring-pressed block thereon, and a catch plate carried by the block, substantially as and for the purpose described.

No. 33,185. Car Coupling. (*Attelage de chars.*)

Robert H. Dowling, Charles H. Follett and Charles Follett, Newark, Ohio, U.S., 19th December, 1889; 5 years.

Claim.—1st. The combination, with the draw-head A, having a horn or guide arm B at one side, and the lugs F and G at the other side, of the movable claw N provided with a recessed hub M having a rear hook P and ribbed locking pin S formed with a stop R near its lower end, substantially as specified. 2nd. The combination, with a draw-head A, having a concave front face, provided with a horn or guide arm B at one side, and bearing lugs I and J having tapering bearings on their inner faces, of a movable claw N, having recesses in its hub portion and having a rearwardly-extending hook P, and a locking pin S having a stop R, substantially as specified. 3rd. The combination, with a recessed draw-head, having the tapering bearings I and J, of the movable claw having U-shaped recesses K and L and a recessed hook P, and the ribbed locking pin S provided with a stop R and removable cross pin V, substantially as specified. 4th. A draw-head, having a detachable claw N and reciprocating locking pin S engaging a recessed hook of said claw, substantially as specified.

No. 33,186. Car-Coupling. (*Attelaye de chars.*)

Robert H. Dowling, Charles H. Follett and Charles Follett, Newark, Ohio, U.S., 19th December, 1889; 5 years.

Claim.—1st. In a car coupling, the combination of the draw-head C, having the recess c for the shank E, the coupling jaw D provided with the trunnions c^1, and the crank arm F extending into the trunnion, provided with the guard g to enter the recess g^1, and the operating bar G, substantially as specified. 2nd. The combination of the draw-head C, having the recess c, the trunnion bearings c^1, shoulders e, coupling jaw D, having the shouldered shank E, provided with a curved slot k, the trunnions c^1 and the recess h^1 for the locking pin H, having the guard i at its lower end and the slotted arm I at its upper end, substantially as specified. 3rd. The locking pin H having the guard i on its lower end and a slot opening in its outer end and the slotted arm I having its bifurcated end inserted through the pin H and turned on opposite directions, in combination with the draw-head C, the locking jaw D and operating rod G, substantially as specified. 4th. The combination of the draw-bar B and draw-head C, made in two longitudinal sections, the dowel pins b therein, the locking jaw D, having the trunnions c^1, the shoulders e and curved slot k and the recess h^1, the locking pin H extending downwardly through the draw-head and having the guard i thereon, and the crank arm F extending through the draw-head into the trunnion and having the guard g, substantially as specified.

No. 33,187. Cash Register. (*Régistre à monnaie.*)

Henry F. Amsden (assignee of Harmon A. Miles), Boston, Mass., U.S., 19th December, 1889; 5 years.

Claim.—1st. In a cash register, a case containing a money drawer, a dial on said case for indicating the amount of the sale in cents, an index finger, a knob for turning said finger, adjunctive mechanism for releasing and forcing out said drawer when said knob is pressed inward, and a spring acting torsionally for returning said finger to naught when said knob is pulled outward, all being combined substantially as set forth. 2nd. In a cash register, a case containing a money drawer, a dial for indicating the amount of a single sale in dollars, a dial for indicating the amount of a sale in cents, an index finger on each dial, a knob for turning each finger, adjunctive mechanism for releasing and forcing out the money drawer when either of said knobs is pressed inward, and means for automatically returning said fingers to the naught point when the corresponding knob is pulled out, all being combined substantially as described. 3rd. In a cash register, a case containing a money drawer, a dial for indicating the amount of a single sale in cents, a dial for indicating the amount of a sale in dollars, an index finger for each of said dials, knobs for turning said fingers, a dial provided with three hands for registering the gross amount in dollars and cents of the total sales, adjunctive mechanism for correspondingly moving said hands when said knobs are turned, means for releasing and forcing said drawer outward when either of said knobs is forced inward, and means for automatically returning said fingers to the nought point when the corresponding knob is pulled out, all being combined substantially as set forth. 4th. In a cash register, the combination, with a sliding shaft provided with a bunter and a toothed flange, of a sliding bar, as 33, provided with upright arms projecting into the path of the bunter on opposite sides thereof, and with a stop arm for engaging the toothed flange when said shaft is pushed inward to open the money drawer. 5th. In a cash register, a pivoted rod, as 56, provided with an arm projecting into the path of the bunter on the indicator shaft, whereby it is prevented from being pushed inward to open the drawer, and a pivoted plate on the opposite end of said rod in position to be engaged by a pin on said shaft when revolved, whereby said arm is removed from the path of said bunter, substantially as described. 6th. In a cash register, the pivoted rod 56, provided with the arm 68 projecting into the path of the bunter on the indicator shaft, and a pivoted plate 59 adapted to be engaged by a pin on said shaft when rotated, in combination with the lever 61, having the latch 64 for securing said rod when depressed, and the spring 70 for returning it when released from said latch, substantially as described. 7th. In a cash register, the combination of an indicator shaft, a bunter on said shaft, a toothed flange on said shaft, a pivoted lever provided with a stud in the path of the bunter, and with a lever arm for engaging said flange, and a spring for disengaging said lever when released from the bunter. 8th. In a cash register, a case provided with two dials for respectively indicating the dollars and cents of a sale, a sectional shaft passing centrally through each dial, a sleeve on each shaft section provided with a crown gear, said gears intermeshing to form a separable clutch, an index finger and grooved ring on each forward sleeve, a chain winding onto said sleeves as the shafts are rotated, a spring connecting each chain with the case, and a horizontal bar pivoted within the case, the ends of said bar projecting into the grooves of said rings, whereby said clutches may be simultaneously separated when either of said forward shaft sections is pulled outward, substantially as described. 9th. In a cash register of the character described, an adding device comprising a sectional shaft and indicator shafts, one section of which bears a wheel numbered peripherally to correspond with the numbers of the cent dial of the register, and the other section bearing wheels, each provided peripherally with two sets of cardinal numbers, arranged consecutively, and adapted to display the gross amount of dollars which have been indicated on the dials, substantially as described. 10th. In a cash register, an adding device, comprising a sectional shaft actuated by the indicator shafts, a series of wheels on said shaft, one of which is provided with numerals corresponding with those on the cent dial of the register, and the remaining wheels, provided respectively with two sets of cardinal numbers arranged consecutively, a cover for said wheels, provided with slots for exposing a single number thereon, and connecting mechanism, substantially as described, whereby said wheels are so rotated that the numbers displayed in said slot represent the gross amount indicated on said dials. 11th. An adding device for cash registers, comprising a sectional shaft, one section of which is actuated by the indicator shaft of the dollar dial, a series of wheels on said shaft section, provided respectively with two sets of cardinal numbers, a ratchet on said shaft-section, provided respectively with two sets of cardinal numbers, a ratchet on said shaft section for actuating one of said wheels conjointly with said indicator, shaft ratchets secured to the succeeding wheels of the series, and diametrical pallets on said wheels for engaging the ratchet of the succeeding wheel at each semi-revolution and advancing said wheel one numeral, substantially as and for the purpose set forth. 12th. In an adding device for cash registers, a sectional shaft, one section of which bears a wheel numbered to correspond with the cent dial of

the register, and is actuated by the indicator shaft thereof, and the other section being a series of wheels, provided respectively with two sets of cardinal numbers, said section being actuated by the indicator shaft of the dollar dial, a ratchet secured to each wheel, the number of the teeth in said ratchets corresponding with the spaces on the said dials, fixed circular partitions separating said wheels and provided with a groove at their tops, a pawl pivoted to said cent wheel, said pawl being adapted to enter the groove on the adjacent partition and move a dollar wheel, one space at every complete revolution, diametric pallets on the dollar wheels for entering grooves on their adjacent partitions and moving the next wheel, one space for each semi-revolution, and a cover for said device, provided with slots for exposing a numeral of each wheel, whereby the sum total of the amounts which have been indicated on the dials will be displayed, substantially as described. 13th. In a cash register, the adding device K comprising the sectional shaft 80, the wheel 88 secured to the section 85 thereof, and numbered peripherally to correspond with the cent dial of the register, the sleeve 91 on the section 86, provided with the ratchet 92, the wheel 93 on said sleeve, provided peripherally with two sets of cardinal numbers, and the ratchet wheel 95, the wheels 105 and 111, provided respectively with two sets of cardinal numbers, and the ratchets 107 and 113, the pawl 97 on the ratchet 95, the partitions 98, 99 and 114 separating said wheels, all being arranged to operate substantially as described. 14th. In an adding device for cash registers, the cent wheel 88 secured to the shaft section 85, and provided with the pallet 102, in combination with the dollar wheel 93 fitted to revolve on the shaft section 86, and provided with the ratchet 95, and the partition 98 having the groove 101, whereby said pallet may be made to engage a tooth of said ratchet at each revolution of the cent wheel, substantially as described. 15th. In a cash register, the combination of acase provided with a money drawer, dials for indicating the dollars and cents of a sale, shafts passing centrally through said dials and provided with knobs and index fingers, mechanism, substantially as described, disposed on said shafts for returning the index fingers to the nought point when said knobs are withdrawn, adjunctive mechanism actuated by said shafts for forcing out said drawer when the knobs are forced inward, a stop for preventing the drawer from being opened until a shaft is rotated, a stop for preventing the shaft from being rotated while being withdrawn, and an adding mechanism actuated by said shafts, whereby the sum total of the amounts indicated by the fingers thereon may be displayed, substantially as described. 16th. In a cash register, the sliding bar 33, provided with the arms 37 and 38, a bunter on the indicating shaft between said arms, and the arm 36 also on said bar and adapted to engage the teeth of a flange on said shaft, when pushed inward, whereby it is prevented from being rotated, substantially as described. 17th. In a cash register, the shaft F comprising the sections q, v, the sleeve m on the section q, bearing the index finger f and gear p, the sleeve r fitted to slide on the section v and pinned to the section q, the sleeve 15 inclosing the sleeve r and pinned to the section v, the gear 18 on said sleeve intermeshing with the gear p, the spring 21 on the sleeve m, and the bunter 28 on the sleeve r for actuating an adjunctive drawer releasing mechanism, all being arranged to operate substantially as described. 18th. In a cash register of the character described, an adding device comprising a series of wheels disposed on a sectional shaft, actuated by the indicator shafts of the register, one of said wheels being numbered peripherally to display the cents of the gross amount registered, and the succeeding wheels provided with numerals adapted to display the dollars of the gross amount registered, as said wheels are consecutively rotated by their connecting mechanism, substantially as described.

No. 33,188. Rope Twisting Machine.

(*Machine à tordre le cordage.*)

The Dovercourt Twine Mills Company, (assignee of Walter H. Avis), Toronto, Ont., 19th December, 1889; 5 years.

Claim.—1st. In a rope twisting machine, the cranked twisting hooks B journalled in a rigid frame A, combined with the driving plates C and main driving frame D suitably driven from the shaft E, substantially as and for the purpose set forth. In a rope twisting machine, the hooks I journalled in frame work H, the cranked ends of which are journalled in a driving-frame J suitably driven from the shaft K, substantially as and for the purpose set forth. 3rd. A guide-frame O provided with tumbling arms P having weighted levers Q on which are arranged strand guides, substantially as and for the purpose set forth. 4th. In a rope twisting machine, the combination of the cranked twisting hooks B journalled in a frame work A, the driving plate C, main-driving frame D, eccentric F, the shaft E, hooks I journalled in a frame work H, and driving-frame J suitably driven from the shaft K, substantially as and for the purpose set forth. 5th. In a rope twisting machine, the combination of the cranked twisting hooks B journalled in a frame work A, driving plates C, main driving frame D, eccentric F on the shafts E, carriage L provided with guide tops N, guide frame O provided with tumbling arms P, and weighted levers Q, cranked hooks I journalled in a frame work H, driving frame J suitably driven from the shaft K, substantially as and for the purpose set forth.

No. 33,189. Electro-Magnetic Separator.

(*Séparateur électro-magnétique.*)

The Moffatt Electric Construction Company, (assignee of Richard R. Moffatt), New York, N. Y., U. S., 19th December, 1889; 5 years.

Claim.—1st. An electro-magnetic separator having one or more electro-magnets that are energized by means of an alternating electric current, substantially as and for the purpose specified. 2nd. In an electro-magnetic separator, an electro-magnet energized by means of an alternating current of electricity, substantially as and for the purpose specified. 3rd. In an electro-magnetic separator, an electro-magnet combined with means for rapidly changing its polarity, substantially as and for the purpose herein specified. 4th. In an electro-magnetic separator, the stationary electro-magnet A located within a magnetic rotating drum B, substantially as and for the purpose specified. 5th. In an electro-magnetic separator, the stationary electro-magnet A located within a rotating drum B, and energized by means of an alternating electric current, substantially as and for the purpose specified.

No. 33,190. Grading and Ditching Machine.

(*Machine à régalage et fossoyage.*)

Frederick C. Austin, (assignee of William J. Edwards), Chicago, Ill., U.S., 19th December, 1889; 5 years.

Claim—1st. In a grader and ditching machine, the combination, substantially as hereinbefore set forth, with the plow beam carrying a plow, of the swinging controlling bar pivotally supported at one end upon a fixture at one side of the body frame of the machine, and at its opposite end flexibly connected with the plow beam in advance of the plow, and an adjustable flexible draft attachment H applied to the swinging controlling bar at a point between the end of the controlling bar that is connected to the plow beam, and the pivotally supported end of said controlling bar, for the purpose described, 2nd. In a grader and ditching machine, the combination, substantially as hereinbefore set forth, with the plow beam carrying a plow, of the swinging controlling bar constituting the draft bar from which the plow is drawn and flexibly connected with the plow beam at a point in advance of the plow, and at one side of the plow beam so as to place such connection substantially in a line directly ahead of the mold board of the plow, for the purpose described. 3rd. In a grader and ditching machine, the combination, substantially as hereinbefore set forth, with the suspended plow beam carrying a plow at its rear end portion, and at its forward end portion carrying a caster wheel, of the draft and controlling bar G flexibly connected with the plow beam in advance of the plow but in rear of the caster wheel, and the draft chain attached to said draft and controlling bar, for the purposes described. 4th. In a grader and ditching machine, the combination, with the suspended plow beam carrying a plow, of the draft and controlling bar G flexibly attached to the plow beam in advance of the plow and a draft connection, such as set forth, attached at its rear end to said draft and controlling bar, and at its forward end attached to a fixture of the machine at a point substantially between the two sides of the body frame, whereby the draft is substantially coincident with a line along the longitudinal center of the body frame, for the purpose described. 5th. In a grader and ditcher, the combination, substantially as hereinbefore set forth, with the plow beam carrying a plough, of the rear controlling bar E capable of a swinging movement toward the front and rear of the machine and flexibly connected with the plow beam in rear of the plow, and the forward controlling bar G flexibly connected with the plow beam in advance of the plow and pivotally supported to swing toward the front and rear of the machine in correspondence with said swing on the part of the rear controlling bar, whereby both bars can swing in unison in adjusting the working position of the plow to either the front or rear, for the purpose described. 6th. In a grader and ditcher, the combination, substantially as hereinbefore set forth, with the plow beam carrying a plow, and an elevator to which the delivery is made from the plow, of the rear swinging controlling bar flexibly connected with the plow beam in rear of the plow, by an adjustable hinge connection adapted for adjustment to permit the tilt of the plow, and the forward controlling bar flexibly connected with the plow beam in advance of the plow and adjustable endwise upon its pivotal support, whereby the plow, when tilted, may be brought into proper working position relatively to the receiving end of the elevator, for the purpose described. 7th. In a grader and ditcher, the combination, with the plow beam carrying a plow, of the horizontally swinging controlling bars respectively attached to the plow beam in advance and to the rear of the plow, and both capable of end adjustment and for the purpose set forth. 8th. In a grader and ditcher, the combination, with the plow beam carrying a plow, of the bar G flexibly attached to the plow beam in advance of the plow and having both an end and lateral adjustment, substantially as set forth, the said end adjustment being in a direction transversely to the length of the plow beam, and the lateral adjustment being in a direction substantially coincident with the line of progression, for the purpose set forth. 9th. In a grader and ditcher, the combination, with the plough beam carrying a plow, of the bar G flexibly attached to the plow beam in advance of the plow, and having both a horizontal and vertical swing, and the draft chain attached to said bar, for the purpose described. 10th. In a grader and ditching machine, the combination, substantially as hereinbefore set forth, with the plow beam carrying a plow, of the horizontally and vertically swinging bar G flexibly attached to the plow beam in advance of the plow, and having an end adjustment transverse to the line of progression, an adjustment in a direction substantially coincident with said line, for the purpose described. 11th. In a grader and ditching machine, the combination, with the plow beam carrying a plow, of the forwardly arranged swinging controlling bar flexibly connected with the plow beam in advance of the plow by a pivot 49, supported from and at one side of the beam, and connected with the swinging controlling bar by a compound joint, for the purpose described. 12th. In a grader and ditching machine, the combination, substantially as hereinbefore set forth, with the plow beam carrying a plow and provided at one side with a pivot 49 arranged in advance of the plow, of the swinging bar G having at one end a bearing for said pivot, for the purpose set forth. 13th. In a grader and ditching machine, the combination, substantially as hereinbefore set forth with the plow beam carrying a plow and provided at one side with a pivot 49 arranged in advance of the plow of the swinging bar G provided at one end with a recess 50 and with a pivot bearing 51 arranged at one side of said recess and affording a bearing for the pivot 49 which extends through the said recess in the end of the bar for the purpose set forth. 14th. In a grader and ditching machine, the combination, substantially as hereinbefore set forth, with the bar G flexibly attached at one end to the plow beam of the bearing 44 supporting the oprosite end of said bar, and the pivot, whereby the bar is pivotally attached to said bearing, for the purpose set forth. 15th. In a grader and ditching machine, the combination, substan-

stantially as hereinbefore set forth, with the bar G flexibly attached at one end to the plow beam, of the support 44 for the opposite end of said beam formed at one end of a brace rod 59, for the purpose described. 16th. In a grader and ditcher, the combination, substantially as hereinbefore set forth, with the swinging plow beam controlling bar G, of its pivotal support 44 secured to the lower portion of the upright of an elevated frame L, and having a rod 59 that is secured to the main body frame of the machine, for the purpose described. 17th. In a grader and ditcher, the combination, substantially as set forth, with the plow beam carrying a plow of the controlling bar flexibly connected at one end with the plow beam, and at its opposite end pivotally attached to a bearing, which in turn has a sliding pivotal connection with a guide support, for the purpose described. 18th. In a grader and ditcher, the combination, substantially as hereinbefore set forth, with the swinging bar E flexibly connected with the plow beam, of the bearing 29 having a pivot arranged to slide in a guideway extending transversely to the line of progression, the bar E being pivotally attached to said bearing, for the purpose set forth. 19th. In a grader and ditching machine, the combination, substantially as hereinbefore set forth, with the baa 33 provided with a guide way 32, of the swinging bar E pivotally attached to a bearing having a pivot arranged to both turn and slide in the guide way of said bar 33, for the purpose described. 20th. In a grader and ditching machine, the combination, substantially as set forth, with the bar 33 provided with a guideway 32, and applied as a brace between the pendent 34 and a longitudinal sill, of the main body frame of the machine, of the swinging bar E connected with a pivot which is arranged to turn in and slide along the guideway 33, for the purpose described. 21st. In a grading and ditching machine, the combination, with the plow beam carrying a plow and suspended by cords or chains attached to its forward and rear end portions, whereby the plow beam shall hang, substantially as set forth, of the foot presser bar 61 secured to, and rising from the plow beam, and provided with a foot rest which is within convenient reach of the foot of an attendant standing upon the machine, said presser bar being free to move in unison with the longitudinal movements and side tilt of the beam, substantially as and for the purpose described. 22nd. In a grader and ditching machine, the combination, substantially as hereinbefore described, with the plow beam carrying a plow, of the caster wheel I and a scraper 70 arranged over the caster wheel, for the purpose described. 23rd. In a grader and ditching machine, the combination, with the plow beam carrying a plow, of the caster wheel I, the swiveled hub 6 6 carrying bearings for the caster wheel journals, and provided with a scraper support carrying a scraper 70, which projects beyond its support, said support having its underside formed to curve in a direction away from the periphery of the caster wheel, snbstantially as herein described and for the purpose set forth. 24th. In a grader and ditching machine, the combination with the plow beam carrying a plow, of the caster wheel I, the caster wheel standard attached to the plow beam and provided with a rotary hub 66 carrying arms 71, which are in turn provided with boxes for the journals of the caster wheel, substantially as described and for the purpose set forth. 25th. In a grader and ditching machine, the combination, with the plow beam and a side delivery plow arranged for delivering the plowed up earth onto an elevator, of the plow standard 8 pivoted to the plow beam, and the bar 10 attached at its lowest forward end to the plow, and at its upper rear end adjustably pivoted to a bearing secured to the plow beam, substantially as described and for the purpose specified. 26th. In a grader and ditching machine, the combination, substantially as set forth, with the plow having a side delivery, of an elevator provided with an endless conveyor belt and guides forming along the conveyor belt a guideway for the matters delivered from the plow, and a guard arranged opposite the plow at the forward corner of the elevator for directing stalks onto the conveyor belt. 27th. In a grader and ditching machine, the combination, with the plow having a side delivery, of the elevator provided with an endless conveying belt and the guideway side portions 104 and the guard K extending from one of said guideway side portions at the receiving end of the elevator, substantially as described and for the purpose specified. 28th. In a grader and ditching machine, the combination, with the plow having a side delivery, of the elevator provided with an endless conveyor belt and the guideway side portions 104, one of said guideway side portions being at the receiving end of the elevator provided with an extension 76, substantially as and for the purpose set forth. 29th. In a grader and ditching machine, the elevator arranged to receive matters delivered from the plow, and comprising in its structure a frame having sloping sides 81, combined with an endless conveyor-belt having edges of its upper longitudinal edge portions of said sloping sides, substantially as and for the purpose set forth. 30th. In a grader and ditching machine, the combination, substantially as hereinbefore set forth, with the plow, of the elevator comprising the endless conveyor belt, the guides F^1 arranged over and along the upper leaf of the conveyor belt, and the sides 81 of the elevator frame sloping from the edge portions of such upper leaf of the conveyor belt, for the purpose described. 31st. In a grader and ditching machine, the combination, substantially as hereinbefore set forth, with the plow having a side delivery, of the receiving end frame section of the elevator suspended to bring it in position to receive from the plow, the extension frame section of the elevator supported by a hinge joint from the main body frame of the machine, the endless conveyor belt, both of said elevator sections and the guides 104 and 105 arranged substantially as set forth, and meeting substantially over the joint between the two elevator frame sections for the purpose described. 32nd. In a grader and ditching machine, the elevator arranged to convey the plowed-up soil from the plow to the point of delivery, and comprising in its structure and endless conveyor belt and a sectional frame with the guide sections 105 and 106, arranged to form the sides of a guideway extending over and along the upper leaf of the conveyor belt, and provided at their meeting ends with locking devices, such as set forth for the purpose described. 33rd. In a grader and ditching machine, the elevator adapted for conveying plowed up soil from the plow to the front of delivery and comprising in its structure the extension portion which extends laterally from the body portion of the machine, as an extension of the elevator section below the body frame, and which is composed of two or more frames detachably connected together by separable hinge joints, whereof one member upon one frame is detachable from the other member upon the next succeeding frame, substantially as described. 34th. In a grader and ditching machine, the combination, with the elevator adapted and arranged for conveying plowed up soil from the plow to the point of delivery, and the link-belt N passing over a sprocket that is connected with the conveyor-belt driving rod at the delivery end of the elevator, of the shield M arranged to cover said sprocket, substantially as and for the purpose described. 35th. In a grader and ditching machine, the combination, substantially as hereinbefore set forth, with the endless soil conveying belt of the elevator of the rotary axle extending through boxes that are connected with the main frame of the machine, the rear wheels arranged loosely upon said axle, a driving-gear fixed upon the axle, a pawl-and-ratchet device for establishing a rigid connection between one of the wheels and said driving-gear during the advancement of the machine, a power transmitting connection between the driving-gear and a belt roll by which the endless conveyor belt is driven, for the purpose described. 36th. In a grader and ditcher, the combination, with the soil-coveyor belt of the elevator, the rear wheels and axle, and the driving chain or belt N, of the clutch R arranged in a power transmitting mechanism for operatingthe driving chain or belt N from the rear wheels, and comprising the sprocket gland 152, having a flange 155, and the flared shifting clutch-gland, substantially as and for the purpose described. 37th. In a grader and ditcher, the combination, with the soil conveying belt of the elevator, of a clutch interposed in a power transmitting connection between the endless conveyor-belt and one of the rear main supporting wheels, and a clutch shifting device comprising the two pivotally connected links or levers 160 and 162, one of which is connected with the shifting clutch-gland, and the other connected with an operating lever, substantially as described. 38th. In a grader and ditching machine, the combination with the main body frame and an upright 102, for the purpose set forth, of the brace bar 100 attached to the main frame and to said upright, and carrying the box 163 for a rotary power transmitting shaft 149, substantially as and for the purpose described. 39th. In a grader and ditching machine, the combination, substantially as hereinbefore set forth, with the main body frame, of the half circle V secured to the front bolster, and the bent bar 181 attached at its bend to the main body frame and having one end provided with a bearing for the king holt, for the purpose described. 40th. In a grader and ditching machine, the combination, with the main body frame, of the front bolster U, the axle bar 165, the clips 170 and 174 respectively secured to the bolster and the axle bar, the king bolt 169 and the braces W and 178, both secured to the main body frame and respectively providing bearings for the upper and lower ends of the king bolt, for the purpose described. 41st. In a grader and ditching machine, the combination, with the front axle bar 165, of the swinging bar G, and the draft chain connecting said swinging bar with the axle bar, for the purpose set forth. 42nd. In a grader and ditching machine, the combination, with the front axle bar 165, of the clip 174 secured thereto a plate secured to the front axle bar and extending between the ends of the clip and the draft chain H attached to a bolt passing through the plate 175 and the clip 174, for the purpose set forth. 43rd. In a grader and ditching machine, the combination, with a sectional elevator of a sectional belt having a joint consisting of a transverse strip 121, permanently secured to one of the meeting ends of the belt, and detachably secured to the other one of said meeting ends of the belt, and the longitudinally arrainged strips 124 similarly secured to the belt, substantially as described. 44th. The combination, with the plow beam, of the bar E, the plate 39 secured to bar E and pivotally connected with the plow beam and the bar 40 connected with the plow beam, and the bar 40 connected with the plow beam and said bar by a pivotal joint at one end, and a sliding pivotal connection at its opposite end, substantially as described.

No. 33,191. Double Furrow Plow.

(Charrue à double sillon.)

Malcolm Wilson, London, and John B. Jackson, Ingersoll, Ont., 19th December, 1889; 5 years.

Claim.—1st. The combination for raising and lowering the ploughs of the lever A working on the centre B and the formation of same, the rod E and the slots R, R^1, and the levers G, G^1 with the links S S^1, S^2. 2nd. The two wheels I, I^1, supporting the rear of plough giving steadiness to same. 3rd. The widening of the frame C at the front of plough, also giving strength and steadiness to same. 4th. The formation and plan of tongue block as heretofore described.

No. 33,192. Pipe Wrench. (*Clé à tuyau.*)

Richard J. Robbins, Suspension Bridge, Cornelius W. Graham and Edward T. Smith, Buffalo, N. Y., U. S., 19th December, 1889; 5 years.

Claim.—1st. The combination, with the main lever provided with a fixed jaw and a movable jaw pivoted to the main lever, of an auxiliary lever adapted to be moved lengthwise on the main lever and provided at its inner end with a serrated cam which bears against the main lever, and links connecting the cam of the auxiliary lever with the movable jaw, substantially as set forth. 2nd. The combination, with the main lever provided with a fixed jaw, and a moveable jaw pivoted to the main lever and provided with arms or extensions projecting rearwardly from its pivot, of an auxiliary lever provided at it inner end with a cam which bears against the main lever, and links connecting the arms of the movable jaw with the inner end of the auxiliary lever, whereby the movable jaw is actuated for grasping the article to be turned between the jaws by pressing the auxiliary lever against the main lever, substantially as set forth. 3rd. The combination, with the main lever A provided with a fixed jaw B having two biting faces b, b^1, arranged at an angle to each other, and a moveble jaw C composed of two plates C^1, pivoted to opposite sides of the lever A, and each provided with two biting faces c^1,

c^2, arranged at an angle to each other and opposite the faces of the fixed jaw, of arms *d* formed on the plates C^1 of the movable jaw, and projecting rearwardly from the pivot of the movable jaw, an auxiliary lever F provided at its inner end with a cam *f*, which rests upon the main lever and links *g*, *g*, connecting the inner end of the lever F with the arms *d* of the movable jaw, substantially as set forth.

No. 33,193. Yarn Dyeing Machine.

(*Machine à teindre les fils.*)

Leonard Weldon, Amsterdam, N. Y., U. S., 20th December, 1889; 5 years.

Claim.—1st. A yarn-dyeing machine comprising a dye liquor vat, a pair of rotary disks above said vat, endless bands or chains extending around the top portion of said disks and suspended therefrom, and passing through the interior of the vat, and yarn supporting bars carried on said bands or chains to the inner and outer sides of the latter, as set forth. 2nd. A yarn-dyeing machine composed of a dye liquor vat, a pair of rotary disks secured to the ends of a shaft arranged axially horizontally in the vat, a pair of rotary disks secured to the ends of a shaft arranged above the vat and axially parallel with the lower shaft, endless bands or chains extending around the two pairs of disks, and yarn supporting bars carried on said bands or chains at the inner and outer sides of the latter, as set forth. 3rd. A yarn-dyeing machine consisting of a dye liquor vat, two pairs of rotary disks secured to the ends of the shafts arranged axially parallel one above the other, and the lower of said disks dipping in the vat, endless bands or chains extending around the two pairs of disks, frames secured at the centre of their lengths and at right angles to said bands or chains, and yarn supporting bars connected to the inner and outer ends of the frames and parallel with the aforesaid shafts, substantially as described. 4th. In combination with the dye liquor vats A, two pairs of disks B, B^1 and chains a^1, a^1, the frames *b*, *b*, secured central of their lengths to the centres of the chain links, the braces b^1, b^1, extending from the ends of the frames to the ends of the links, and the yarn supporting bars *d*, *d*, carried on said frames, substantially as described and shown. 5th. In combination with the vat A and two pairs of disks B, B^1, the endless chains a^1, a^1, frames *b*, *b*, attached to said chains, the rotary yarn supporting bars *d*, *d*, carried on said frames, pins projecting from the said bars, and a detent in the path of the pins, substantially as described and shown.

No. 33,194. Standing Contact Arm.

(*Bras de contact fixe.*)

Charles J. Van Depoele, Lynn, Mass., U.S., 20th December, 1889; 10 years.

Claim.—1st. The combination of a suitable support located centrally upon the top of an electric railway car, and a contact-carrying arm mounted at its lower extremity in a hinge in said support, said hinge having a limited rotary movement thereon, whereby said arm is rendered movable in an arc including either end of the car. 2nd. The combination of a suitable support mounted upon an electric railway car, a contact carrying arm mounted at its lower extremity in a hinge having a limited rotary movement upon its support, said arm being thereby rendered movable in an arc including either end of the car, and tension springs engaging the lower part of the arm for imparting an upward tendency to its free end. 3rd. The combination, with an electric railway car, of a contact arm and support therefor, a universal joint mounted upon the support, and connected with the lower end of the contact arm and lateral stops adapted to engage a projection upon the universal joint for limiting the lateral swinging movement of the contact arm. 4th. The combination, with an electric railway car, of a contact arm and hinged support therefor, and buffer springs mounted upon the support near the hinge of the contact arm for supporting and raising the same from an approximately horizontal position. 5th. The combination, with an electric railway car, of a contact arm having a removable end section, and a contact device carried thereby. 6th. A contact arm for electric railway vehicles having a removable flexibly contact carrying end section. 7th. A contact arm composed of a number of metallic rods rigidly connected to, and united by suitable supporting or stay plates, one of said rods being movable in the outer end plate, and a contact device secured to said last mentioned rod. 8th. A contact arm composed of rigid metallic rods, and a flexible central rod movable in the end thereof and carrying a contact device at its outer extremity. 9th. The combination of a suitable support mounted upon an electric railway car, a contact arm mounted at is lower extremity in a hinge rotatably mounted upon said support, and tension springs engaging the lower part of the arm for imparting an upward tendency to its free end.

No. 33,195. Extensible Upward Pressure Contact Arm. (*Bras de contact à extension et à pression montante.*)

Charles J. Van Depoele, Lynn, Mass., U.S., 20th December, 1889; 10 years.

Claim.—1st. In an electric railway, the combination, with an overhead conductor and a moving vehicle, of a rigid arm hinged to the top of said vehicle, said arm being composed of a tubular section, and a telescopic end section carrying a contact wheel at its free end and fitting into said tubular arm, and a spring within said arm acting against said end section and keeping the contact wheel normally against the conductor when the arm is moved upon its support. 2nd. In an electric railway, the combination, with an overhead conductor and a moving vehicle, of a rigid arm hinged to the top of said vehicle, said arm having a telescopic end section carrying a contact wheel, a spring for projecting said end section and keeping the contact wheel normally against the under side of the conductor when the arm is moved upon its support, and springs in engagement with the lower part of said arm for raising the same from a horizontal toward a vertical position according to the height of the conductor. 3rd. In an electric railway, the combination, with an overhead conductor and a moving vehicle, of a rigid arm hinged to the top of said vehicle, springs connected to the lower portion of said arm, for raising the same toward a vertical position, and a telescopic end section carrying a contact wheel at its free end and fitting into said tubular arm, and a spring within said arm acting against the end section for projecting the same, whereby the arm may be moved into operative position toward either end of the car without detaching the contact device from the conductor. 4th. In an electric railway, the combination, with an overhead conductor and a moving vehicle, of a rigid arm hinged to the top of said vehicle, springs connected to the lower portion of said arm, for raising the same toward a vertical position from either direction, and a telescopic end section carrying a contact wheel at its free end and fitting into said tubular arm, and a spring within said arm acting against the end section for projecting the same, whereby the arm may be moved into operative position toward either end of the car without detaching the contact device from the conductor. 5th. In an electric railway, the combination, with an overhead conductor, and a moving vehicle, of a rigid arm hinged to the top of said vehicle upon a transverse axis, said rigid arm having a telescopic end section fitting within the arm and carrying a contact device at its free extremity, a spring within the arm for projecting the end section, and a spring or springs in engagement with the lower portion of said arm and acting to raise the same toward a vertical position. 6th. In an electric railway, the combination, with an overhead conductor, and a moving vehicle, of a rigid arm mounted at its lower end upon both vertical and transverse axis upon the top of said vehicle, springs connected to the lower portion of said arm for raising the same toward a vertical position, and a telescopic end section carrying a contact wheel at its free end and fitting into said tubular arm, and a spring within said arm acting against said end section for projecting the same, whereby said arm may be moved into operative position toward either end of the car without detaching the contact device from the conductor. 7th. In an electric railway, the combination, with an overhead conductor, and a moving vehicle, of a contact-carrying arm hinged to the top of the car, springs coiled about the axis thereof, their free ends engaging the said arm, detent devices connected to the other ends of said springs, and devices adjustably engaging the detents, whereby the tension of the springs may be adjusted. 8th. In an electric railway, the combination, with an overhead conductor, and a moving vehicle, of a contact carrying arm hinged to the top of the car, springs coiled on the axis thereof, their free ends engaging the shank of the arm, ratchets, as Q, mounted on said axis, the inner end of said spring being secured to the interior of the ratchets, and ratchets, as *q*, rigidly secured on said axis and having teeth engaging the teeth on the ratchets Q, whereby the tension of the spring may be adjusted. 9th. In an electric railway, the combination, with an overhead conductor, and a moving vehicle, of an arm hinged to the top of the car, a contact wheel engaging the underside of said conductor, the axis thereof being pivoted in a fork on the end of the arm, and an arm or arms, as L, pivoted at one end to the prongs of the fork, and at their outer ends engaging the hub of the contact wheel, whereby external contact is made between the conductor and the arm. 10th. In an electric railway, the combination, with an overhead conductor, and a moving vehicle, of an arm hinged to the top of the car, a contact wheel engaging the under side of said conductor, the axis thereof being pivoted in a fork on the end of the arm, and arms, as L, L, pivoted at one end to the prongs of the fork and embracing the hub of the contact wheel, and an adjustable spring connecting the outer ends of said arms.

No. 33,196. Contact Arm for Electric Railway Cars. (*Bras de contact pour les chars des chemins de fer électriques.*)

Charles J. Van Depoele, Lynn, Mass., U.S., 20th December, 1889; 10 years.

Claim.—1st. In electric railways, contact arm carrying a contact device at its free extremity, and hinged at or near its lower end in a support adapted to be mounted upon the roof of a car or vehicle, and a plurality of tension springs connected to the lower part of the arm and to its support and co-acting under tension to impart upward pressure to the free end thereof. 2nd. In electric railways, a contact arm carrying a contact device at its free extremity, and hinged at or near its lower end in a support adapted to be mounted upon the roof of a car or vehicle, and two sets of tension springs connected to the arm and to its support and co-acting under tension to press the outer end of the arm upward from either direction. 3rd. In electric railways, a car provided with a contact carrying arm having a contact device at its free extremity, and mounted at or near its lower end upon a support located upon the top of the car, and tension springs connected to the lower part of the said arm and to its support from opposing directions, and co-acting under tension to impart upward pressure thereto. 4th. The combination, with an electric railway car, of a contact carrying arm extending upwardly therefrom and pivotally supported near its lower end, and oppositely acting tension springs connected to the lower part of the arm and to its support, and arranged to co-act under tension to impart upward movement in the free end thereof. 5th. In electric railways, a contact arm carrying a contact device at its free extremity, and hinged at or near its lower end in supports adapted to be mounted upon the roof of the car, pressure-equalizing devices at the lower end of said arm below its support, and tension springs connected to said lower extremity and to the support from opposite directions, and co-acting under tension to impart upward movement to the free end thereof. 6th. In electric railways, an upward pressure contact device comprising a suitable base, a bifurcated support pivoted upon said base, an arm having a contact device at its free extremity and pivoted near its lower end in the bifurcated support, and tension springs connected to the lower portion of the arm below its pivot and from opposing directions, said springs co-acting to impart upward movement to the free extremity of the arm. 7th. A contact wheel or trolley having metal contact

surfaces and non-metallic anti-friction bearings supporting each end of the axis thereof. 8th. A contact wheel having a grooved metallic periphery, a metallic hub and non-metallic bearings supporting each end of the axis thereof, and contact-making devices electrically connecting the contact wheel and its supports. 9th. A contact wheel having a grooved metallic outer portion to receive the conductor, non-metallic anti friction bearings rotatively sustaining said metallic portion, and electrical connections between the metallic portions of the wheels, and suitable connections for carrying the current collected thereby. 10th. The combination, with a bifurcated support, of non-metallic anti-friction bearings therein, a metallic grooved contact wheel mounted between said bearings, and contact devices carried by the support and engaging the exterior of the contact wheel. 11th. The combination, with a metallic support, non-metallic bearings therein, and a grooved metallic contact wheel mounted in the non-metallic bearings and insulated thereby from its support, of contact devices connected to the support and in electrical connection with the metallic contact wheel. 12th. A contact wheel having a solid metallic hub, and removable flanges adapted to be secured to said hub and having a groove between their upper edges. 13th. The combination, of a metallic contact wheel, anti-friction supports or bearings therefor, and carbon contacts spring-pressed upon the exterior of the hub of the wheel. 14th. The combination of a bifurcated support, a contact wheel mounted therein, and guides R for deflecting the wheel and protecting it from injury.

No. 33,197. Car Seat. (*Banquette de char.*)

Athol B. Macklin, Toronto, Ont., 20th December, 1889 ; 5 years.

Claim—1st. The combination, with a transversely movable car seat cushion, of the back B thereof, and the links g, g and G, G, as described. 2nd. The combination, with a back B, links g and G, transversely movable car seat cushion and transverse plates a, a, secured to its under surface, having a flange projecting from the edge thereof, whose inner wall is inversely bevelled, of the rectangular frame C, side frame D supporting the same, and the transverse guide plates c, c. as set forth. 3rd. In a car seat, the combination, with a transversely movable seat cushion and transverse plates a, a, secured to its under side, having a flange projecting from one longitudinal edge thereof, and provided with a longitudinal series of holes therein, of the rectangular frame C, transverse guide plates c, rock shaft d, arms E, and bolts f, f, as and for the purpose set forth. 4th. The combination, with back B, links g, g and G, G, a car seat cushion, transverse plates secured to the bottom thereof, having flanges along one edge, and provided with a longitudinal series of holes, of the rectangular frame C, side frame D, supporting the same, rock shaft d, handle d^1, arms E, bolts f, f, and torsion spring F, as set forth.

No. 33,198. Farm Gate. (*Barrière de ferme.*)

John P. Irwin, Newark, Ohio, U.S., 20th December, 1889 ; 5 years.

Claim.—The combination, with a flexible gate, substantially as indicated, of braces arranged in pairs to embrace the gate, the braces being connected by bolts above the upper two rails and below the lower two rails, so as to engage the edges of these rails, said braces being pivoted at the centre thereof to the centre rail of the gate, and midway between the front and middle cross-bars of the gate, substantially as set forth.

No. 33,199. Clevis. (*Fer d'attelage.*)

Converse Averitt, Blakely, Ga., U.S., 20th December, 1889 ; 5 years.

Claim.—The combination, with the clevis strap 3 bolted to the sides of the beam, and the horizontal key-hole slot 4, in combinatien with the block 10, the clip 6, and the key 8 having the shank 9, and vertical fins 11a adapted to fit within the slot 4, substantially as specified.

No. 33,200. Electric Valve Operating Device. (*Appareil pour actionner les soupapes électriques.*)

Frank M. Sparrow, Matapoisett, Mass., U.S., 20th December, 1889; 5 years.

Claim—1st. The combination, with a rotary shaft, of an electric motor arranged to rotate the shaft, a battery, a circuit controlling device in connection with the battery, and having two contacts, a circuit-controlling switch having a main metallic portion in connection with the battery, and having insulated portions in connection with the opposite contacts of the circuit-controlling device, and a brush carried by said shaft and travelling past the main portion and the insulated portions of said circuit-controlling switch, substantially as described. 2nd. The combination, with a rotary shaft, of an electro-magnet, operative reciprocating connections including an armature betweeen said magnet and shaft, whereby the latter is rotated as the former is energized, an intermittent switch consisting of a bar or plug mounted loosely in a suitable part of said reciprocating connections, and stops carried by some stationary part of the frame with which said switch comes in contact, as the said connections reciprocate to shift it in its seat and thereby regulate the electric current to the magnet, substantially as described. 3rd. In an electric valve-regulating device, the combination of an electric motor having a rotary shaft movable with a progressive step-by-step motion, a mechanical connection between said shaft and the valve to be regulated for transmitting the motion of the one to the other, and a counter-balance for said valve, substantially as described. 4th. In an electric valve-regulating device, the combination, with two valves to be regulated, one opened when the other is closed, and *vice-versa*, of an electric motor having a rotary shaft movable with a progressive step-by-step motion, and connections between said shaft and valves, substantially as described. 5th. In an electric valve-regulating device, the combination of two valves or dampers, flexible connections between the same, and an electric motor having a cranked rotary shaft movable with a progressive step-by-step motion to which said connections are secured between said valves, whereby the motor is relieved of the weight of the valve, substantially as described. 6th. The combination, with a valve-operating mechanism, of an electric motor which moves said mechanism, a main circuit in which is situated said motor, a partial circuit containing a thermostat or its equivalent, and a switch between said circuit operated by the motor when the thermostat makes contact, to cut out the partial circuit containing the thermostat and to close the main circuit direct, substantially as set forth. 7th. The combination, with a valve-operating mechanism, of an electric motor actuating the same, a thermostat, a circuit-breaking disk or wheel, a main circuit in which is the motor and including a conducting-plate of the circuit-breaking disk, a partial circuit in which is situated the thermostat including insulated plates of said disk, and a brush switch moved by the electric motor normally resting on one of said insulated plates and arranged, when circuit is closed, through the partial circuit by the thermostat, to move onto the main conducting-plate and cut out the thermostat, substantially as set forth. 8th. The combination, with a valve-controlling mechanism, of an electric motor arranged to operate said mechanism, a thermostat or its equivalent, a circuit-breaking disk having a main metallic portion a in connection with the battery and also with the thermostat, and having also insulated portions in connection with the opposite contacts of the thermostat, and a brush in connection with the motor and adapted to bear on said circuit-breaking disk, substantially as described. 9th. The combination, with a valve-operating mechanism, and a thermostat controlling the movements of the valve-operating mechanism, of a swinging armature, operative connections between said armature and valve-operating mechanism, an electro-magnet opposite the armature, a circuit in which is said magnet, and an automatic switch which reverses the current in the magnet, whereby the armature is alternately attracted and repelled, substantially as set forth. 10th. The combination, with a shaft adapted to operate a damper or valve, and a thermostat controlling the movements of the shaft, of a swinging armature loosely hung upon the shaft connections between the shaft and armature, whereby the latter is turned with a step-by-step motion as the armature vibrates, an electro-magnet mounted opposite said armature, a circuit in which is said magnet, and a switch which alternately reverses the current as the armature vibrates, substantially as set forth. 11th. The combination, with a valve-operating mechanism, and a thermostat controlling the movements, of the valve-operating mechanism, of a swinging armature, operative connection between said armature and valve-operating mechanism, an electro-magnet opposite the armature, a circuit in which is situated said magnet, a switch carried by said armature and stops which change its position as the armature swings, whereby the current in the magnet is reversed, substantially as described. 12th. The combination, with a valve-operating mechanism, and a thermostat controlling the starting of the said mechanism, of a swinging armature which moves said mechanism, carrying a magnet having its poles mounted opposite the poles of the armature magnet, a circuit in which is placed said electro magnet, and a switch in said circuit which reverses the current in said electro-magnet as the armature is vibrated, substantially as set forth.

No. 33,201. Washing Machine. (*Machine à blanchir.*)

Lewis N. Campbell and John P. Miller, Wilmington, Del., U. S., 20th December, 1889; 5 years.

Claim.—1st. In a washing machine, the combination, with a rubbing board having a reciprocating motion, of rods pivotally connected with the rubbing board, a transversely extending bar mounted to turn and through which the rods pass loosely, springs held on the rods and pressing against the bar, and brackets having slots adapted to hold the transversely extending bar, substantially as shown and described. 2nd. The combination, with the tub A and rubber G, of brackets B secured to opposite sides of the tub, provided at their ends with longitudinally extending slots forming ways B^3, B^3, and provided between said slots with ribs B^7, boxes B^1, B^2, grooved to fit the ways B^3, B^3, rods B^4 extending from the boxes B^2, apertured lugs B^5 through which said rods pass, nuts on said rods, the board F resting at its ends on the ribs B^7, shafts journalled in the boxes B^1, B^2, wheels on the shafts, and an endless series of rollers carried by the wheels, substantially as shown and described.

No. 33,202. Nailing Machine for Boots and Shoes. (*Machine à clouer les chaussures.*)

Stillman W. Robinson, Columbus, Ohio, U. S., 20th December, 1889 ; 5 years.

Claim.—In a nailing machine, the combination of the frame a, the crank c, pitman d and driver h, with the shaft e, finger g and spring k, substantially as and for the purpose described.

No. 33,203. Hame Fastener. (*Couplière d'attelles.*)

Alfred Fellows, Frank M. Gable, James D. Nooney and John Nooney, Lansing, Kan., U.S., 20th December, 1889 ; 5 years.

Claim—In a hame fastener, the combination, with the casing provided with a hook at one end, designed to be secured to one of a pair of hames, and having parallel sides a provided with a series of adjusting holes, the lever pivoted intermediate of its ends between the sides a, and having a curved end c^2 and the adjusting screw, of the metal strap designed to have one end connected to the other hame, and having its other end curved to engage the curved end of the lever, substantially as described.

No. 33,204. Elevator Lock.

(*Arrête monte-charge.*)

George R. Holder, St. Thomas, Ont., 20th December, 1889 ; 5 years.

Claim.—The combination of the revolving cam E and the sliding jaws J, J, substantially as and for the purpose hereinbefore set forth.

No. 33,205. Wire Stretcher.

(*Tendeur de fil de fer.*)

Frederick J. Townsend, Painted Post, N. Y., U.S., 20th December, 1889 ; 5 years.

Claim.—1st. The hereinbefore described wire stretcher, consisting of the lever B, having the curved bottom slot formed in one end, the nose iron C having teeth *a* on one end, and its other end curved or cut off at an angle, the staple D provided with an eye *d*, the link E, the swivel-link *e*, the bar G, the elongated links F, the tongs having its handles *g* connected with said elongated links, and the corrugated jaws *m*, *n* projecting laterally from said handles, one of said jaws *m* extending beyond the other and tapering to a blunt point *o*, as set forth. 2nd. The combination, in a wire stretcher, of the lever B, the tongs having laterally projecting jaws *m*, *n*, one of which *m* extends beyond the other and tapers to a blunt point *o*, and a chain for connecting said lever and tongs, substantially as described. 3rd. The combination, in a wire stretcher, of the lever B, the tongs having laterally projecting jaws *m*, *n*, one of which *m* projects beyond the other, and each of which is recessed on its inner face, the corrugated plates *r*, having the countersunk perforations and adapted to fit said recesses, screws or rivets for securing said plates in the recesses, and a chain connecting said lever and the handles of the tongs, substantially as described. 4th. The combination, in a wire stretcher, of the tongs *f* having the corrugated jaws *m*, *n* projecting laterally therefrom, the faces of said corrugated jaws curving diagonally from corner to corner, and the corrugations trending backward at an acute angle to the body of the tongs, substantially as described. 5th. The hereinbefore described tongs for a wire-stretcher, consisting of the handles *g* pivotally secured together, the laterally projecting jaws *m*, *n*, said jaws having recesses formed in their contiguous faces, the plates having recessed backs and curving diagonally from corner to corner on their upper surfaces, and having corrugations formed on said curved faces, said corrugations trending at an acute angle rearwardly from the handles of the tongs, substantially as described.

No. 33,206. Sleigh and Sled. (*Traineau.*)

Albert H. Sawyer, North Weare, N.H., U.S., 20th December, 1889 ; 5 years.

Claim.—1st. The combination, with a body D, a rock-shaft *a*, arms a^1 for the rock-shaft, and a spring S secured to the shaft and engaging the body, of runners C, and a device A to maintain the body and runners in vertical yielding connection, and prevent lateral motion of the body, substantially as set forth. 2nd. The combination, with a body D, two rock-shafts *a*, having arms a^1 on their outer ends, and two torsional springs S, of a pair of runners C, springs B secured at their ends to the runners, and a yielding device A adapted to hold the body from side motion and permit a vertical reciprocation of said body, substantially as set forth. 3rd. The combination, with a body D, a transverse bolster G, runners C, and two plate springs B secured to the runners, of a rock-shaft *a*, having arms a^1 located in the same plane and adapted to be hinged to two knee pieces, a spiral spring S located on the rock-shaft, and two knee pieces A jointed to the rock arms, and runners having flexible joints that yield only in line with the runners, substantially as set forth. 4th. The combination, with a body D, a bolster G, a pair of runners C, and plate springs B hinged to the runners, of two rock-shafts *a* located in axial alignment and connected to the underside of the body, so as to rock, spiral springs S secured to and mounted on the rock-shafts, two rock arms *a* on the ends of the rock-shafts, and knee pieces A hinged to the rock arms and runners, and adapted to prevent any lateral motion of the body and permit free vertical reciprocation of said body, substantially as set forth. 5th. The combination, with a sled body D provided with two independent sets of runners C, of rock arms a^1, springs B connecting the body and runners, and knee-pieces A hinged to the rock arms and runners, the forward set of runners being provided with a swiveling device to permit it to swing laterally, substantially as set forth. 6th. The combination, with a sleigh or sled body D, two independent sets of runners C, plate spring B bowed and hinged by their ends to the runners, and a bolster plate G for the rear set of runners, of rock shafts *a* for each set of runners, rock arms a^1 on these shafts, springs S that are mounted on the shafts, knee pieces A hinged to the rock arms and the runners, and a swiveling device for the front pair of runners, substantially as set forth.

No. 33,207. Manufacture of Artificial Granite. (*Fabrication du granit artificiel.*)

Paul de Kristoffovitch, Paris, France, 20th December, 1889 ; 5 years.

Claim.—The improved manufacture of artificial stone or granite, termed "Pyrogranite," consisting in the mixture of two clays, one of which has a high melting point, and is dried and pulverized or granulated, while the other has a lower melting point and is first baked and then pulverized or granulated, these clays being intimately mixed in the proportions of from one to three to two to one of either kind, and after moistening the mixture subjecting the same to pressure in moulds, then thoroughly drying the same, and finally subjecting the mass to a temperature at which the less fusible clay will melt either wholly or partially, whereby it is made to envelope the granules of the less fusible clay, and a hard, dense product, resembling granite or marble, is obtained, substantially as herein described.

No. 33,208. Nail. (*Clou.*)

Thomas B. Norgate and Alexander H. Milne, Victoria, B. C., 20th December, 1889 ; 5 years.

Claim.—1st. The right-angled thread A, in combination with the body B, head C and point D, substantially as and for the purpose hereinbefore set forth. 2nd. The annular ring, in combination with the body B, thread A and point D, substantially as and for the purpose hereinbefore set forth. 3rd. The combination of the tail E, with the body B and head C, also the thread A and flats *a*, *b*, *c*, substantially as and for the purpose hereinbefore set forth. 4th. The cutting away of the thread at the neck, in combination with the head C, body B, thread A and point D, substantially as and for the purpose hereinbefore set forth. 5th. The combination of the head C, body and worm A B and point D, together with the washer *k*, substantially as and for the purposes hereinbefore set forth.

No. 33,209. Case for Packing Butter, etc.

(*Caisse pour empaqueter le beurre, etc.*)

Joseph F. Rusling, Lawrenceville, Penn., U.S., 21st December, 1889 ; 5 years.

Claim.—1st. The herein described case for packing butter, etc., provided with a bottom and a hole therein, a removable false bottom having an extension adapted to project through the hole in the bottom, and a sealing cap C, substantially as described. 2nd. The herein described case for packing butter, etc., composed of two parts connected together by a securing ring, and each provided with a bottom having a hole therein, removable false bottoms having extensions adapted to the holes in the bottoms, and a sealing cap adapted to said projections and clamping the false bottoms against the bottoms of the case, substantially as described. 3rd. The herein described case for packing butter, etc., provided with a bottom and a hole therein, a removable false bottom having an extension adapted to project through the hole in the bottom, and a sealing cap provided with an extended base, substantially as described.

No. 33,210. Means for Assuring Perfect Combustion in Furnaces, Boilers and Boiler Furnaces of every Kind.

(*Moyens d'assurer une combustion parfaite dans les fourneaux, les chaudières et les foyers des chaudières de toutes sortes.*)

John Livingston, Toronto, Ont., 21st December, 1889 ; 5 years.

Claim—1st. The combination of woven sleeve lined tubes, tunnels or pipes, in and with vessel A. 2nd. The combination of perforated pipe E, E, encased in woven metal sleeve linings, in and with superheaters D, D. 3rd. The superheaters D, D, with and without any combination therein, with tapering holes or nozzles, as substantially described and seen as Fig. 4. 4th. The use of zinc strips, shavings or pieces of metal and iron filings, turnings, or small pieces in the boiler in vessel A and in the superheaters D, D, or in either of them, to aid combustion. 5th. The nozzles F, F, F in each of the superheaters D, for the purpose herein stated, as part of said invention, to aid combustion. 6th. The use of steam in combination with metal and metal particles, to aid combustion by producing combustible gases, substantially as described. 7th. The use of steam in combination with metal, metal particles and hydro-carbons to aid combustion by producing and enriching the combustible gases. 8th. The hollow headers, in combination with the centre and hollow grate bars for the admission of air, its circulation through the other hollow grate bars and expulsion through the upper part of the bars into the furnace. 9th. The hollow headers, in combination with the centre grate bar and connection with inlet jet of steam by it, to accelerate motion and pressure upon the particles of the inflowing air, by the hollow headers and grate bars to aid in disuniting the component gases of the steam and of the air and exit by the bars into the furnace above the fire bed. 10th. The hollow headers, perforated on top or with perforated plugs, in combination with air inlet or steam jet. 11th. The several parts of the described invention, as one united whole.

No. 33,211. Mechanical Telephone.

(*Téléphone mécanique.*)

George F. Shaver, New York, N. Y., U. S., 21st December, 1889 ; 5 years.

Claim—1st. In a mechanical telephone, the combination of a diaphragm, on apertured sounding board under tension extending entirely over and supporting said diaphragm, and a connecting line wire, substantially as set forth. 2nd. In a mechanical telephone, a supporting frame or case in combination with an apertured sounding board extending over the entire front of said case, and supporting under tension a diaphragm connected with a line wire F, attached beneath or back of the said sounding board B, substantially as herein set forth. 3rd. In a mechanical telephone, a supporting frame or case in combination with a diaphragm and a sounding board under tension extending across the face of the said diaphragm and forming a support therefor, and provided with a central opening and a concentrating mouth piece, substantially as set forth. 4th. In a mechanical telephone having a sounding board extending across the face of the telephone, and provided with a central aperture, the said sounding board being under tension while in use, the combination with the sounding board, of a line wire and a diaphragm secured to the inner or under side of said sounding board and adapted to vibrate simultaneously with the same. 5th. In a mechanical telephone, the combination of a frame or case, a sounding board extending over the front of the said case and having a central aperture, a diaphragm secured to the inner side of the same, and a converging reflector, as set forth. 6th. In a mechanical telephone, the combination of the string pieces A, side boards A^2, sounding boards A^3, B, I, corner posts A^4, mouth piece C, reflector E, diaphragm D, the line wire F and sounding posts H, substantially as herein set forth.

No. 33,212. Letter for Signs, etc.

(Lettre pour les enseignes, etc.)

Charles T. Snedeker, St Louis, Mo., U.S., 21st December, 1889; 5 years.

Claim.—A device for advertising upon windows and signs consisting of letters, figures or other analogous articles moulded from a compound consisting of cement, and marble dust or plaster paris, having depressed portions in its faces, substantially as described.

No 33,213. Power Mechanism for Baling Presses. *(Mécanisme à puissance pour les presses d'emballage.)*

George Ertel, Quincy, Ill., U.S., 21st December, 1889; 5 years.

Claim.—1st. The combination, with the plunger pitman, and the sweep having two rollers or bearing points on its head, of a knuckle or link pivoted at one end to the press frame, at a point between the sweep head pivot and the range of travel of the rollers or bearing points of the sweep head, and pivoted at its other end to the plunger pitman so as to give two effective rearwardly pushing strokes of the plunger for each complete turn of the sweep, said knuckle having an outer face formed with a curve or incline where the sweep head first strikes it, to give a quick initial movement to the plunger and assure its gradually decreasing speed as the plunger is completing its rearward effective pushing stroke, substantially as herein set forth. 2nd. The combination, with the plunger pitman and the sweep having a bearing point or roller on its head, and a knuckle or link pivoted at one end to the press frame at a point between the sweep head pivot and the range of travel of the sweep head bearing point or roller, and pivoted at its other end to the pitman, a spring arranged to be struck and put in tension by the pitman to assure rebound of the plunger after the sweep head bearing point or roller slips past the end of the knuckle, substantially as herein set forth. 3rd. The combination, with the bed or frame A, and the front truck *d* D D of the press, of a yoke C connected to the axle, a plate *a* on the frame and resting on the yoke, a vertical shaft B on the frame and passing through the parts *a* C as a king bolt, a sweep head F on said shaft, a sleeve I, and pin *b* on the shaft, and a knuckle L pivoted at *l* to the press frame, and adapted for engagement by the sweep head, substantially as shown and described. 4th. The combination, with the press frame, of a bracket E having base *e* and ledge *e l*, a shaft B, and pin *b*, a knuckle L pivoted on a pin *l* between the parts *e*, *e l*, and connected at its outer end to the plunger pitman, a sweep having a head F fulcrumed on the shaft B, and having rollers K, K, a sleeve I on said shaft, a track P on the press frame, and a roller *o* next the joint of the knuckle and pitman, substantially as herein set forth.

No. 33,214. Machine for Boring Brush Bodies. *(Machine à percer les plaques des brosses.)*

McClintock Young, Frederick, Md., U.S., 21st December, 1889; 5 years.

Claim.—1st. In a boring machine and in combination with a bed or support, the rest consisting of the vertically movable arms, each having a series of steps or shoulders. 2nd. The bed or support in combination with the shouldered arms D, D^1, the rock-shaft on which they are mounted, its operating arm or lever, and the plate to lock the lever. 3rd. In a machine for boring brush blocks, a frame and a fixed bed or table thereon, in combination with the vertically movable cross-head mounted on the frame, the counter-weight to lift the head, the treadle and its connections to depress the head, and the series of boring spindles mounted to rotate freely in the head, but fixed against end motion therein, whereby the rising and falling motion of the head is caused to raise and lower the series of spindles. 4th. In a machine for boring brush-blocks, the fixed bed or table, the vertically movable head provided with the series of spindles, and the shouldered movable arms D, D^1, acting to hold the block in different positions on the table, said elements combined substantially as shown. 5th. In a boring machine, the bed or table, and the fixed bar H^1 above the same, in combination with the vertically sliding head F, and the boring spindles mounted at their upper ends in said head, and sliding at their lower ends through bar H^1. 6th. In a boring machine, a vertically sliding head, a series of upright boring spindles mounted to rotate in said head but fixed against end motion therein, a horizontal driving shaft mounted in bearings on the head, and the series of pinions connecting the horizontal shaft with the vertical spindles, as described and shown. 7th. In a boring machine, two parallel boring spindles, one of which is provided with a driving pinion at its end, in combination with overlapping non-connecting pinions applied to the respective spindles, and a longer pinion connecting the overlapping spindle pinions, as herein described and shown, whereby one pinion is caused to communicate motion to the other, and the two pinions permitted to stand in close proximity. 8th. In a boring machine, the driving shaft H, and the boring spindles geared directly thereto, in combination with pinions on said spindles, the intermediate spindles with their pinions overlapping those of the first-named spindles, and the intermediate connecting pinions, as shown, whereby the spindles are all positively driven and their arrangement in close order permitted. 9th. In combination with the fixed guide H^1, and the inclined boring spindles sliding therethrough, the vertically movable head, the vertically driving spindles *k* therein, and the intermediate spindles *k* connected to the others by universal joints.

No. 33,215. Machine for Dyeing Cotton and Analogous Materials. *(Machine à tiendre le coton et les matières analogues.)*

Leonard Weldon, Amsterdam, N.Y., U.S., 21st December, 1889; 5 years.

Claim.—1st. In combination with the vat A, the rotary drum C divided into separate and distinct compartments and perforated to admit the dye liquor, and breaker bars *e*, *e*, extending through the central portions of the compartments, as and for the purpose set forth. 2nd. In combination with the vat A, the rotary drum C formed with the central cylinder *c*, and tangential partitions *a*, *a*, *a*, extending from said cylinder to the periphery of the drum, dividing the latter into a series of separate and distinct compartments, and breaker bars *e*, *e*, extending through the central portions of the compartments, substantially as described and shown. 3rd. In combination with the vat A, the rotary drum C divided into separate and distinct longitudinal compartments, the rotary breaker bars *e*, *e*, extended longitudinally through the central portions of said compartments and pivoted to the heads of the drum, and having their journals extending through one of said heads, pinions on the protruding ends of said journals, the breast D rising from the vat, and the segmental rack *n* attached to said breast, substantially as described and shown.

No. 33,216. Compensator for Railway Signal and Switch Connections.

(Compensateur pour les raccordements des signaux et aiguilles de chemins de fer.)

Albert E. Mitchell, Paterson, N.J., and William N. Stevens, Brooklyn, N.Y., U.S., 21st December, 1889; 5 years.

Claim.—1st. The combination, with two movable bodies located at a distance from each other, and wires for transmitting motion from one to the other, of a plate sliding on ways, mechanism mounted on said plate and to which the wires are connected so as to move simultaneously therewith, a weight attached to the sliding plate, and a horizontal bar connecting the mechanism on the plate, with one of the movable bodies, and adapted to have a movement in a direction at a right angle to, and simultaneously with the movement of the wires, substantially as specified. 2nd. In a compensator, a bar L capable only of end reciprocating movement, a plate having end reciprocating movement in a plane at a right angle to the movement of the bar L, combined with connected cranks pivoted in said plate, to one of which cranks the operating wires are attached, and a bar K carried by said cranks and engaging with the bar L, substantially as set forth. 3rd. In a compensator, a bar L capable only of end reciprocating movement, a plate having end reciprocating movement in a plane at a right angle to that of the bar L, a bar K carried by said plate and engaging said bar L by a sliding connection, and means also carried by said plate for giving movement to said bar K, substantially as set forth. 4th. In a compensator, a bar L capable only of vertical reciprocal movement, a plate A sliding on ways and capable only of horizontal reciprocating movement, combined with the connected cranks G and H pivoted to said plate, a bar K carried by said cranks and engaging the bar L by a sliding connection, and the safety attachment N mounted on one of the cranks and to which the operating wires are attached, substantially as set forth. 5th. The plate A having end reciprocating movement in tracks B, and carrying the connected cranks G and H, bar K and safety attachment N combined with the wires O, O^1, bar D, chain *d*, pulley E, and weight X, substantially as set forth. 6th. In a compensator, the plate A and crank G, having the grooved posts M combined with the safety attachment N, substantially as set forth. 7th. In a compensator, the crank G and grooved posts M, combined with the safety attachment N having the notches *n* in front of the centre of the said posts M^1, substantially as set forth. 8th. In a compensator, a sliding plate, a T-crank pivoted on said plate, posts attached to the ends of said T-crank, said posts having grooves combined with a safety attachment which rests in said grooves and to which the operating wires are attached, and a weight connected to said sliding plate, substantially as set forth,

No. 33,217. Centrifugal Butter Extractor.

(Extracteur centrifuge du beurre.)

Adolph Wahlin, Stockholm, Sweden, 21st December, 1889; 5 years.

Claim.—1st. The combination, in a centrifugal separator, of an inner cream separating vessel, means for supplying milk to the same, a stationary vessel for the reception of the cream discharged from the cream separator, and an outer centrifugal butter separator into which the cream is returned from the stationary receptacle, substantially as set forth. 2nd. The centrifugal butter separator having annular shelves, and a conical interior surface, and a supply for the cream at the smaller end of the centrifugal butter separator, and a discharge opening and stationary receiving trough near the larger end of the centrifugal separator, substantially as set forth. 3rd. The centrifugal butter separator having annular shelves, and openings *h* in the shelves, and means for supplying cream to the smaller end of the separator, and for discharging the butter and buttermilk at the larger end of the separator, whereby successive separations are performed between one shelf and the next, and the buttermilk is contiguous to the interior surface of the separator, substantially as set forth. 4th. The centrifugal cream separator A and the butter separator B surrounding the same, and means for revolving the said separator, in combination with a stationary cream holder into which the end of the centrifugal cream separator passes, a spout through which cream can be discharged from the holder, tubular openings for the passage of the cream into the butter separator, and a pipe for gradually supplying the milk to the cream separator, subetantially as set forth. 5th. The centrifugal butter separator having annular shelves and of larger diameter at the delivery end than at the supply end, in combination with the wires, or their equivalents, connected with the shelves and serving to slightly agitate or open out the battery particles, substantially as set forth. 6th. The combination, in a centrifugal separator, of a cream separator, and means for supplying milk into the same, and a discharge opening for the cream, a butter separator of larger diameter than the cream separator and into which the cream is passed, and a series of annular shelves in the butter separator for causing the buttery particles to be gathered and separated from the butter-milk, substantially as set forth.

No. 33,218. Water Heater. (*Calorifère à eau.*)

Eugene N. Gates, Fitchburg, Mass., U.S., 21st December, 1889; 5 years.

Claim.—1st. In a hot water heating apparatus, the combination of a fire-pot section having an outlet for hot water at its upper portion, a series of superposed sections arranged to be heated by the fire within the fire-pot section, and a return or inflow stand-pipe connected, as described, with the upper and lower portions of said superposed sections and with the lower portion of the fire-pot section, as set forth. 2nd. In a hot water heating apparatus, the combination of a fire-pot section, a series of superposed sections arranged to be heated by the fire within the fire-pot section, a return or inflow stand-pipe, connected, as described, with the upper and lower portions of said superposed sections and with the lower portion of the fire-pot section, and an outflow pipe or pipes connected with the upper portion of the fire-pot section, as set forth. 3rd. In a hot water heating apparatus, the combination of a fire-pot section, a series of superposed sections arranged to be heated by the fire within the fire-pot section, an outflow pipe connected with the upper portion of the fire-pot section, and with the upper and lower portions of one or more of said superposed sections, and a return or inflow pipe connected with the upper and lower portions of the other superposed sections and with the lower portion of the fire-pot section, as set forth. 4th. In a hot water heating system, the combination of a fire-pot section, and a series of superposed sections above the same, outflow pipes communicating with the upper portion of the fire-pot section, and conducting heated water therefrom, return pipes conducting the return water to the highest of the superposed sections, and connections between said superposed sections and the fire-pot section, whereby the return water, the outflow of which is induced by the upward flow of heated water from the fire-pot section, is conducted from the upper superposed section successively through the other sections of said series and into the lower portion of the fire-pot section, as set forth. 5th. In a hot water heating apparatus, the combination of the fire-pot section *a*, the superposed sections *b* relatively arranged as described, and each composed of a hollow wall or water leg, and a horizontal chamber located within the water leg and above its lower portion, said chamber being separated from the water leg at one side by an opening 4, the stand-pipe *d* connected, as described, with the upper and lower portions of the sections *b*, and with the lower portion of the fire-pot section, and an outflow pipe or pipes communicationg with the upper portion of the fire-pot section, as set forth.

No. 33,219. Sawing Machine. (*Scierie.*)

John De Graff, Dunkerton, Iowa., U. S., 21st December 1889; 5 years.

Claim.—1st. The combination, with the buck and driving shaft 12 and the crank wheel 15, of the vertically swinging counterbalanced frame 17 mounted loosely on said shaft, the guide-plate 20 attached to one side of said frame, the saw carrying frame 21 operated by a pitman and sliding on the guide-plate, and the handle 30, which is rigidly attached to the frame 17 and projects forward parallel to the saw frame so that it may be conveniently grasped by the operator standing in front of the buck, and the saw carrying frame depressed and raised, as required.

No. 33,220. Wedge Buckle. (*Boucle à clé.*)

Anton Tehnik, Hronow, Bohemia, 21st December, 1889; 5 years.

Claim—In the construction of a wedge-buckle, the employment of a sheath *a* having tapering cheeks or sides *b*, in combination with a locking device *d* provided with corresponding tapering sides *c* and a tranverse edge or locking handle *e*, all arranged and operating substantially as described.

No. 33,221. Drying Apparatus. (*Essoreuse.*)

Joseph F. Gent, Columbus, Ind., U. S., 21st December, 1889; 15 years.

Claim.—1st. In a drying apparatus, the combination, with revolving floors having central apertures, of a central tubular air shaft, and a driving shaft for said floors extending through said central apertures, substantially as described. 2nd. In a drying apparatus, the combination, with the revolving floors having central apertures surrounding a central air shaft, said apertures being provided with internal gears supported from said shaft above said floors and provided with gear teeth on one of their horizontal faces, of a stirrer and a leveller for each floor having their shafts provided with gears engaging the teeth on the horizontal faces of said internal gears, a driving shaft extending through said central apertures and provided with pinions engaging said internal gears, substantially as described. 3rd. In a drying apparatus, the combination, with the revolving floors surrounding a stationary central air shaft, of an internal gear provided with gear teeth on one of its horizontal faces, and with a peripheral groove, a ring in said groove connected to said central shaft, a driving shaft engaging said internal gear, and a stirrer and leveller for each floor having gears engaging the gear teeth on the horizontal face of said internal gear, substantially as described. 4th. In a drying apparatus, the combination, with a stationary central air shaft, of a revolving floor surrounding the same, a gear ring surrounding said shaft, the gear ring support, a driving shaft engaging said gear ring, a stirrer having a gear engaging the gear ring, substantially as described. 5th. In a drying apparatus, the combination, with revolving floors one above the other, having central apertures surrounding a central air shaft, the said apertures being provided with gear rings, gear rings supported from said central shaft above said floors, a stirrer for each floor having their shafts provided with gears engaging the gear rings above the floors, a driving shaft extending through the central apertures of the floors, provided with pinions engaging all of said gear rings, substantially as described. 6th. In a drying apparatus, the combination, with a series of revolving drying floors located one above the other and provided with central apertures, and a stirrer and a leveller for each floor, of a central air shaft extending upward through the apertures of said floors, and a driving shaft for said stirring and said levelling device extending through the apertures of the floors, between the air shaft and the inner edges of said floors, substantially as described. 7th. A drying apparatus consisting of a number of revolving floors located one above the other, each floor being composed of radial series of dumping section pivoted at right angles to the radius of the floor, each series of sections of one floor being adapted to dump at a point in advance of the dumping point of the floor below, substantially as described. 8th. In a drying apparatus, the combination, with a number of rotating floors arranged one above the other, and composed of radial series of dumping sections pivoted at right angles to the radius of the floor, of a leveller for each floor, substantially as described. 9th. In a drying apparatus, the combination, with a number of rotating floors arranged one above the other, and composed of several series of dumping sections dumping towards the centers of said floors, of a leveller for each floor, the dumping point of each floor being between the dumping point and the leveller of the floor below, substantially as described. 10th. A leveller consisting of a shaft provided with a spiral conveyor and a partial casing for said conveyor, one edge of said casing being located substantially in line with the center of said shaft and conveyor and beneath the same, substantially as described. 11th. A leveller consisting of a shaft provided with a right and left spiral conveyor joined near the center of the shaft, and a partial casing for said conveyor, substantially as described. 12th. A stirrer consisting of a shaft provided with scoops, each scoop having an approximately straight main body extending outwardly from the shaft at a tangent thereto and having an angular lip at its outer end, the shaft and said lip being on opposite sides of the main body, whereby a free rearward discharge is given each scoop on the opposite side of the shaft, substantially as described. 13th. A stirrer consisting of a shaft provided with scoops arranged in pairs extending tangentially from the shaft in opposite directions in a plane transveresely of the shaft, and attached on opposite sides of the same, each scoop having an approximately straight main body provided at its outer end with an angular lip, the shaft and said lip being on opposite sides of the main body, whereby a free rearward discharge is given each scoop on the opposite side of the shaft, substantially as described. 14th. A stirrer consisting of a shaft provided with scoops, each of said scoops having a main body attached to said shaft tangentially extending outwardly and provided at its outer end with an angular lip, and having a free discharge on the opposite sides of the shaft, the said scoops being arranged in series, each series consisting of two sets of scoops extending tangentially from the shaft in opposite directions, the sets of one series being located between the sets of the other series and at right angles thereto, substantially as described. 15th. A drying apparatus consisting of rotating floors located one above the other, each floor being composed of radial joists and sections of flooring pivoted between said radial joists of radial rods having a longitudinal movement located beneath said pivoted sections, and connected with said sections for dumping the same, substantially as described. 16th. In a drying apparatus, the combination, with rotating floors located one above the other, each floor being composed of radial joists and sections of flooring pivoted between said radial joists, of radial rods having a longitudinal movement located beneath said pivoted sections and connected with the same, arms depending from said rods and a cam mounted on a stationary part of the frame beneath each floor in the path of said depending arms, substantially as described. 17th. An apparatus for malting or germinating grain, consisting of perforated automatically dumping floors, one above the other, a casing surrounding and enclosing the same, an air outlet at the top, an air forcing device, an air tempering device and a sprinkler above each floor, substantially as described. 18th. An apparatus for malting or germinating grain, consisting of an outer casing, a series of perforated floors, one above the other, provided with automatically dumping sections, said floors having each a central aperture, an air supplying pipe extending through said apertures and provided with apertures to discharge air beneath each of said floors, a shaft for rotating said floors also extending through said openings, a water pipe extending within said openings and provided with a discharge above each floor, substantially as described. 19th. An apparatus for malting or germinating grain consisting of perforated floors, one above the other, having central apertures in each, a shaft for revolving said floors extending vertically through said apertures, and a water supply pipe extending also vertically through said apertures, and having a spraying discharge above each floor, the said floors having pivoted automatically dumping sections, the dumping point of each floor being a short distance in advance of the dumping point of the floor above, substantially as described. 20th. An apparatus for malting or germinating grain, consisting of an enclosing casing, revolving perforated floors, one above the other, an air pipe extending centrally through said floors and having a discharge opening beneath each floor, an air forcing and air moistening device communicating with said pipe, a water supply pipe extending within said air pipe and provided with a spraying discharge above each floor, and stirring and levelling devices above each floor, the said floors being provided with pivoted automatically dumping sections, the dumping point of each floor being slightly in advance of the floor above, substantially as described.

No. 33,222. Match Magazine and Lighter. (*Magasin à allumettes et allumeur.*)

James S. Foley, Chicago, Ill., U.S., and Joseph Ruse, Toronto, Ont., 21st December, 1889; 5 years.

Claim.—1st. A nozzle connected to a frame carrying a longitudinally adjustable plunger located opposite to the end of the said nozzle, in combination with a magazine designed to contain a number of stub matches and arranged to discharge the matches separately in front of the nozzle, so that the longitudinal movement of the plunger shall force the matches from the nozzle, substantially as

and for the purpose specified. 2nd. A nozzle connected to a frame carrying a longitudinally adjustable plunger, in combination with mechanism designed to convey a stub match to the mouth of the nozzle through which it is forced by the action of the plunger, substantially as and for the purpose specified. 3rd. A nozzle connected to a frame carrying a longitudinally adjustable plunger, and provided with a finger or fingers in front of the mouth of the nozzle, in combination with a magazine designed to contain a number of stub matches and arranged to discharge the matches separately in front of the nozzle, so that the longitudinal motion of the plunger shall force the igniting end of the stub match through the nozzle past the spring finger described, substantially as and for the purpose specified. 4th. A dog pivoted on a reciprocating bar or plunger, in combination with a plate pivoted substantially on the centre line of the motion of the plunger, in such a manner that the reciprocating movement of the plunger shall impart through the dog a rocking movement to the plate, substantially as and for the purpose specified. 5th. A nozzle A connected to the frame B between the magazine D, a plunger C suitably carried by the frame B, between the magazines D and immediately opposite to the end of the nozzle A, a dog I pivoted in the plunger C, in combination with a plate H pivoted at *d* to the frame B, and connected to the carrier G, so that the reciprocating movement of the plunger C shall impart a reciprocating movement to the carrier G at right angles to the line of travel of the plunger, substantially as and for the purpose specified. 6th. A nozzle A corresponding substantially in diameter with the magazines D and centrally located between them, in combination with an adjustable carrier G provided with projections *f* and designed to convey the matches from either magazine to the nozzle A without permitting the remaining matches in the magazine to fall, substantially as and for the purpose specified.

No. 33,223. Hay Fork. (*Fourche à foin.*)

Simon K. Lucky, Long Bottom, Ohio, and Martial L. Hughes, Little Birch, W.V., U.S., 21st December, 1889; 5 years.

Claim.—The combination, a hay-fork, of the tines A and A^1 having members B and B^1, and D and D^1 formed integral therewith, pulleys E and E^1 located on opposite sides at the junction of the tines and the members B and B^1, pulleys F and F^1 located between the pivotal point of connection and ends of the members D and D^1, flexible connection G attached to the loops or eyes *d* and *d1*, and a flexible connection H also connected to said loops or eyes and passed over the pulleys and operating cord I, the parts being organized substantially as shown and for the purpose set forth.

No. 33,224. Machine for Winding Wire with Covering Material. (*Machine à enrouler le fil de fer avec de la matière à couvrir.*)

James B. Atherton, New York (assignee of Ebenezer Beals, Norwich), N.Y., U.S., 21st December, 1889; 5 years.

Claim.—1st. The combination, substantially as set forth, with wire-feeding mechanism and the horizontal flyer rotatable concentrically around the wire, of a support on the flyer for a strip roll and the radially adjustable guide finger also mounted on the flyer that directs the strip to the wire. 2nd. The combination, substantially as set forth, with wire-feeding mechanism and the rotatable flyer arranged concentrically to the wire, of a support on the flyer for a strip roll, a guide finger for the strip from said roll, its support on the flyer, and means for connecting the finger with its support, whereby it may be adjusted endwise and also reversed. 3rd. The combination, substantially as set forth, with the wire-feeding mechanism, of a flyer rotatable concentrically around the wire, a support on the flyer for a strip roll, a guide finger bar hinged upon the flyer, and a guide finger mounted in said bar so as to be radially adjustable. 4th. The combination, substantially as set forth, of wire-feeding mechanism, the rotatable flyer arranged concentrically to the wire, a support on the flyer for a strip roll, a guide pin 22 around which the strip passes, and the guide finger for directing the strip to the wire. 5th. The combination, substantially as set forth, of wire-feeding mechanism, the rotatable flyer arranged concentrically to the wire, driving mechanism for actuating the flyer, a support for a strip roll mounted on the flyer, the bar 14 hinged upon the flyer and having a stop 16, the guide finger and the automatic stop mechanism. 6th. The combination, substantially as set forth, of the wire-feeding mechanism, the rotatable flyer arranged concentrically to the wire driving mechanism for actuating the flyer, the bar 14 hinged on the flyer and having a stop 16 working through an opening in the flyer, the pivoted catch, the spring actuated endwise moving rod interlocking with the catch, and the belt shifter carried by the rod, for the purpose described. 7th. The combination, substantially as set forth, of wire-feeding mechanism, the rotatable flyer, flyer driving mechanism, the automatic stop mechanism, trip devices carried by the flyer and normally held out of action by the strain of the material being applied to the wire, and the automatic brake mechanism actuated by the stop mechanism to promptly arrest the motion of the machine. 8th. The combination, substantially as set forth, of the wire-feeding mechanism, the rotating wire covering devices and their driving mechanism, the automatic stop mechanism consisting of the pivoted catch, the endwise moving spring actuated rod, the belt shifter moved by said rod, and the tripping stud 16 carried by the wire covering devices and normally held out of action by the strain of the covering material, and the brake mechanism consisting of the rocking shaft carrying the brake shoe, and the arm 40 acted upon by the endwise moving rod to throw the shoe upon the driving pulley. 9th. The combination, substantially as set forth, of the rotating frame, a hinged guide finger carried thereby, the spring actuated rod of the stop mechanism, the catch holding the rod, and the brake lever operated by the said rod. 10th. The combination, substantially as set forth, of the driving shaft, the fast and loose pulleys thereon, the vertical tubular shaft through which the wire to be covered passes, the gearing for driving it, the flyer mounted thereon, the belt shifting yoke, the spring actuated endwise moving rod actuating the belt shifting yoke, the stop arm carried by the yoke, the latch or lock piece, the notch in the lock piece with which the stop arm engages and its actuating rod, whereby the belt is automatically shifted when the stop arm is released from the notch. 11th. The combination, substantially as set forth, of the driving shaft, the fast and loose pulleys thereon, the vertical tubular shaft through which the wire to be covered passes, the gearing for driving it, the flyer or carrier mounted thereon, the belt shifting yoke, the endwise moving spring actuated rod actuating the belt shifting yoke, the stop arm carried by said yoke, the latch or lock piece and the pivoted lever 44, which forces the stop arm of the yoke into engagement with the lock piece, to reshift the belt on the fast pulley and hold it there.

No. 33,225. Coal Conveyer.

(*Transport à charbon.*)

William N. Page, Powellton, W.V., U.S., and Reuben W. Leonard, Spring Hill, N.S., 21st December, 1889; 5 years.

Claim.—1st. The combination, substantially as hereinbefore set forth, of the framework, the endless apron or conveyer, the end wheels over which it traverses, the girders extending longitudinally beneath the upper side of the apron, the links secured to the girders, the supporting wheels journaled in the lower ends of the links, and the adjusting devices connected with the upper ends of the links, for the purpose specified. 2nd. The combination, substantially as hereinbefore set forth, of the framework, the endless apron or conveyer, the upper end wheels over which it traverses, the lower end wheels, the vertical guide rails curved in the arc of a circle from the upper end wheel as a centre, and the grooved bearing blocks of the lower end wheel adjustable vertically on the guide rails. 3rd. The herein described apparatus comprising the bed work, the uprights or standards, the top beams carried thereby, the tracks mounted on the top beams, the hopper at the upper end of the framework, the adjustable chute at its lower end, the inclined vertically adjustable conveyer extending under the top beams from which it is suspended at each end and intermediately. 4th. The herein described apparatus comprising the framework, the endless apron or conveyer, the wheels at each end thereof, which it traverses, the longitudinal girders, the shafts R^1 mounted in bearings on the girders, the rollers carried by the shafts and on which the apron is supported, the links T^2 secured to the girders and suspended from pulleys on the framework, the shaft T^1 mounted in the lower ends of the links, and wheels T thereon for supporting the endless conveyer or apron on its lower or returning side. 5th. The herein described apparatus comprising the framework, the endless apron or conveyer, the upper end wheels over which it traverses the girders, the lower end wheels, the vertical guide rails at the lower end of the framework, and means, substantially such as described, for adjusting the lower end of the apron and girders along the guide rails and from the axis of the upper end wheels as a centre.

No. 33,226. Two-Wheeled Vehicle.

(*Voiture à deux roues.*)

Charles A. Ellison, Mineola, N.Y., U.S., 21st December, 1889; 5 years.

Claim.—1st. In a vehicle, the combination, with an axle and body, of an elliptical spring connecting the axle and body, said spring being composed of several leaves, each of which is provided with ears on one side adapted to overlap the adjacent leaf, the said leaves being arranged whereby the ears of any two adjacent leaves are on opposite sides of the spring. 2nd. An elliptical deflecting vehicle spring composed of several leaves, each of which is provided with ears adapted to overlap the adjacent leaves, said overlapping ears being located alternately on opposite sides, and shorter ears adapted to rest against the edges of the leaves opposite each overlapping ear, substantially as set forth. 3rd. In a vehicle, the combination, with an axle body and elliptical spring, of rocker blocks connecting the elliptical spring to the body, said blocks being loosely connected by links, substantially as set forth. 4th. A rocker block composed of sections hinged together by links, substantially as set forth. 5th. An elliptical spring composed of leaves joined together by bending alternate ears of one leaf around the other leaf or leaves, substantially as set forth. 6th. In a two-wheeled vehicle, the combination, with a body, of devices secured to the side rail and bottom straddling the axle to prevent said bottom from sagging, substantially as set forth. 7th. In a two-wheeled vehicle, the combination, with the axle and side springs secured thereon, and a pair of side ears secured on said springs, a cross bar connecting the side bars, a pair of shafts coupled to the side bars, and a spring composed of two leaves coupled or connected at right angles to each other and connecting the front cross bar with the bar that supports the whiffle tree, substantially as set forth. 8th. In a two-wheeled vehicle, the combination, with inwardly deflecting side springs secured to the axle, of rocker blocks secured to the side bars and attached to the springs by clips, and a brace connected with the side rails for supporting the bottom, substantially as set forth. 9th. A rocker block for attachment to the side rails and side spring of a vehicle, consisting of two arch-shaped sections secured together in inverted position by links having perforations in their ends, and passing through perforations formed in the top faces of said blocks for the purpose of bolting together, substantially as set forth. 10th. In a two-wheeled vehicle, the combination, with an axle, of inwardly deflecting side springs secured thereon, of rocker blocks attached to the upper portions of the side springs, and a Y-shaped brace for connecting the side rails with the body, substantially as set forth.

No. 33,227. Snow Plow. (*Charrue à neige.*)

Eldridge J. Godard, Hyde Park, Mass., U.S., 24th December, 1889; 5 years.

Claim.—1st. In a snow plow, the combination of the scraper provided, in its upper side at its front end, with a series of inclined

longitudinal troughs H, separated by the vertical partitions I having sharpened front ends, the vertical walls Q at the side edges of the scraper, and the horizontal stationary knives secured to the side walls Q and extending between the same above and out of contact with the partitions I, as set forth. 2nd. In a snow plow, the combination, with the frame, of the wings pivotally mounted on the sides of the same, the vertical rock shaft arranged between the wings, the double crank on said shaft, and the pitmen connecting said crank with the wings, as set forth. 3rd. A snow plow having the horizontal stationary knives T at its front end, and having stationary vertical knives Y arranged in rear of the said horizontal knives, as set forth. 4th. A snow plow having the horizontal knives T, the vertical knives Y in rear of the horizontal knives, and rotary knives arranged in rear of the vertical knives, as set forth. 5th. The combination, with the beams A, of the levers pivoted thereon and having scrapers at their ends adapted to act on the wheels, as set forth. 6th. The combination, with the beams A, of the levers *e* pivoted thereon, and scrapers depending from said levers and adapted to act on the front wheels, the levers *h* pivoted thereto and also to the levers *e*, the scrapers depending from said levers and adapted to act on the rear wheels, the cross bar *f* connecting the ends of the lever *e*, the bar *j* connected to the cross bar *f*, and the hand lever *k* adapted to depress said bar, as set forth.

No. 33,228. Vehicle Hub. (*Moyeu de roue.*)

Thomas J. Reid, Gananoque, Ont., 24th December. 1889; 5 years.

Claim.—1st. In the manufacture of vehicle hubs, a hub section or block, a metal shell partially incasing the hub, a former within which the hub block and inner shell are placed, and an outer shell adapted to be driven upon the hub block beneath the periphery of the inner shell, substantially as shown and for the purpose set forth. 2nd. In the manufacture of vehicle hubs, a former having an internal configuration, substantially the same as the exterior configuration of the hub, substantially as shown and for the purpose set forth. 3rd. In the manufacture of vehicle hubs, a rigid former in which one of the external shells and a hub block are adapted to be placed and held, and an outer band adapted to be held upon the hub block by forcing the same over the hub block and against the edge of the adjacent shell, said shell being held from expansion by the former, substantially as shown and for the purpose set forth.

No. 33,229. Composition of Matter for the Manufacture of Pills. (*Composition de matières pour la fabrication des pilules.*)

Heinrich A. Zoellner, Waterloo, Ont., 24th December, 1889; 5 years.

Claim.—A medicine composed of the following ingredients in the quantities or proportions respectively set forth, to be used as hereinbefore directed for the purposes aforesaid, namely:

Powdered Gentian Root.. ....Two scruples.
Powdered Iron, chemically pure.....One half-ounce.
Powdered Rhubarb .....Two scruples.
Powdered Centauri Minoris.....Two scruples.
Powdered Cinnamon..... .....Two scruples.

No. 33,230. Copy Holder. (*Visorium.*)

Henry H. Potter, Kingwood, Va., U.S., 24th December, 1889; 5 years.

Claim—1st. The table C, having the stops d^1, in combination with the clip D, and the spring *d* for drawing said clip against said table or against the heads of said stops, as and for the purpose described. 2nd. The table C and a clutch for moving it upwardly step by step, in combination with the stationary line marker E, beneath which the table moves, substantially as described. 3rd. The rack B, transverse bar B^1 therein, and forwardly projecting and slightly converging spring pins B^2 at each end of said bar, in combination with the vertically movable table C, and the line marker E having holes engaging said pins, as and for the purpose set forth. 4th. The vertically movable table C, in combination with the line marker E, the arms *e* carried by said marker and having eyes e^1, and the elliptical glass rod F supported in said eyes, as and for the purpose described. 5th. The rack B, having grooves *b*, in combination with the table C, having tongues *c* engaging said grooves, and with a clutch and lever for raising said table, step by step, as described. 6th. The table C and the rod G carried thereby, in combination with the rack B upon which said table slides, the guides B^3 connected to said rack, the clutch H pivoted between said guides and normally engaging said rod to support said table, and a clutch and lever for raising the table by a step-by-step motion, substantially as described. 7th. The table C, rod G carried thereby, the rack B upon which said table slides, and the clutch H pivoted in said rack and normally engaging said rod to support the table, in combination with the second clutch I engaging said rod, the arm J to which said second clutch is pivoted, and a handle connected to the lower end of said arm for raising it intermittently, as and for the purpose set forth. 8th. The table C, rod G carried thereby, the rack B upon which said table slides, the upright parallel guides B^3 connected to said rack, and the clutch H pivoted between the upper ends of said guides and normally engaging said rod to support said table, in combination with the second clutch I engaging said rod, the arm J sliding between said guides and to the upper end of which said second clutch is pivoted, the transverse shaft L, lever *k* keyed thereon and pivoted at its free end to the lower end of said arm J, the handle O keyed to said shaft, and a stop for limiting the movement of said handle, substantially as described. 9th. The rod G and a table carried thereby, the rack B, and the clutch H pivoted in said rack and normally engaging said rod, in combination with the second clutch I engaging said rod G below the clutch H and carrying a pin *i* in its upper face, and an arm and lever for reciprocating said second clutch slightly to raise said rod and table, or lifting it considerably to force the pin *i* against the clutch H and trip both clutches, as and for the purpose set forth. 10th. The base A, lug Q therein, having a pin *q*, thumb screw R in said lug, and slotted stop S on said thumb screw, in combination with the shaft L journalled in said base, and a handle keyed to said shaft, said handle having an extension P^1 adapted to operate between said pin *q* and stop S, as and for the purpose described. 11th. The base A and stops carried thereby, in combination with the shaft L journalled in said base, the collar M on said shaft carrying the arm N, and a handle removably secured to said arm, said handle having an extension p^1 adapted to operate between said stops, substantially as described. 12th. The shaft L, the collar M thereon, the arm N carried by said collar, and the handle O removably secured to said arm, in combination with the supplemental handle P centrally pivoted beneath said handle O, having a hole *p* receiving the end of said shaft, and also having an extension p^1 for for the purpose set forth, and with a spring *o* carried by said handle O and normally pressing said supplemental handle P against said collar M, substantially as described.

No. 33,231. Road Cart. (*Désobligeante.*)

Robert D. Scott, Pontiac, Mich., U.S., 24th December, 1889; 5 years.

Claim.—1st. In a road cart, the combination of the body supported upon the semi-elliptical spring, of the coil spring supporting the ends of said semi-elliptical spring, substantially as described. 2nd. In a road cart, the combination, with the shafts and the semi-elliptical spring for supporting the body, of the series of hooks attached to said shafts, each hook being in a different vertical line, substantially as described. 3rd. In a road cart, the combination, with the curved foot boards extending from the front backward and up to the seat of the body beneath the seat, the forward upright edges of said body framed to the upright rear portion of the said curved foot board sills, substantially as described. 4th. In a road cart, the combination, with the body, of the curved foot board sills *a*, *b*, of the side pieces *f* clamped between, and the bolt *d*, substantially as described. 5th. In a road cart, the combination, with the curved foot board sills *a*, *b*, the side pieces *f* clamped between the bolt *d* and the lining *g* secured in the rabbett *h*, substantially as described.

No. 33,232. Shifting Piano Action.

(*Transpositeur de piano.*)

Charles M. Richards, Fort Scott, Kan., U.S., 24th December, 1889; 5 years.

Claim.—1st. In a piano, organ, or other musical instrument, a shifting and transposing key-board, in combination with suitable guides, the ordinary and extra unisons, and a device for imparting the shift motion to the key-board, substantially as described. 2nd. The herein described shifting and transposing key-board, consisting of the horizontal key frame, the instrument casing supporting it, the ordinary and extra unisons, the guides on the casing for said key-frame, and a lever connected to the frame for shifting it, substantially as specified. 3rd. The combination of the key-board, the guides therefor, the action frame *c* connected to the key-board, and a lever connected to the key-board for shifting it, substantially as described. 4th. The combination of the key-board, the guide blocks therefor, the hand lever connected to the key-board for shifting it, and the stop device for regulating the extent of movement of said lever, as specified. 5th. In combination with the ordinary and the extra unisons, and the ordinary and the extra hammers and other parts of the shifting key-board, the guides therefor and an operating lever and stop, substantially as described. 6th. The combination of the key-board, the slotted instrument casing supporting it, the guide blocks on the casing for said board, the downward projections on the board passing through the slotted casing and carrying a bar, the lever pivoted to the casing and to said bar, and the indented rod for determining the movement of the lever, as specified. 7th. The combination of the key frame A, having recesses a^1, the instrument casing B supporting it, the guides *d*, *d*, the lever E and the cleat or bar F, all arranged substantially as described.

No. 33,233. Electric Arc Lamp.

(*Lampe électrique à arc.*)

Cortez Fessenden, Napanee, Ont., 24th December, 1889: 5 years.

Claim.—1st. The combination, in an electric arc lamp, of a brake normally holding a moving carbon at rest, a circuit-interrupting device in the series with the electrodes of the lamp, a high resistance solenoid in a shunt upon the electrodes for operating the interrupter, and an electro-magnet in a shunt spanning the circuit interrupter for liberating the brake when vitalized. 2nd. In an electric light regulator, the combination of a feeding train, detent mechanism therefor, an electro-magnet controlling the detent mechanism included in a normally closed circuit, a circuit interrupting device normally shunting said magnet, and an electro-magnetic device applied to the circuit-interrupting device to automatically interrupt the shunt circuit around the electro-magnet to regulate the feed. 3rd. In an electric light regulator, the combination of a detent electro-magnet, a derived circuit solenoid of high resistance spanning the arc of the lamp, a circuit breaker controlled by said solenoid, and a feed-regulating magnet of low resistance connected around the circuit breaker.

No. 33,234. Electric Railway.

(*Chemin de fer électrique.*)

Charles J. Van Depoele, Lynn, Mass., U. S., 24th December, 1889; 5 years.

Claim.—1st. In a system of electric railways, means for dividing the supply current at starting between a plurality of motors connected in multiple arc between the main conductors, comprising an additional resistance in circuit with each motor, and means for gradually withdrawing the resistance as the speed of the motor increases. 2nd. In a system of electric railways, a plurality of motors in multiple arc between the supply conductors, a resistance in circuit with

each motor acting to prevent a sudden fall of potential in the supply circuit at starting, and means for gradually withdrawing the resistance as the counter electro-motive force rises in the motors being operated. 3rd. In a system of electric railways, a plurality of motors in multiple arc between the supply conductors, a resistance substantially equal to the counter electro-motive force of the motor, armature at normal speed in circuit with each motor starting, and means for gradually withdrawing the resistance as the counter electro-motive force rises, and *vice versa*. 4th. In electric railways, the combination, with the supply circuit, of a multiple arc branch, including a current indicator, an automatic adjustable resistance and an electro-dynamic motor, all arranged in series. 5th. In electric railways, the combination, with parallel supply conductors, of a plurality of motors in multiple arc between said conductors, each motor circuit comprising a current indicator, an adjustable resistance about equal to the counter electro-motive force of the armature of the motor at full speed, and means for automatically introducing and withdrawing the resistance in proportion to the rise and fall of counter electro-motive force in the motor. 6th. In a system of electric railroading, where a larger number of vehicles are electrically propelled at one time and from the same source, a means for regulating the current by an additional resistance in circuit with each motor at the time of starting, preventing the short circuiting of the current by placing such resistance in each motor circuit independent of the other and corresponding to the electro-motive force of the current employed, and means for gradually withdrawing said resistance as the motor attains a certain speed. 7th. In an electric railway system, the combination of poles or supports placed on each side of the line of way, supporting wires extending across the line of way and secured to opposite pairs of poles or supports, a main supply conductor or conductors suspended from the cross wire, so as to have its under side free, and a grooved upward pressing contact device engaging the free side of the conductor. 8th. In an electric railway, the combination of poles or supports placed on each side of the line of way, supporting wires extending across the line of way and secured to opposite pairs of poles or supports, a main supply conductor or conductors, insulating devices connected to the conductor and to the cross wire for suspending said conductor, and a grooved upward pressing contact device engaging the under side of the suspended conductor. 9th. In an electric railway system, the combination of poles or supports placed on each side of the line of way, supporting wires extending across the line of way and secured to opposite pairs of poles or supports, a conductor or conductors arranged below the cross wires and above the line of way, ears or bails permanently secured to the upper side of the conductor or conductors, and insulating devices connected with the ears or bails, and the cross wires for sustaining the conductor or conductors, and an upward pressing contact wheel engaging the under side of the conductor.

No. 33,235. Snow Plough. (*Charrue à neige.*)

Owen A. Clark, Fife Lake, Mich., U S., 24th December, 1889; 5 years.

Claim.—1st. In a snow plough, the combination, with the main frame A, of the projection *d* adapted to remove the snow from adjacent to the inner side of the rail, substantially as described. 2nd. In a snow plough, the combination, with the main frame A, of movable scrapers adapted to remove the snow adjacent to the rails and below the level of the same, and mechanism for throwing said movable scrapers into or out of operation, substantially as described. 3rd. In a snow plough, the combination, with the main frame A, of movable scrapers located on each side of the rails, whereby the snow is removed from each side of each rail and below the level of the rail, and mechanism for throwing said scrapers into or out of operation, substantially as described. 4th. In a snow plough, the combination, with the main frame A, of movable scrapers E, F, pivoted to the front edge of said frame, mechanism for throwing said scrapers into or out of operation, and the plates D also attached to the front edge of said frame, said plates provided with the projections *d*, substantially as described.

No. 33,236. Road Cart. (*Désobligeante.*)

Loring M. Smith, Romeo, Mich., U.S., 24th December, 1889; 5 years.

Claim.—1st. In a road cart, the combination, with the crate bars and the cross bars connecting the shafts, of a suitable leaf spring or springs engaged to said cross bars and extending parallel with and adjacent thereto, the ends of said spring or springs bent and returned upon themselves to engage the ends of the crate bars, substantially as described. 2nd. In a road cart, the combination, with the shafts and the body of considerable less diameter than the shafts, of a suitable leaf spring engaged at its middle to the shafts, the ends of said spring bent and returned upon themselves to engage the forward ends of the body, substantially as described.

No. 33,237. Car Coupling. (*Attelage de chars.*)

William Harper, St. Etienne, Que., 24th December, 1889; 5 years.

Claim.—In a car coupling, the combination of the draw-hook C and lug F connected by the connecting rod G to the crank H, the crank H attached to the rod I by collar and set screws, the rod I journalled in bearings J, K, the hand wheel L, the collar M and lug N secured to said rod I, the bracket S, lugs R, in which is pivoted the catch P, having hook *p* and tail piece T, and spring V, substantially as shown and described.

No. 33,238. Supporters for Drawers.

(*Bretelles pour caleçons.*)

Isaac W. Housser, Winnipeg, Man., 24th December, 1889; 5 years.

Claim.—1st. As an improved article of manufacture, a supporter for drawers or other garments, comprising a head and an essentially U-shaped body of spring material attached at one end to the said head, substantially as shown and described. 2nd. A supporter for drawers or other articles of apparel, comprising a head and an essentially U-shaped body portion having members of unequal length, the shorter member being attached to the rear portion of the head, substantially as and for the purpose specified. 3rd. As an improved article of manufacture, a supporter for drawers or other articles of apparel, comprising a head, having a dished inner face, and an essentially U-shaped body, the members whereof are of unequal length, the shorter member being carried outward at an angle and attached to the dished face of the head, and the longer member being provided with a smooth enlarged portion upon that face opposed to the head, substantially as shown and described.

No. 33,239. Coin Controlled Opera Glass Case. (*Buffet à lunettes d'opéra actionné par une pièce de monnaie.*)

Edward J. Colby, Chicago, Ill., U.S., 30th December, 1889; 5 years.

Claim.—1st. The combination of a coin controlled opera glass case, a lock on the opera glass, and a key adapted to unlock the case and to be itself locked to the opera glass. 2nd. The combination of a coin controlled opera glass case, a lock on the opera glass, a key adapted to unlock the case and to be itself locked to the opera glass, and a chain fastened to the opera chair and the key. 3rd. The combination of a coin controlled case, a removable article therein, and a key adapted to unlock the case and to be itself locked to such article. 4th. The combination of a coin controlled case, a removable article therein, a lock adapted to unlock the case and to be itself locked to such article, and a chain secured at one end and at the other fastened to the key, so that by such key the article is released from the case, but secured to the chain. 5th. The combination of a coin controlled opera glass case, a lock on the opera glass, a key adapted to unlock the case and to be itself locked to the opera glass, and a chain fastened to the opera chair and the key, said opera glass case secured to one chain and the chain to the next chair in the rear. 6th. The combination of a case, a coin controlled lock therefor, an article provided with a lock to be contained in such case, a key adapted to unlock the case and to be at the same time automatically engaged by the lock on the article, so as when the case is opened to leave the key secured to the lock on such article. 7th. The combination of a case having a lock, said case being provided with a slotted swiveled portion in the edge of one of its folding doors, and a key adapted to enter such slot, and, when turned toward the edge of such door, to permit said door to open and pass from such slot. 8th. The combination of an opera glass, having a spring lock secured thereto with a case therefor, a coin controlled lock thereon, and a key and a chain, said key adapted to unlock the case and to be itself engaged while so doing by the spring lock on the article.

No. 33,240. Molding Machine.

(*Machine de moulage.*)

Charles L. Goehring, Allegheny, Penn., U.S., 30th December, 1889; 5 years.

Claim.—1st. In a machine or system, such as described, the combination, with the feeding mechanism, of a cutting mechanism comprising an arbor carrying a cutter head projecting across the material, bearings supporting said arbor and permitting both longitudinal and angular or lateral movements of the cutter head, in a plane parallel with the face of the material and transverse to the line of feed, pattern cams controlling said longitudinal and lateral movements of the cutter head, and a gear train uniting the feeding mechanism and pattern cams, substantially as described. 2nd. In a machine or system, such as described, the combination, with feeding mechanism for advancing the material continuously in the same direction, of a cutting mechanism comprising a cutter head and arbor mounted in bearings and moved by a pattern cam to reciprocate the cutter head in a plane transverse to, but intersecting the line of feed to form one edge or side of the material, and a second or top dressing cutting mechanism, comprising a cutter head and arbor mounted in bearings and reciprocated simultaneously in two directions, the one transversely to the line of feed and the other longitudinally thereof by a pattern cam, substantially as described. 3rd. In a machine or system, such as described, the combination, with feeding mechanism for advancing the material continuously in the same direction, of a cutting mechanism, comprising a cutter head and arbor mounted in bearings and operated upon by a pattern cam to reciprocate the cutter head in a plane transverse to, but intersecting the line of feed of the material, a second cutting mechanism comprising a cutter head mounted on an arbor overlying the face of the material supported in bearings and reciprocated by a pattern cam or cams simultaneously in two directions, the one transversely of the moving material and the other longitudinally thereof, and gearing uniting the cams of the two cutting mechanisms and the feed mechanism, substantially as described. 4th. In a machine or system, as described, the combination of the feeding mechanism operated to advance the material continuously in the same direction, a cutting mechanism comprising two cutter heads mounted upon arbors and supported in movable bearings, the cutter heads being located on opposite sides of the line in which the material is moved by the feeding mechanism, and the bearings operated upon by pattern cams to cause the cutter heads to reciprocate towards and from the opposite faces of the material as it is moved between them, and a second cutting mechanism for dressing or ornamenting the face of the material, the same comprising two cutter heads mounted upon arbors and projected from opposite sides over the material, each of said arbors being mounted in separate bearings controlled by pattern cams, the latter operating to reciprocate the cutter head across the face of the material, and at the same time oscillate it so as to present the bits squarely to the line of cut, substantially as described. 5th. In a mechanism, such as described and in combination with a feeding mechanism for positively advancing the material, two sets of cut-

ting mechanisms co-operating and united through gearing with the feeding mechanism to simultaneously shape or give form to the edges or sides and the face of the material, one of said cutting mechanisms comprising two cutter heads located on opposite sides of the path traversed by the material and reciprocated by pattern cams, and the other cutting mechanism comprising two cutter heads arranged in succession, mounted on arbors and overlying the face of the material, both of said arbors and cutter heads being simultaneously reciprocated and oscillated by pattern cams, substantially as described. 6th. In a machine or system, such as described, the combination, with feeding rolls for positively advancing the material in a straight line, of an oscillating reciprocating arbor supported in movable bearings and carrying a cutter head projected across the face of the material, and pattern cams driven in unison with the feeding mechanism controlling the oscillating reciprocating movements of the cutter head, substantially as and for the purpose set forth. 7th. In a machine or system, such as described, and in combination with the feeding mechanism for positively advancing the material, a cutter head and arbor projected transversely across the face of the material and supported in a frame pivotally connected to a reciprocating support on an axis intersecting the material, and pattern cams driven in unison with the feeding mechanism and operating to reciprocate said support and oscillate the arbor frame as the material is fed past the cutters, substantially as and for the purpose specified. 8th. In a mechanism, such as described, and in combination with devices for feeding the material positively and at a predetermined speed, two oscillatory reciprocating cutter heads, arranged in succession and projected and working in planes above the moving material to form distinct sections or parts of a unitary design, the actuating devices for reciprocating and oscillating said cutter heads being connected and driven in unison, to maintain the proper relations of the sections formed by the separate cutting mechanisms and preserve the design evolved in its integrity. 9th. In a mechanism, such as described, the combination of the arbor frame pivotally secured to a reciprocating slide or frame, and a rotating pattern cam for controlling the reciprocatory movements of said slide, substantially as described. 10th. In combination with a reciprocating slide, controlled in its movement by a pattern cam, an arbor frame pivotally connected to said slide at a point opposite the material, and a cutter head mounted on the arbor between said pivot and material to be operated upon, substantially as described. 11th. In combination with a slide reciprocated across the line of feed by a pattern cam, an arbor supporting frame pivotally connected to said first named slide on a line at right angles to, but intersecting the material fed beneath the cutter head mounted in the arbor supporting frame, between its pivotal point of support and the material operated upon, and actuating devices operating to oscillate the arbor frame as its support is reciprocated, substantially as described. 12th. In combination with a reciprocating slide formed in two sections adjustably connected, a pattern cam operating upon one of said sections to give motion to the slide, and an arbor frame pivotally attached to the other section of the slide, with devices for oscillating said arbor frame, substantially as described. 13th. In combination with a reciprocating slide formed in two sections adjustably connected, and actuating devices connected to one of said sections for reciprocating the slide, and an arbor frame pivotally connected to the other section of the slide and carrying a driving pulley, and cutter head with devices for adjusting the arbor frame relatively to its pivot, substantially as described. 14th. In combination with the reciprocating slide and an actuating cam therefor, an arbor and cutter head mounted in a frame, the latter pivotally and adjustably connected to said reciprocating slide on a line transverse to the axis of the cutter head, and in a plane intersecting the cutters and the material acted on, with mechanism for oscillating said arbor frame, substantially as described. 15th. In combination with a reciprocating carriage and actuating cams therefor, a transversely reciprocating slide mounted upon said carriage and an actuating cam therefor, and an oscillating arbor frame pivotally attached to said slide on an axis transverse to, but intersecting the line of feed of the material to be operated upon, and a cutter head supported upon the arbor frame and beneath the pivotal point of attachment, substantially as described. 16th. The combination, with a slide reciprocating in ways transversely of the direction in which the material is fed, and with its front end overhanging the work support, an arbor frame pivotally attached to the overhanging portion of the slide, and carrying a cutter head in line with the pivot, with a driving mechanism common to the slide and arbor frame for simultaneously reciprocating the former and oscillating the latter, substantially as described. 17th. In combination with a slide, supported in ways and adjustable in height, actuating devices for reciprocating said slide above and transversely to the line in which the material is fed, an arbor frame supported longitudinally of the slide and carrying the cutter head, and a pivot bolt uniting the arbor frame and slide, said bolt being located above the cutter head and made adjustable longitudinally of the arbor frame, substantially as described. 18th. In combination with the reciprocating slide and the actuating devices therefor, the oscillating arbor frame pivotally attached to said slide on an axis intersecting the cutter head, and actuating devices for oscillating said arbor frame as its supporting slide is reciprocated, substantially as described. 19th. In combination with the reciprocating slide, the arbor frame adjustable longitudinally of the slide and connected thereto by a transverse pivot, the latter located opposite the cutter head and in a plane intersecting the line of feed of the material, substantially as described. 20th. In a machine, such as described, wherein the frame or slide upon which the cutting mechanism is mounted, is moved transversely to the line of feed of the material by two sets of actuating devices operating simultaneously, but in different planes, and in combination with said movable slide or frame an arbor frame supporting the rotating arbor and cutter head of the cutting mechanism, and a transverse pivotal connection forming the centre of oscillation of the arbor frame, and connecting the latter to the movable supporting slide, substantially as described. 21st. In a machine of the character described, the combination, with the work support or table over which the material to be operated upon is fed, a frame or slide reciprocated in a line transverse to said work support, an arbor frame connected to said reciprocating frame and oscillating about an axis or centre transverse to the line of movement of said reciprocating frame, an arbor carrying a cutter head mounted upon said arbor frame with the cutting or bits projected in line with, and intersecting the prolongation of the axis about which said arbor frame oscillates, and devices for reciprocating the first-mentioned frame or support and oscillating the arbor frame while the cutter head is rotating, substantially as described, whereby the cutter head is carried across the face of the material and oscillated about an axis intersecting the cutters and the material, as set forth. 22nd. In a wood shaping machine, the combination, with devices for feeding or advancing the material to be operated upon, an oscillatory reciprocating cutter frame carrying a rotary cutter head projected over the face of the material and traversing across the surface thereof, in lines transverse to the feed motion, substantially as described. 23rd. In a wood shaping machine, and in combination with devices operating to advance or feed the material, an oscillatory reciprocating frame, a rotating spindle mounted in said frame and carrying a cutter head above and projected across the surface of the material to be operated upon, with devices for automatically oscillating and reciprocating said frame, substantially as described. 24th. In a shaping machine, such as described, the combination of feeding mechanism for advancing the material, an oscillatory reciprocating frame supporting a rotary cutter head overlying the surface to be acted upon and reciprocating in a line transverse to the direction of feed motion, and a cam or pattern moving in unison with the material and operating to simultaneously reciprocate and oscillate the frame supporting the cutter head, substantially as described. 25th. In a machine, such as described herein, an overhung arbor frame is pivotally attached to its support, so as to oscillate thereon, and in combination with said frame, provided with an opening for the passage of the driving belt an arbor carrying a pulley and cutter head, and supported at each end and between the cutter head and pulley in bearings attached to the arbor frame on the side next the material to be operated upon, substantially as described. 26th. In combination with the oscillating arbor frame, the arbor carrying cutter head and pulley, and supported in bearings on opposite sides of the pulley and at a point beyond the cutter head in a detachable bearing in the overhanging portion of the arbor frame, substantially as described. 27th. In combination with the arbor frame pivotally supported and extended beyond the centre of oscillation, the arbor supported in bearings upon said frame and in a plane transverse to, but intersecting the pivotal centre, said bearings being mounted upon the arbor frame and supporting the arbor on both sides of the cutter head and pulley, substantially as described. 28th. In a machine, such as described, and in combination with the reciprocating slide and the oscillating arbor frame pivotally mounted on the former, a lever connected to said oscillating frame and actuated by a slide and cam to control the oscillations of said arbor frame, substantially as described. 29th. In combination with the slide and its actuating cam, the arbor frame pivotally connected to said slide, a lever connected by a link to the pivotal support of the arbor frame, and a reciprocating bar engaging said lever, and actuated by a cam to control the oscillation of the arbor frame, substantially as described. 30th. In combination with the reciprocating slide and its actuating devices, the arbor frame carrying arbor pulley and cutter head pivotally secured to the overhanging portion of said slide, an arm secured to the pivotal support for the arbor frame and connected to a lever, and a reciprocating bar actuated in unison with the devices controlling the movements of the slide and engaging said lever, substantially as described. 31st. In combination with the oscillating arbor frame, the slide or support upon which it is mounted, and the arm through which motion is transmitted to said arbor frame, a sleeve or thimble passing through the support and abutting against said arm arbor frame, and a bolt passing through said sleeve and engaging both the arbor frame and arm to secure them in position and clamp them upon the sleeve, substantially as described. 32nd. In combination, the oscillating arbor frame, its support, and the bolt forming a pivotal connection, an arm secured to said bolt and connected to an operating lever, the latter mounted upon an adjustable fulcrum, and operating devices engaging said lever to oscillate the arbor frame, substantially as described. 33rd. In combination with the oscillating arbor frame and the arm, and link attached thereto, a lever provided with an inclined face, and a reciprocating bar engaging said inclined portion, substantially as described. 34th, In a machine such as described, the combination of the carriage provided with an opening for the passage of the driving belt, a slide reciprocating in ways on the carriage and extended beyond said opening, and provided with a corresponding opening or space for the driving belt, the oscillating arbor frame mounted beneath said slide, the arbor supported in bearings on said frame, the cutter head located between the work and the pivotal point of attachment to the slide and in line with said pivot, and the pulley also mounted on said arbor and beneath the supporting slide, substantially as described. 35th. In combination with the slide overhanging the work support, the arbor frame adjustably attached to said overhanging portion by pivotal connection, an arm secured to said pivot, an actuating lever, a link interposed between said arm and lever, and devices acting upon said lever to cause it to oscillate, substantially as described. 36th. In a system such as described, wherein two or more cutting mechanisms are arranged in series and adapted to operate respectively upon the side or edge and the face of the material as it is fed past them, the combination, with the adjustable cams forming part of the actuating devices for controlling or effecting the movements of the cutter heads transversely to the line of feed of the gauges co-operating with said cams for determining the relative positions of the series of cams, substantially as described, whereby, when a given pattern has been produced and the record of adjustment made from the reading of the gauges, the same pattern can be reproduced by setting the series of cams at the recorded points or degrees, as set forth. 37th. In a machine such as described, and in combination with the series of cutting mechanisms for operating upon the face and side of the material, and the actuating devices governing or controlling the movements of the cutting mechanisms transverse to the line in which the material is fed, said actuating devices being connected and driven in unison with the feed, an adjustable cam forming part of the actuating devices of each cutting mechanism and serving to determine the position and movement of the cutter head, and two gauges co-operating with said cam, the one

for determining the throw and the other the annular position of the cam relatively to its driving shaft and the reciprocating slide, substantially as and for the purpose set forth. 38th. In a machine such as described, the combination, with the slide carrying the cutting devices, the controlling cam adjustably secured to a sleeve on the driving shaft, the one for determining the throw and two gauges or index plates, the other for determining the angular position of the cam, substantially as described. 39th. In combination with cutting mechanisms B, B¹, each containing a cutter head, arbor and arbor frame mounted upon a slide, a series of radially and rotarily adjustable cams, one for each slide connected together and driven in unison, and two series of graduated scales, one scale for each of said series being applied to the cam controlling the slide of each cutting mechanism for registering its angular and radial position, and the position of the slide with respect to its driving shaft and to all the other slides, substantially as and for the purpose set forth. 4th. In a machine such as described, the combination, with the oscillating arbor frame mounted upon a reciprocating slide, the table for supporting the material to be operated upon notched at the edge to accommodate the arbor frame, substantially as described. 41st. In a machine such as described, the combination, with the two reciprocating slides carrying oscillatory cutter heads, the driving shafts for transmitting motion to said slides, and driving gearing connecting said shafts, whereby they are caused to move in unison, of a cam applied to each of said driving shafts and interposed between the latter and the slide to control the reciprocatory movements of said slide, said cams being made adjustable as to throw an angular position with respect to the driving shafts and slides in order that the relative position and movements of the slides may be varied, and an index or indicator co-operating with the cams to determine the relative positions of adjustment and co-operative relations of the movable cutters, substantially as described. 42nd. In a mechanism such as described, wherein two or more independent oscillatory reciprocating mechanisms are arranged in series to co-operate in forming a design or moulding on the face of the material, the combination, with said cutting mechanism arranged to traverse across the face of the material, and each provided with actuating devices, such as cams controlling the reciprocatory movements of the cutter across the face of the material, of a system of gearing adjustably connected to said actuating devices and uniting the latter, substantially as described, whereby the actuating devices of one cutting mechanism can be shifted with respect to the driving gearing to charge the movements imparted to the several cutting mechanisms relatively to each other, as set forth. 43rd. In a mechanism such as described, the combination, of the two cutting mechanisms, one for dressing the edge of the material being provided with a cutter head mounted in a support movable towards and from the material, and the other for dressing the face, provided with a cutter head mounted to oscillate and reciprocate across the face of the material, a feeding mechanism acting to advance the material actuating devices, such as pattern cams operating upon the supports of each cutter head, to reciprocate the latter and control their movement, and a driving mechanism, such as a train of gearing operating in unision with the feeding mechanism, and adjustably connected to said actuating devices or cams, whereby the movements imparted to the cutting mechanism can be varied relatively to each other and the feeding mechanism, substantially as described. 44th. In a mechanism such as described, the combination, with a series of reciprocting cutting mechanisms, and a corresponding series of actuating devices such as pattern cam controlling the reciprocatory movement of the cutter supports, a driving mechanism common to the several actuating devices or cams, and adjustably connected thereto so as to permit one actuating device or cam to be advanced relatively to another, whereby the order in which the actuating devices operate to effect the reciprocatory movements of the cutters is varied or changed, and index points connected to the actuating devices for setting the latter, as and for the purpose set forth. 45th. In a mechanism such as described, the combination of a series of oscillatory reciprocating cutter heads arranged to traverse the surface of the material, a corresponding series of actuating devices such as cams acting upon the supports for the cutter heads to effect both the oscillatory and reciprocatory motions, and a driving mechanism, such as a system of gearing adjustably connected to the series of actuating devices to permit one or more of said actuating devices to be advanced or the throw increased relatively to the others, and the gearing, substantially as described, whereby the lines of travel by each cutter head upon the face of the material can be varied relatively to the others and the design correspondingly modified, as set forth. 46th. In a moulding machine such as described, the combination, with the arbor frame, of the oscillatory reciprocating cutting mechanism, and the actuating devices therefor, of a helical spring secured to the frame and attached to the arbor frame for holding the latter pressed towards its actuating cam, substantially as described.

No. 33,241. Toy. (*Jouet.*)

Charles M. Crandall, Waverly, N.Y., U.S., 30th December, 1889; 5 years.

Claim.—1st. A puzzle or similar device containing two or more movable bodies, one of which is arranged to come in contact with, and shift the position of the other and to deposit it at various points upon the surface it travels over, in the manner and for the purpose set forth. 2nd. In a puzzle or similar device, two or more movable bodies located upon the floor of an enclosure, one of said bodies being less responsive to variations in the level of the floor, whereby the more active body is made to shift the other from place to place over the floor, in the manner and for the purpose set forth. 3rd. In a puzzle or similar device, an inclosure having a body of quicksilver arranged to traverse its floor, in combination with pieces of felt adapted to be shifted from place to place and left at different points upon the floor by the action of the quicksilver, in the manner and for the purpose set forth. 4th. An inclosure having a transparent cover and floor containing a depression, a body of quicksilver located upon the floor of the inclosure and adapted to enter the depression, and one or more pieces of lighter material adapted to be shifted by the quicksilver, as set forth.

No. 33,242. Pocket Check Book.

(*Livret de chèques de poche.*)

Jacob Knauber, Milwaukee, Wis., U.S., 30th December, 1889; 5 years.

Claim.—1st. The combination, in a check book, of a cover adapted to be folded at its centre, a series of stub-checks attached to the inner face of one portion of the cover, and a record sheet or leaf attached to the inner face of the other portion of the cover and divided into columns, substantially as specified. 2nd. The combination, in a check book, of a cover connected at its centre by a flexible connection, a strip C attached along one edge to the inner face of one portion of the cover, a series of stub-checks having their stubs secured to said strip, and a record sheet attached to the inner face of the other portion of the cover and divided into columns and designated, substantially in the manner specified. 3rd. A check record book consisting of a cover connected at its centre by a flexible connection, a series of stub checks attached at their stub end to the inner face of one portion of the cover, with their free ends extended into the space between the adjacent edges of the two portions of the cover, and a record sheet attached to the inner face of the other portion of the cover with its inner edge free and extended into the said space between the adjacent edges of the two portions of the cover, substantially as shown and described.

No. 33,243. Manufacture of Glass Bottles and Mould for the same. (*Fabrication des bouteilles de verre et moule pour cet objet.*)

Samuel Washington, Manchester, Eng., 30th December, 1889; 5 years.

Claim.—1st. The improvement in the manufacture of glass bottles, which consists in compressing a solid neck, lip, flange, or the like, by means of a die or plunger after the bottle has been blown and whilst the metal is still plastic in the mould, substantially as described. 2nd. A mould for the manufacture of glass bottles, having a collar or neck longer than the neck of the bottle to be made, said neck or collar being grooved or shaped as required in combination with a die or plunger, and a cutting device, substantially as described. 3rd. The combination, with a mould, of a collar having grooves therein, and a cutting device, with a die or plunger carrying a shoulder adapted to engage with the cutting device, said die adapted to carry down sufficient glass to compress around itself a solid neck, head, lip, or flange, substantially as described, and illustrated in the accompanying drawings. 4th. A mould having a collar movable thereon in combination with a suitable die or plunger and cutting devices, said movable collar being adapted to compress a solid head, neck, lip or flange around the die, substantially as described.

No. 33,244. Combined Latch and Lock.

(*Loquet-serrure.*)

Michel Moncion, Ogdensburgh, N.Y., U.S., 30th December, 1889; 5 years.

Claim.—1st. A latch constructed with two latch bolts operated by two distinct spindles, one on either side of the latch, substantially as and for the purpose set forth. 2nd. The combination, in a combined lock and latch, of the latch C, head D having bevels *f* and *g* on either side, slot E, spindle G operating said latch, a latch bolt J operated by a spindle W having bevels *k* and *l*, the springs I, lock bolt K, with cam P, with a locking plate S having recesses T, U and V, substantially as set forth. 3rd. The combination of the latches C and J, spindles G and W, and lock bolt K, with the plate S having recesses T, U and V, and races *t* and *v*, substantially as set forth.

No. 33,245. Apparatus for Receiving Coin and Automatically Delivering a Receipt therefor, or otherwise acknowledging receipt thereof.

(*Appareil pour recevoir la monnaie et en donner reçu ou une reconnaissance automatiquement.*)

Isidore E. Clifford, London, Eng., 30th December, 1889; 5 years.

Claim.—1st. In the system of so-called automatic savings banks in which the dropping in of a coin or coins disengages mechanism, so causing a receipt to be delivered to the depositor, the rising or falling receptacle provided with separate compartments into which the deposit together with the counter half of the receipt bearing the name, address, and amount deposited is received, substantially as described. 2nd. In an apparatus for use as an automatic savings bank, the arrangement for preventing the withdrawal of the draw-plate until after the insertion of a coin, consisting of a projection f^4 carried by the draw-plate, and of the finger k^6 carried by the cover plate, substantially as described and shown. 3rd. In an apparatus for use as an automatic savings bank, the employment, in combination with the arm k^5 carrying the shoe or tray *k*, of the hook-shaped piece f^5 for governing the rise and fall of said arm, substantially as described and shown. 4th. In an apparatus for use as an automatic savings bank, the mechanism consisting of the combination, of the pawls p^1 and p^2, with the rack *p*, and the stud or pin *s* working in the slotted limb q^1, for causing the receptacle *o* to rise one compartment when the draw-plate is pushed in, substantially as described and shown. 5th. The improved arrangement of apparatus or automatic savings bank having its parts arranged, combined and operating substantially as herein described and shown with reference to the annexed drawings.

No. 33,246. Method of Making Flat Coiled Springs. (*Mode de fabrication des ressorts spiraux plats.*)

George Kelly, Chicago, Ill., U.S., 30th December, 1889; 5 years.

Claim—The herein described improvement in the art of making flattened spiral springs, the same consisting in winding the spirals upon a flat mandrel, and then "setting" the same in their proper shape by pressure between a pair of pressure imparting heads while such spirals are still upon the mandrel, substantially as set forth.

No. 33,247. Hand Loom. (*Métier à tisser.*)

Joseph Scherer, Buffalo, N. Y., U. S., 30th December, 1889; 5 years.

Claim.—1st. The combination, with the stationary main frame of the machine of an oscillating heddle frame pivoted to the main frame and provided on one side of its pivot with a series of needles which carry one set of warps, and at the opposite side of its pivot with a support which carries the other set of warps, substantially as set forth. 2nd. The combination, with the main supporting frame of the loom, of an oscillating heddle frame pivoted at or near its centre to the main frame, and provided on the front side of its pivot with a series of depending needles which carry one set of warps, and on the rear side of its pivot with a roller or support carrying the other set of warps, and a guide roller or support over which the portions of the warps in rear of said needles pass, substantially as set forth. 3rd. The combination, with the stationary main frame of the machine, of an oscillating heddle frame pivoted to the main frame and provided on one side of its pivot with a series of needles which carry one set of warps, and at the opposite side of its pivot with a support which carries the other set of warps, and a treadle whereby said heddle frame is operated, substantially as set forth. 4th. The combination, with the main supporting frame of the loom, of an oscillating heddle frame pivoted at or near its center to the main frame, and provided on the front side of its pivot with a series of depending needles which carry one set of warps, and on the rear side of its pivot with a roller or support carrying the other set of warps, a guide roller or support over which the portions of the warps in rear of said needles pass, and suspended tension weights adapted to be applied to the depending portions of the warp threads passing over said guide roller and the support or at the rear end of the heddle frame, substantially as set forth. 5th. The combination, with the heddle frame provided with rectangular needle supporting bar g^1, of the needles h provided with a rectangular loops fitting over said needle bar, washers arranged between said loops, and wedges n passing through longitudinal slots in said supporting bar and bearing against the endmost needles or washers, substantially as set forth. 6th. The combination, with the rod Q of the clamping disk q provided with perforated lugs or ears, pins or rods passing through said ears, washers q^1 interposed between said clamping disks, and springs attached to the rods Q and bearing against the clamping disks, substantially as set forth.

No. 33,248. Composition Adapted to Electric Insulators and other Articles and uses in the Arts and Manufactures. (*Composition propre aux isolateurs électriques et autres articles et usages dans les arts et manufactures.*)

Frank Marquard, New York, N. Y., U. S., 30th December, 1889; 15 years.

Claim—The compound herein described consisting of woodpulp, extract of logwood, bichromate of potash, sulphate of iron, animal glue, rosewood sawdust, an albuminous substance and vegetable fiber, substantially as set forth.

No. 33,249. Insulating Composition. (*Composition isolante.*)

Frank Marquard, New York, N. Y., U. S., 20th December, 1889; 15 years.

Claim.—The compound herein described composed of rosewood, sawdust, extract of logwood, bichromate of potash, sulphate of iron and an albuminous substance, substantially as set forth.

No. 33,250. Dry Closet. (*Cabinet sec.*)

Isaac D. Smead, Toledo, Ohio, U.S., 30th December, 1889; 5 years.

Claim.—1st. In combination with the vault D having an air inlet at one end, and an opening at the opposite end, connecting it with a vent-flue, the incline floor or transverse partition R with a screw connection at its lower end, substantially as shown and described. 2nd. In combination with the vault D provided with an air-inlet and outlet at its opposite ends, the inclined floor or partition R provided with a sewer connection at its lower end, and an automatic flushing device P provided with a water supply, all arranged to operate substantially as and for the purpose set forth.

No. 33,251. Pinch Bar. (*Pince à pied de biche.*)

Spencer H. St. John, Chicago, Ill., U. S., 30th December, 1889; 5 years.

Claim.—The combination of a bar removable fulcrum piece wholly external thereto, and a clevis fitting upon said bar having downwardly projecting arms adapted to embrace the rail, substantially as described.

No. 33,252. Cigar. (*Cigare.*)

Thomas J. Winship, Montreal, Que., 30th December, 1889; 5 years.

Claim.—1st. In combination with a cigar, a nicotine absorber arranged within it near its mouth end. 2nd. In combination with a cigar, a wad of absorbent material, and a tube arranged at the mouth end of same, for the purpose described. 3rd. In combination with a cigar, a quill tube inserted in the mouth end of same, for the purpose described. 4th. In combination with a cigar, the wad B and quill C, arranged as shown and for the purposes described.

CERTIFICATES OF THE PAYMENT OF FEES FOR FURTHER TERMS HAVE BEEN ATTACHED TO THE FOLLOWING PATENTS.

1645. H. B. NICKERSON & C. A. ROBINSON, 2nd 5 years of No. 20,683, from the 4th day of December, 1889. Improvements in combined Chair and Fish Plate for Railroad Joints, 3rd December, 1889.

1646. W. WILMINGTON, 2nd 5 years of No. 20,706, from the 9th day of December, 1889. Improvements on Method of Imparting Terro-Manganese to Chill Hardening Cast Iron, 6th December 1889.

1647. J. J. VARLEY, 2nd 5 years of No. 20,726, from the 13th day of December, 1889. Improvements in the Treatment of Certain Plaster Composition, 9th December, 1889.

1648. S. R. & H. W. NYE, 2nd 5 years of No. 20,700, from the 9th day of December, 1889. Improvements in Truss Pads, 9th December, 1889.

1649. G. T. CLINE (assignee), 2nd 5 years of No. 28,563, from the 25th day of February, 1893. Improvements in Hens' Nests, 9th December, 1889.

1650. OTTIS BROTHERS & CO. (assignees), 2nd 5 years of No. 21,001, from the 29th of January, 1890. Improvements on Safety Devices for Elevators, 11th December, 1889.

1651. J. B. HARTMAN, 2nd 5 years of No. 20,774, from the 22nd day of December, 1889. Improvements on Window Blinds, 30th December, 1889.

1652. C. BARTON, 2nd and 3rd 5 years of No. 20,744, from the 17th day of December, 1889. Improvements in Hydro-Carbon Burners for Lamps or Stoves, 13th December, 1889.

1653. J. ILLINGWORTH, 2nd 5 years of No. 20,828, from the 31st day of December, 1889. Improved Method of and Apparatus for Treating Fibrous Bags and Woven Fabrics, 20th December, 1889.

1654. J. E. BOYLE, 2nd 5 years of No. 20,791, from the 26th day of December, 1889. Improvements in Flushing Apparatus for Water Closets, 20th December, 1889.

1655. J. E. BOYLE, 2nd 5 years of No. 20,824, from the 31st day of December, 1889. Improvements in Pipe Connections for Water Closet and other Bowls, 20th December, 1889.

1656. C. CHERRY, 2nd 5 years of No. 20 895, from the 16th day of January, 1890. Improvements on Process and Apparatus for Treating Metalliferous Ores, 20th December, 1889.

1657. J. J. TAYLOR, 2nd and 3rd 5 years of No. 20,777, from the 22nd day of December, 1889. Improvements in Carpet Stretchers, 21st December, 1889.

1658. E. A. & S. B. HILDRETH, 2nd and 3rd 5 years of No. 21,488, from the 22nd day of April, 1890. Improvements in Machinery for Splitting Wood, 21st December, 1889.

1659. E. TATHAM, 2nd 5 years of No. 21,138, from the 28th day of February, 1890. Improved Liquid Meter, 23rd December, 1889.

1660. W. J. ACKERMAN and H. BRINK, 2nd 5 years of No. 32,851, from the 16th day of November, 1894. Improvements in Burglar Alarms, 27th December, 1889.

1661. GRAYBILL & CO. (assignees), 2nd 5 years of No. 20,832, from the 31st day of December, 1889. Improvements in Supports and Guides for Bill File Holders, 27th December, 1889.

1662. GRAYBILL & CO. (assignees), 2nd 5 years of No. 20,833, from the 7th day of January, 1890. Improvements in File Boxes or Paper Holders, 27th December, 1889.

1663. THE AMERICAN SPRING BUTTON CO. (assignee), 2nd 5 years of No. 20,809, from the thirtieth day of December, 1889. Improvements in Spring Buttons or Fasteners for Boots and Shoes, 30th December, 1889.

1664. J. R. NOYES, 2nd 5 years of No. 20,856, from the 9th day of January, 1890. Improvements in Sugar Making Apparatus, 30th December, 1889.

1665. THE NEW YORK FIFTH WHEEL CO. (assignees), 2nd 5 years of No. 20,835, from the seventh day of January, 1890. Improvements in Fifth Wheels for Waggons, 30th December, 1889.

1666. F. M. BLODGETT and REBECCA W. HURDLE, 2nd 5 years of No. 20,831, from the 31st day of December, 1889. Improvements on Apparatus for Enlarging the Glands, 30th December, 1889.

1667. F. C. WHITING, 2nd 5 years of No. 23,413, from the 13th day of February, 1891. Improvements in Butter Workers, 31st December, 1889.

1668. THE CANADIAN ELECTRICAL CO. (assignees), 2nd 5 years of No 20,822, from the 31st day of December, 1889. Improvements in Electric Battery Electrodes, 31st December, 1889.

DECEMBER LIST OF TRADE MARKS.

Registered at the Department of Agriculture—Copyright and Trade Mark Branch.

3602. THE WELDLESS STEEL TUBE COMPANY, of Birmingham, Warwick Co , England. Metallic Tubes of all kinds. 2nd December, 1889.

3603. D. W. THOMPSON AND COMPANY, of Toronto, Ont. Mattrasses. 3rd December, 1889.

3604. THE ADAMANT MANUFACTURING COMPANY, of Toronto, Ont. Adamant Wall Plaster. 4th December, 1889.

3605. THOBURN ALLAN, of Ottawa, Ont. A Polish for Cleaning Silver and Glassware. 6th December, 1889.

3606. PERCY LITCHFIELD, of Nutty Hagg, 24 North Side, Wandsworth Common, County of Surry, England. A Remedy for Gout and Rheumatism. 10th December, 1889.

3607. THE LEE SPINNING COMPANY, of Manchester, England. Sewing Thread Crochet and Knitting Cotton. 10th December, 1889.

3608. GEORGE ANDERSON, of Toronto, Ont. All kinds of Refined, Machinery, Wool, and other Oils, Benzine, Paraffine, Candles, Lubricant, Axle Grease and Hoof Ointment. 11th December. 1889.

3609. H. PAXTON BAIRD, of Woodstock, N.B. Baird's French Ointment, 12th December, 1889.

3610. JULIUS MAGGI, of Kempthal, Switzerland Alimentary Products, being extracts of meats. 12th December, 1889.

3611. THE LOWER LANSALSON CHINA CLAY (KAOLIN) COMPANY, of St. Anstell, County of Cornwall, England. General Trade Mark. 13th December, 1889.

3612. PAUL DE KRISTOFFOWITCH, of 93 Rue Monceau, Paris, France. General Trade Mark. 13th December, 1889.

3613. THOMAS JOHN BARNARDO, of 18 Stepney Causeway, London, England, and of Russell, County of Russell, Manitoba. Butter. 14th December, 1889.

3614. GANONG BROTHERS, of St. Stephen, Charlotte County, N.B. Confectionery. 16th December, 1889.

3615. GEORGE A. MACBETH AND COMPANY, of Pittsburgh, Pennsylvania, U.S. Lamp Chimneys. 16th December, 1889.

3616. DOMINION WIRE MANUFACTURING COMPANY, (L'd.), of Montreal, Que. 19th December, 1889.

3617, GEORGE JOHN WOODS and HENRY W. BOWERING, of Toronto, Ont. Soap. 23rd December, 1889.

3618. E. N. CUSSON, de Montreal, Que. Cigares. 23 Decembre, 1889.

3619. W. FRANK HATHAWAY, of St. John, N.B. Wheaten Flour. 23rd December, 1889.

3620. DOMINION EXPRESS COMPANY, (L'd.), of Montreal, Que. Label to be used in their business as express carriers. 24th December, 1889.

COPYRIGHTS.

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5139. ORANGE AND BLUE SCHOTTISCHE. By Edmund Corlett, Toronto, Ont. 2nd Dember, 1889.

5140. CALENDAR FOR 1890. Edmund Thornton Loveday, Ottawa, Ont. 2nd December, 1889.

5141. THE WAY OF HOLINESS. Arranged by Thomas Bawdon. Rev. J. McD. Kerr, Toronto. Ont. 4th December, 1889.

5142. MURRAY'S ILLUSTRATED GUIDE TO MONTREAL and VICINITY. 1889. Norman Murray, Montreal, Que. 6th December, 1889.

5143. HESTER HEPWORTH. By Kate Tannatt Woods. (book).
5144. HEDRI; or, BLIND JUSTICE. By Helen Mathers (book).
John Lovell & Son, Montreal, Que. 6th December, 1889.

5145. LITTLE SALLY WATERS JERSEY. By E. Corlett. W. H. Billing, Toronto, Ont. 7th December, 1889.

5146. WHEN THE PEARLY GATES UNFOLD.
5147. WILL YOU COME IN?
5148. THE SHELTERING ROCK.
5149. THERE'S A BLESSING FOR ME.
5150. THE DOOR OF GOD'S MERCY.
5151. THE BLESSED STORY.
5152. MARCHING HOME TO GLORY.
5153. LAENING ON JESUS.
5154. HEAVY-HEARTED.
5155. HARK! HARK! MY SOUL.
5156. GO AND TELL JESUS.
5157. COME, YE SINNERS.
5158. A MORNING HYMN.
5159. ALMOST THERE.

J. H. Hathaway, Brantford, Ont. 9th December, 1889.

5160. LONG ODDS and HUNTER QUATERMAIN'S STORY. By H. Rider Haggard, (Published in "Canada's Christmas"). Wm. Bryce, Toronto, Ont. 9th December, 1889.

5161. WHEN THE LIGHTS ARE LOW. Song. Words and Music by Gerald M. Lane. The Anglo-Canadian Music Publishers' Association (Limited), London, England. 9th December, 1889.

5162. CANADIAN ALMANAC FOR 1890. The Copp, Clark Co., (L'd.), Toronto, Ont. 9th December, 1889.

5163. RULES AND FORMS OF PROCEDURE IN THE CHURCH COURTS OF THE PRESBYTERIAN CHURCH IN CANADA. Wm. Reid, D.D., Toronto, Ont., in trust for the Presbyterian Church on Canada. 10th December, 1889.

5164. MENUET No 1 Opus 9. By Byron C. Tapley, St John, N.B. 10th December, 1889.

5165. TOUJOURS A TOI. Valse Serieuse, par E. Fraser Blackstock. I. Suckling & Sons, Toronto, Ont. 10th December, 1889.

5166. PREMIUM RATES AND AGENTS' GUIDE (Insurance book). John Braithwaite Carlile, Toronto, Ont., 10th December, 1889.

5167. A YANKEE IN KING ARTHUR'S COURT. By Mark Twain, (book). Andrew Chatto, London, England. 11th December, 1889.

5168. ARMINELL. By S. Baring Gould, (book). The National Publishing Co. Toronto, Ont. 12th December, 1889.

5169. ALL THE YEAR ROUND LANCERS. By Nellie S. Smith. The Anglo-Canadian Music Publishers' Association, (L'd.) London, England. 12th December, 1889.

5170. THE ILLUSTRATED ALMANAC 1890. James Murray & Co., Toronto, Ont. 12th December, 1889.

5171. POCKET LEXICON OF CANADIAN FREEMASONRY. By William John Morris, Perth, Ont. 12th December, 1889.

5172. BROKEN SHACKLES. By Glenelg.
5173. REVIVAL HYMNS. Selected and Arranged by Rev. J. McD. Kerr.
Wm. Briggs, Toronto, Ont. 12th December, 1889.

5174. UP WITH THE UNION JACK. Song and Chorus by E. G. Nelson, St John, N. B. 12th December, 1889.

5175. RECUEIL DE MELODIES ET CHANSONNETTES Comprenant:—

1. La Fleur du Souvenir
2. Je t'aimerai.
3. L'adieu du matin.
4. Les Hirondelles.
5. Suzette et Suzon.
6. Chanson d'amour.
7. La Fontaine aux Plaintes.
8. Le Petit Doigt de la Maman.

par Ernest Lavigne, Montreal, Que, 16 Decembre, 1889.

5176. OUR FOREST HOME. (book). Eleanor Susanna Dunlop, Peterborough, Ont. 17th December, 1889.

5177. TELEGRAPHIC CODE to be used in the business of CLARK, BARBER & CO. Clark, Barber & Co., Toronto, Ont. 17th December, 1889.

5178. WITCH WINNIE. The Story of a "King's Daughter." By Elizabeth W. Champney, The Rose Publishing Co., Toronto, Ont., 17th December, 1889.

5179. WOMAN: HER CHARACTER, CULTURE AND CALLING. The Book and Bible House. Thomas S. Linscott, Manager, Brantford, Ont. 18th December, 1889.

5180. The Bell Telephone Company, of Canada, SUBSCRIBERS' DIRECTORY December, 1889. The Bell Telephone Company of Canada, Montreal, Que., 20th December, 1889.

5181. L'INTERIEUR DE L'EGLISSE DE LA BONNE STE. ANNE. Côte de Beaupré. A. (photographie). Jules ErnestLivernois, Quebec, Que. 20 Decembre,1889.

5182. L'INTERIEUR DE L'EGLISE DE LA BONNE STE. ANNE, Côte de Beaupré. B. (photographie). Jules Ernest Livernois, Quebec, Que. 20 Decembre, 1889.

5183. L'INTERIEUR DE L'EGLISE DE LA BONNE STE. ANNE, Côte de Beaupré, C. (photographie). Jules Ernest Livernois, Quebec, Que. 20 Decembre, 1889.

5184. Bell Telephone Company of Canada, Western Exchanges, SUBSCRIBERS' DIRECTORY, Ontario Department, December, 1889. The Bell Telephone Company of Canada, Montreal, Que. 23rd December, 1889.

5185. DAVIS' HINTS AND SUGGESTIONS TO BOOK-KEEPERS. Shirley Davis. Township of Pittsburg, County of Frontenac, Ont. 23rd December, 1889.

5186. ANDREWS' MERANTILE PROTECTIVE METHOD. Edwin S. Andrews, Ottawa, Ont. 23rd December, 1889.

5187. SUPPLEMENT NO. 1, TO SHARP'S CIVIL CODE, from the 1st October, 1888, to the 1st October, 1889. By W. P. Sharp, B.C.L. Wm. Prescott Sharp, and Amédée Periard, Montreal, Que. 27th December, 1889.

5188. UNFURL THE TEMPERANCE FLAG. Words by Llewellyn A. Morrison, Toronto, Ont. 30th December, 1889.

5189. THE BIRTH OF OUR SAVIOUR. (picture in high relief). Henri Médéric Le Blanc. Montreal, Que. 30th December, 1889.

5190. LEAD THEM STRAIGHT. Song. Words by Frederick Langbridge, M.A. Music by William Smallwood. The Anglo-Canadian Music Publishers' Association, L'd.), London, England. 30th December, 1889.

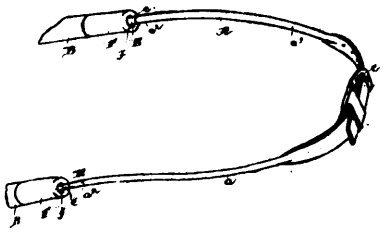
5191. INSURANCE PLANS OF ALEXANDRIA, FORT WILLIAM, RIVERSIDE, SAULT STE. MARIE, VANLEEK HILL, all in Ontario. Charles Edward Goad, Montreal, Que. 31st December, 1889.

THE

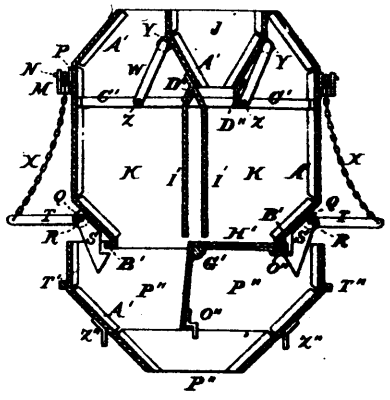
CANADIAN PATENT OFFICE RECORD.

ILLUSTRATIONS.

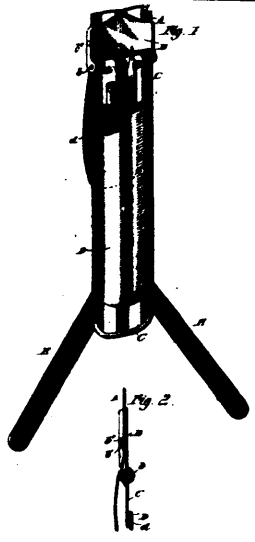
Vol. XVII. DECEMBER, 1889. No. 12.



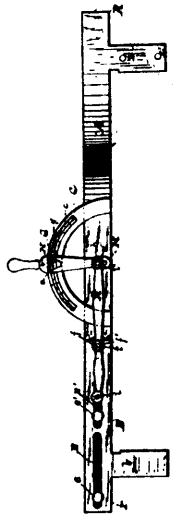
32954 Graham's Shaft Attachment.



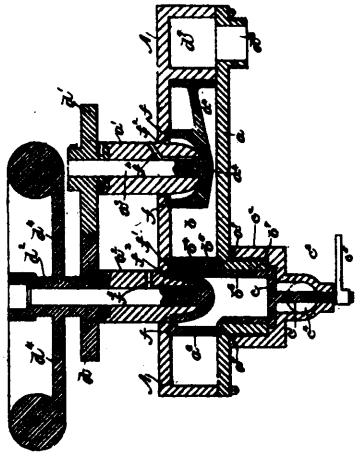
32955 Fulwider's Machine for Grain Weighing, etc.



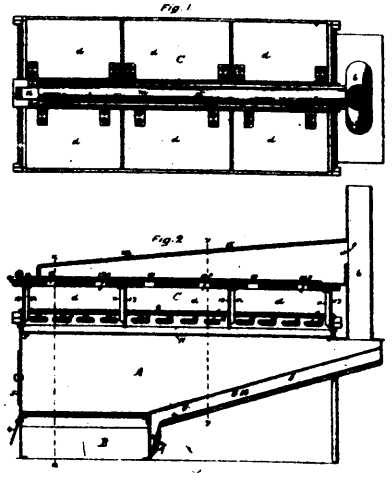
32956 Pell & Knox's Suspender Ends.



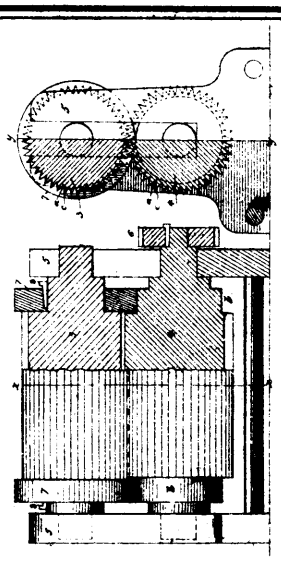
32957 Griffin's Measuring Gage.



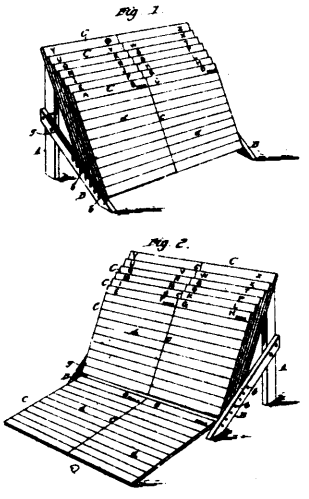
32958 Weston's Rotary Engine.



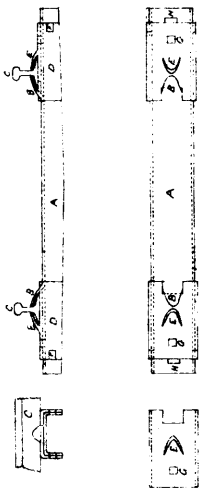
32959 Wheeler's Evaporator



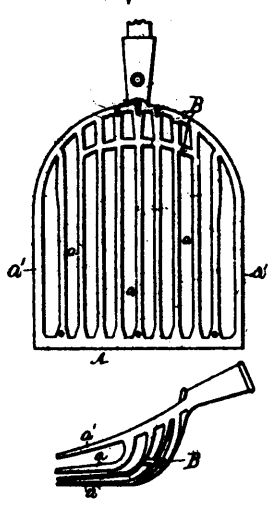
32960 Denham & McKemmil's Drawing Roll, etc.



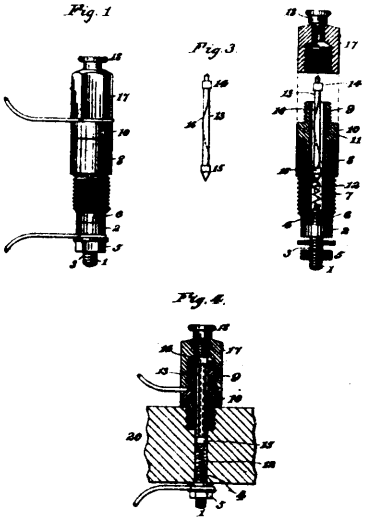
32961 Buland's Ledger Index Device.



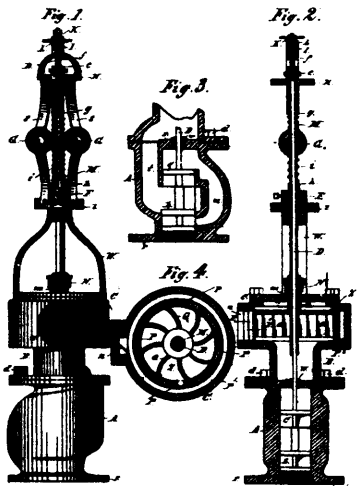
32962 Francis' Metallic Railway Tie.



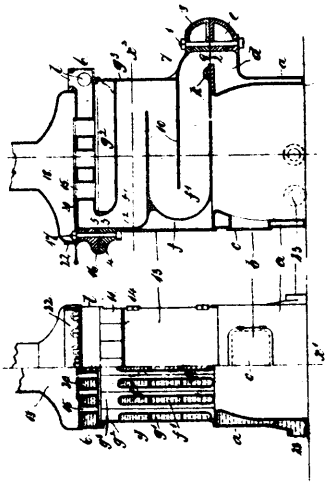
32964 Vowles's Potato Scoop.



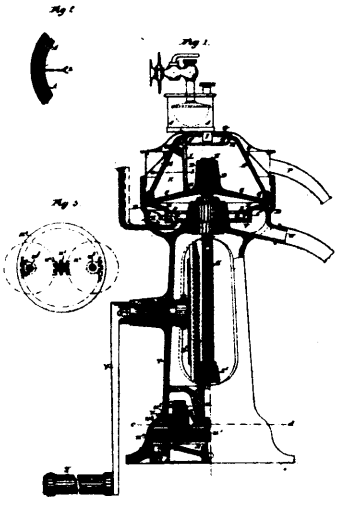
32966 Root's Combined Binding Post, etc.



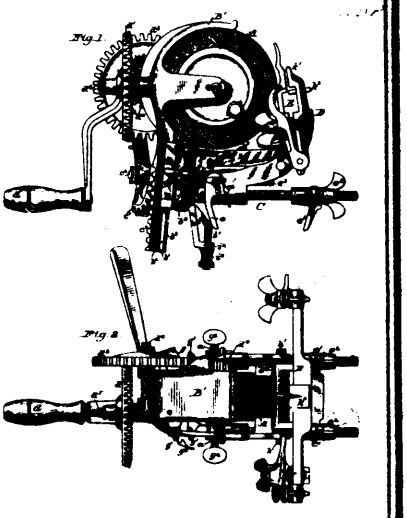
32967 Brown's Steam Engine Governor.



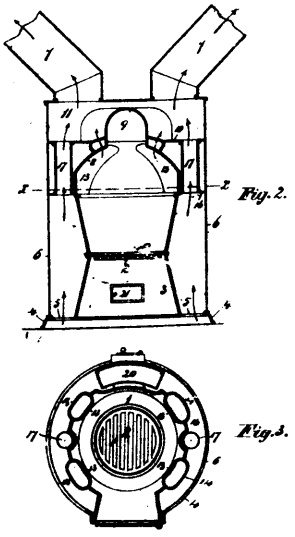
32968 Wells' Water Heater.



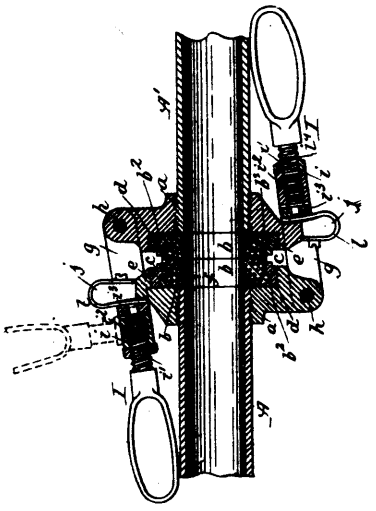
32969 Laidlaw & Macfarlane's Centrifugal Machine.



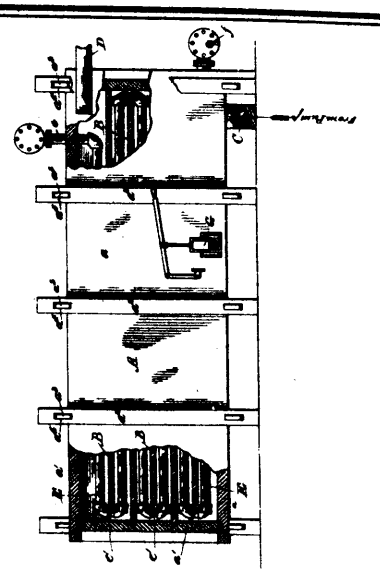
32970 Dutton's Machine for Grinding Mower Knives.



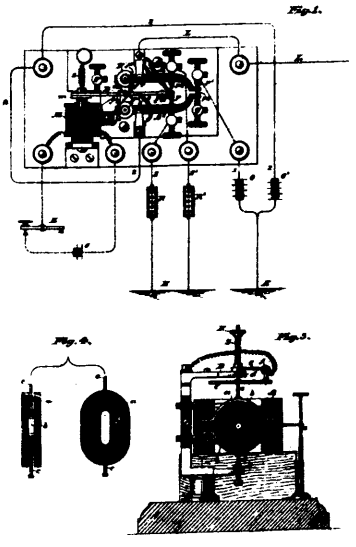
32971 Powell & Gobeille's Hot Air Furnace.



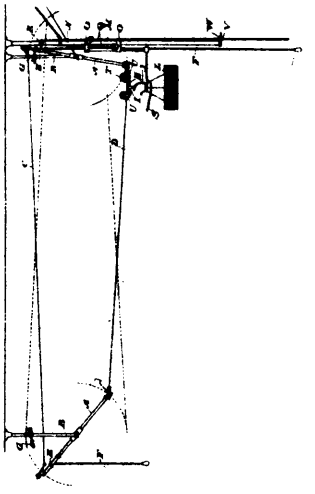
32972 Botsford's Pipe Coupling.



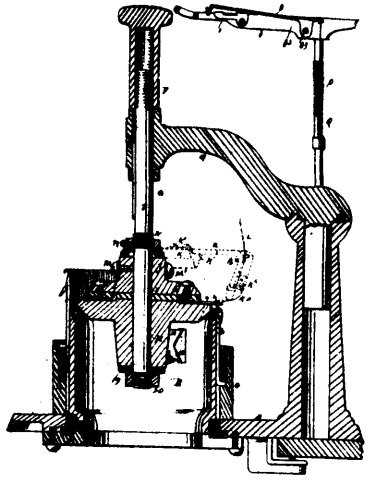
32974 Carley's Apparatus for Heating Tan Liquor.



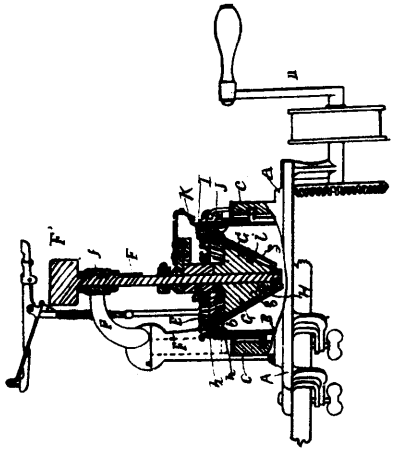
32975 Burke's Telegraphic Instrument.



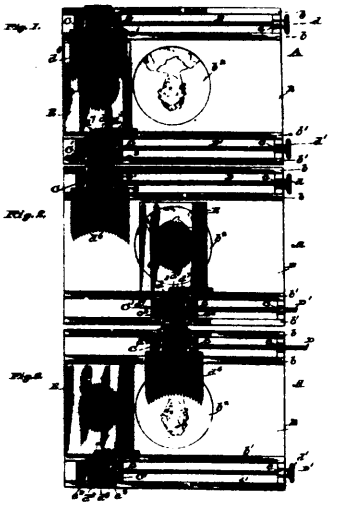
32976 Hazard's Cash Carrier Apparatus.



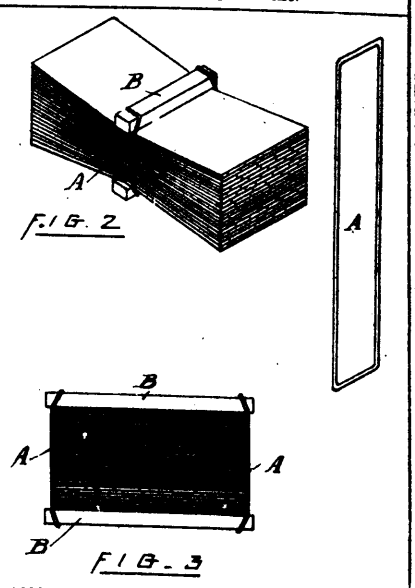
32977 Murby's Knitting Machine.



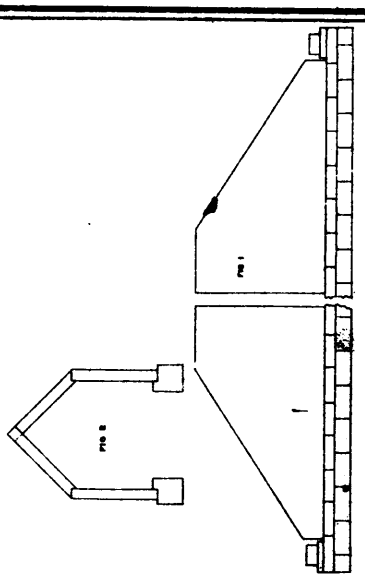
32978 Murby's Looping Attachment.



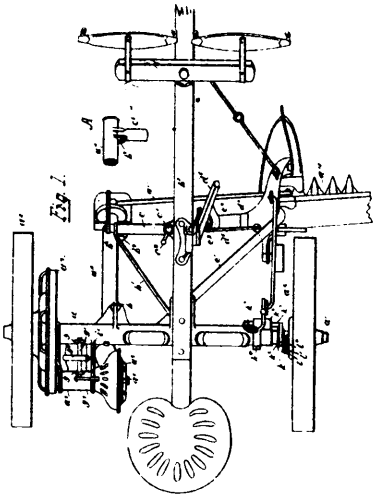
32979 Clark's Photographic Vignetter.



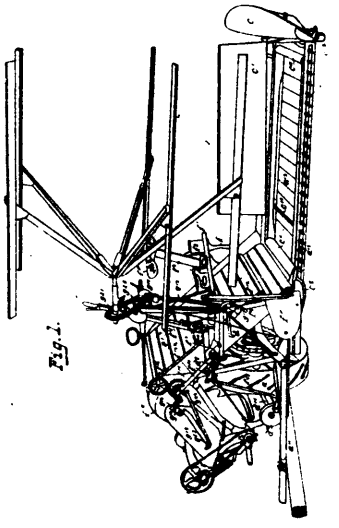
32980 Waring's Shingle Binding Loop.



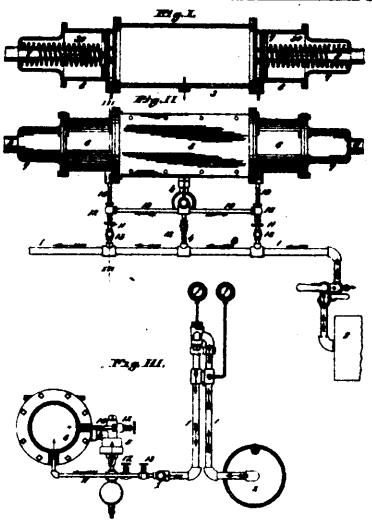
32981 Harris' Culvert.



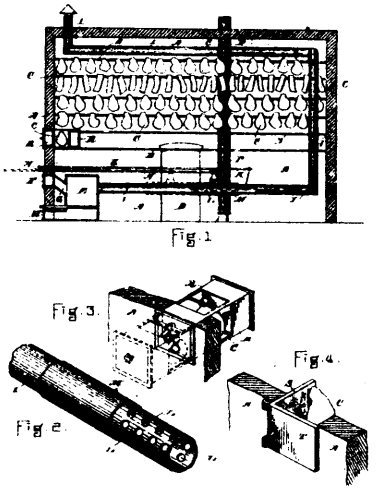
32982 Whitely's Harvesting Machine.



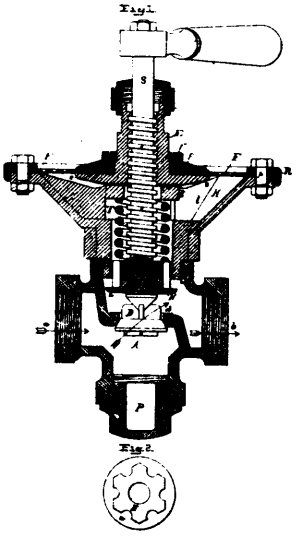
32983 Whitely's Harvesting and Binding Machine



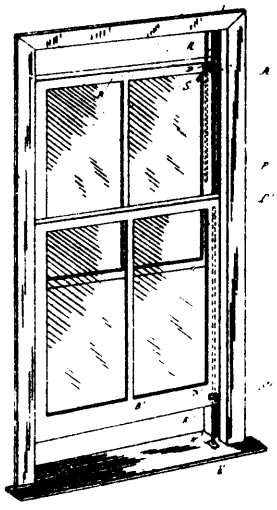
32984 Lansberg's Air Brake.



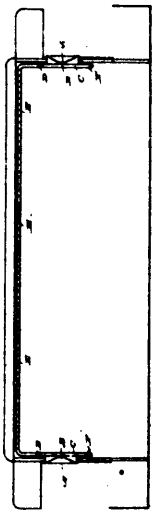
32985 Downs' Apparatus for Smoking Meats.



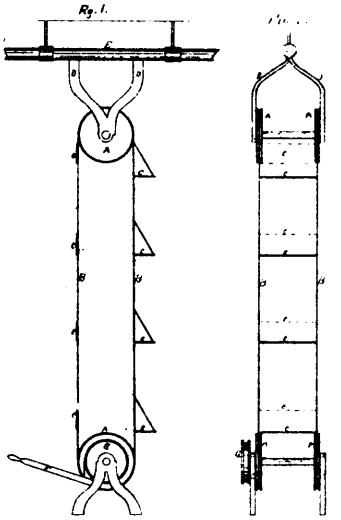
32986 Foster's Pressure Regulating Valve, etc.



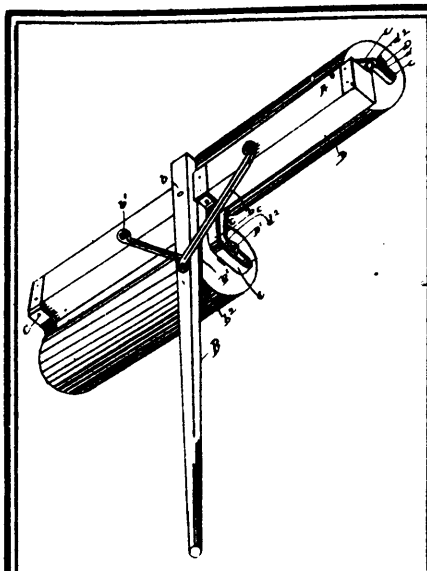
32987 Graburn's Sash Fastener.



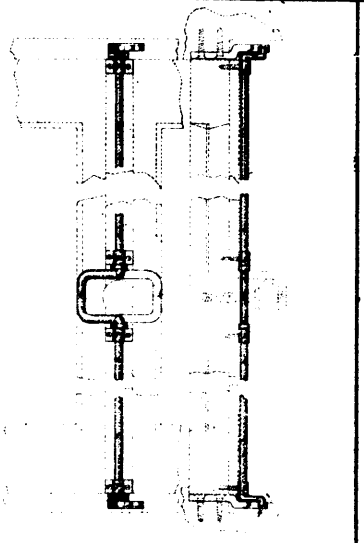
32988 Turnbull's Ventilator.



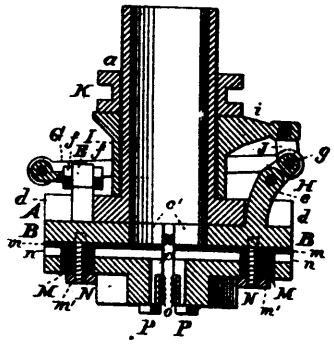
32989 Wood's Fire Escape.



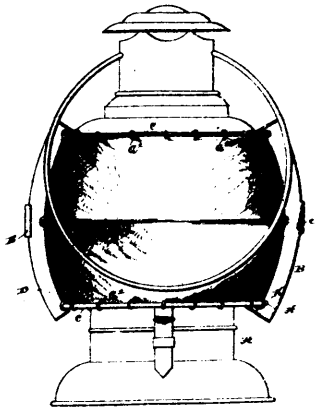
32990 Derby's Land Roller.



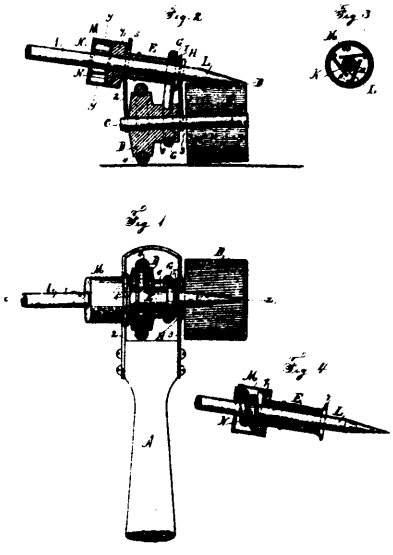
32991 Ouellet's Targette.



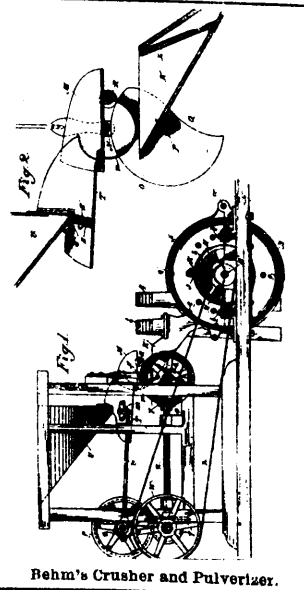
32992 Becher's Machine for Bolt Threading.



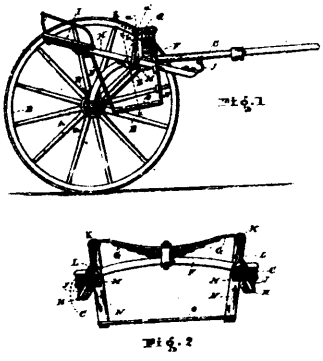
32993 Westervelt's Signal Lantern.



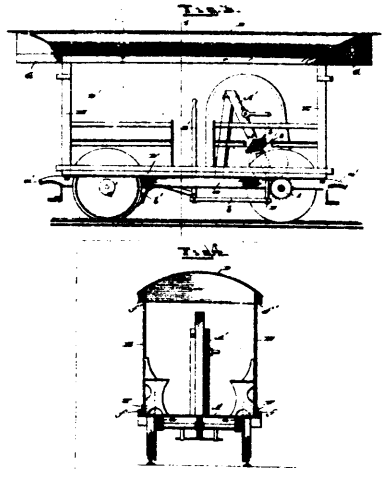
32994 Black's Pencil Sharpener.



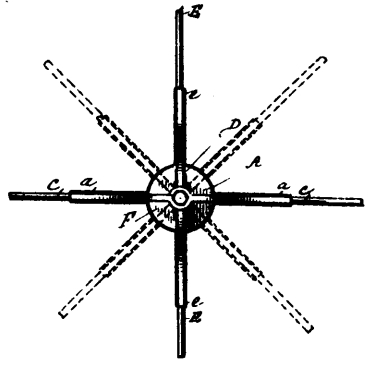
32995 Behm's Crusher and Pulverizer.



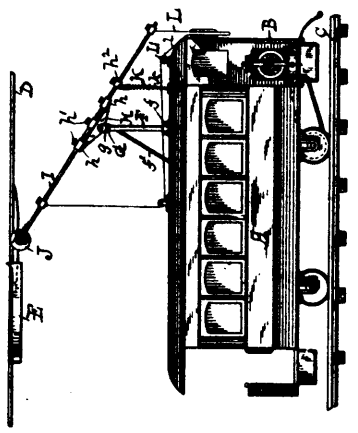
32998 Doland's Road Car.



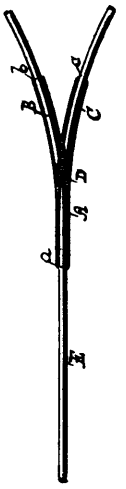
32997 Kuhl's Hand Car.



32999 Van Depoele's Crossing and Switch.

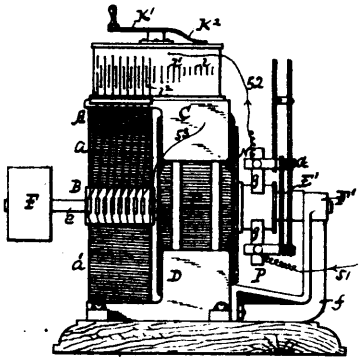


33000 Van Depoele's Contact and Switch.

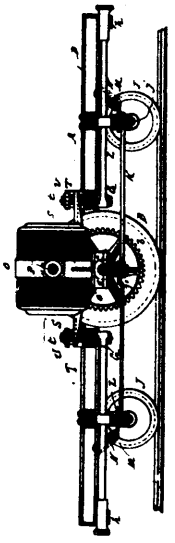


33001 Van Depoele's Switch.

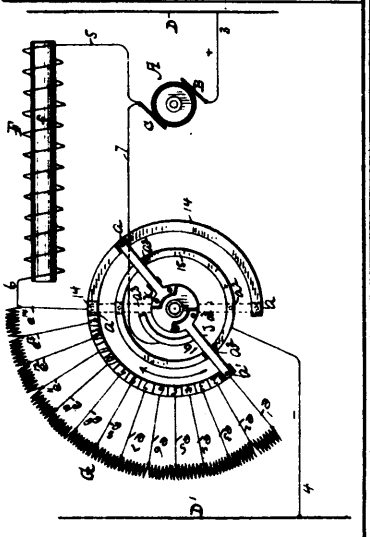
33002 Van Depoele's Conductor System for Electric Railways.



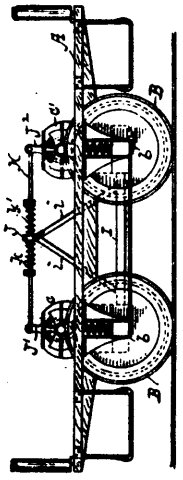
33003 Van Depoele's Electric Motor.



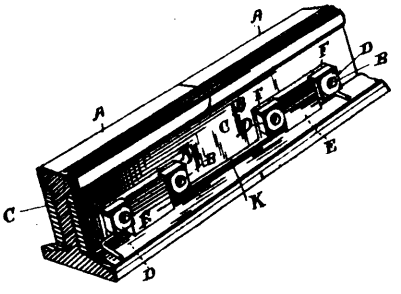
33004 Van Depoele's Electric Locomotive.



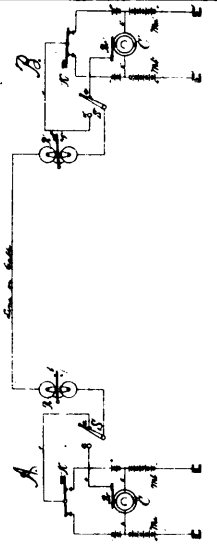
33005 Van Depoele's Electro-Dynamic Motor.



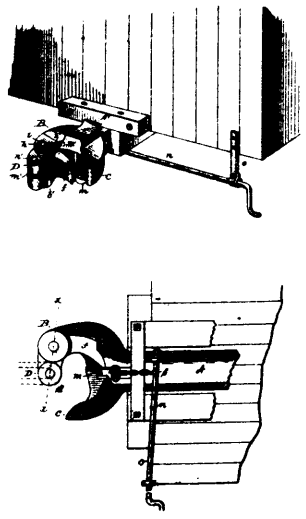
33006 Van Depoele's Electric Locomotive.



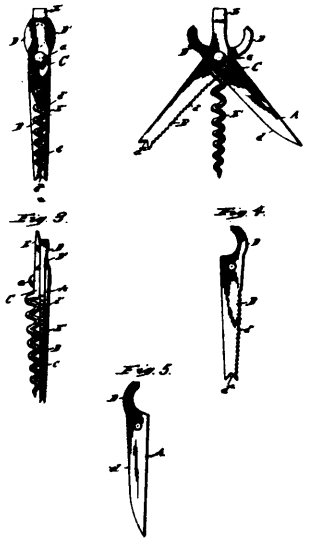
33007 Steiner's Nut Lock.



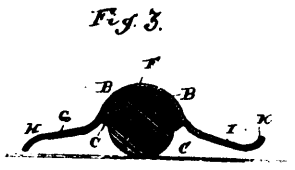
33008 Keeley's Telegraph Circuit.



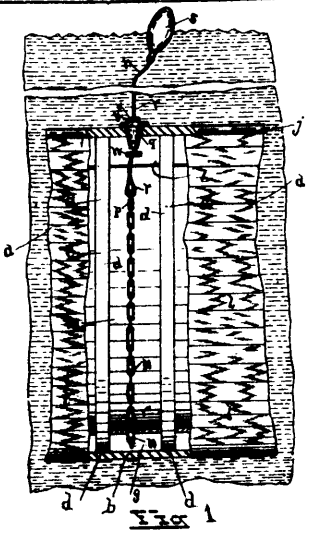
33010 Hinson's Car Coupler.



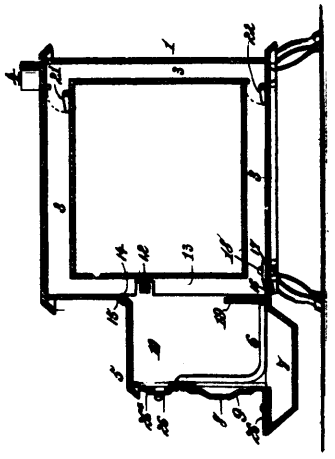
33011 Kimball's Combination Tool.



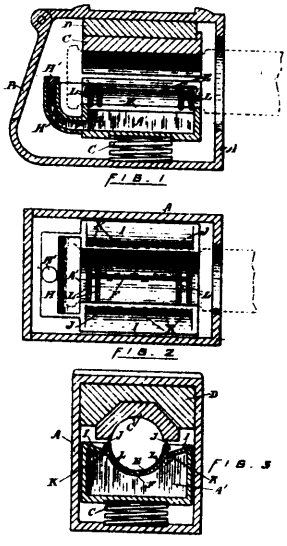
33012 Phelps & Ellis' Parallel Ruler.



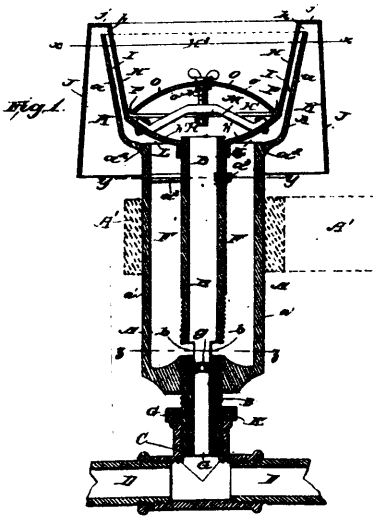
33013 Sloan's Device for Securing Hoisting Chains to Sunken Vessels.



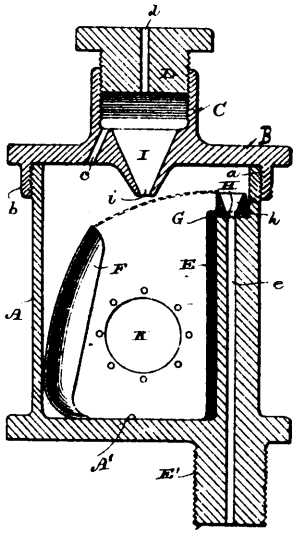
33014 Sanders' Stove.



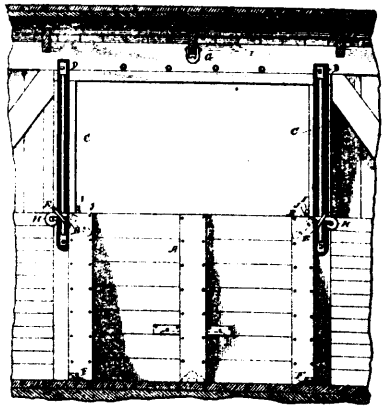
33015 Best's Car Axle Lubricator.



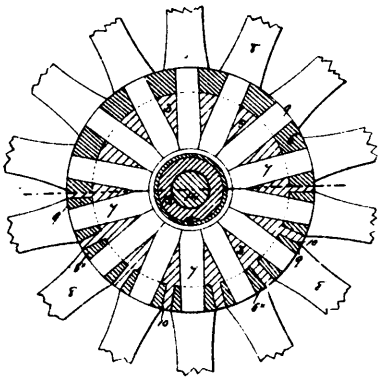
33016 Gibbons' Burner.



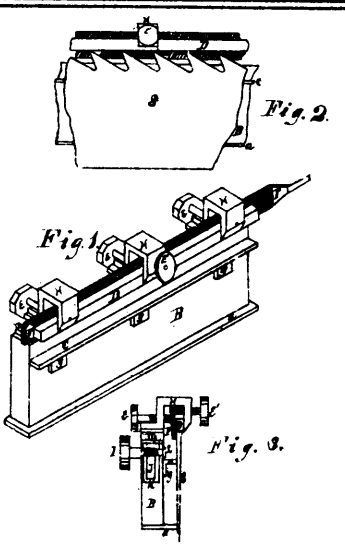
33017 Bangs' Oil Cup.



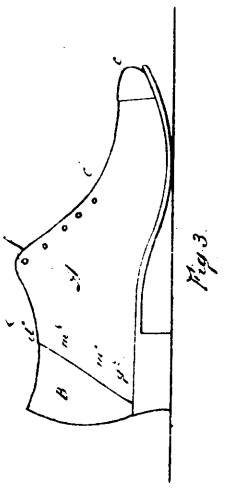
33018 Hill's Main Door for Cars.



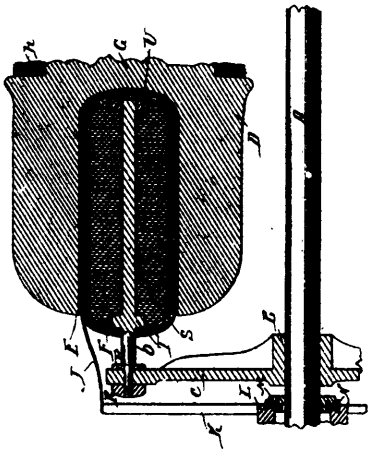
33019 Arnott's Wheel of Vehicle.



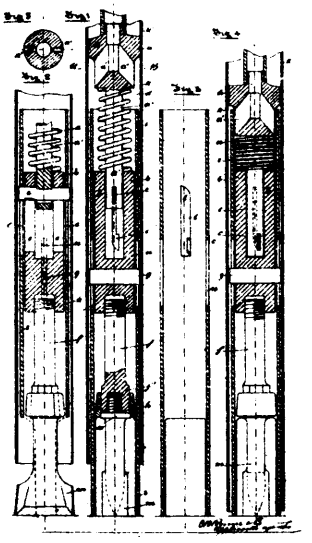
33020 Aber's Apparatus for Filing Saws.



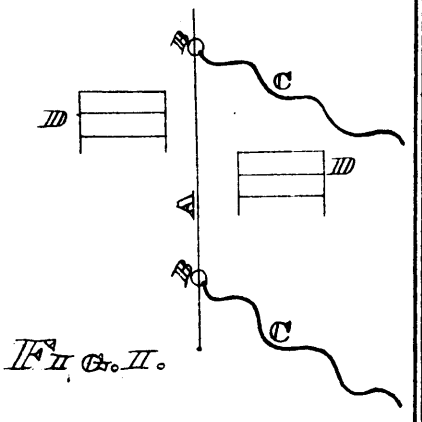
33021 Peltier's Empeigne de Chaussures.



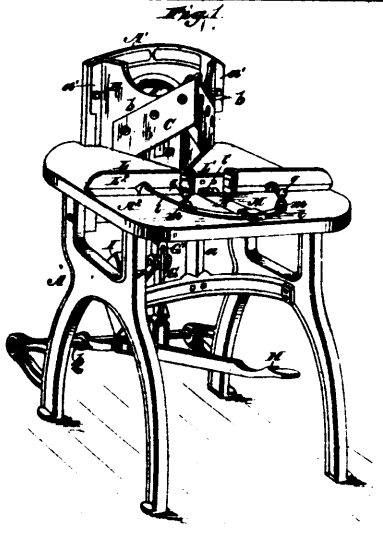
33022 Sperry's Dynamo.



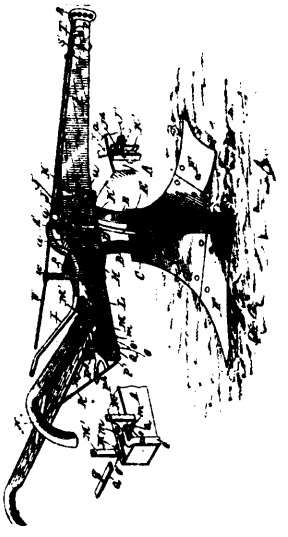
33023 Przibilla's Earth Boring Apparatus.



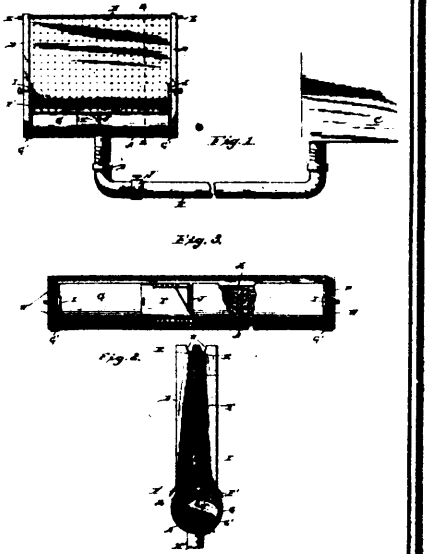
33024 Perrin's Contrivance for Guarding Cattle.



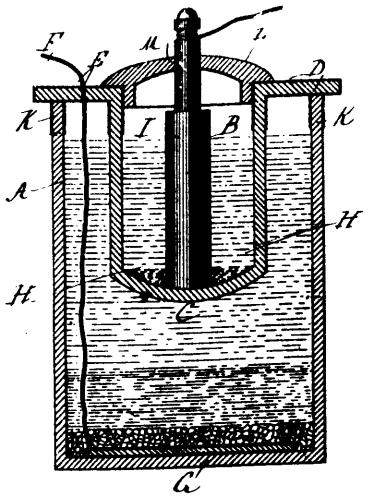
33025 Murphy's Mitering Machine.



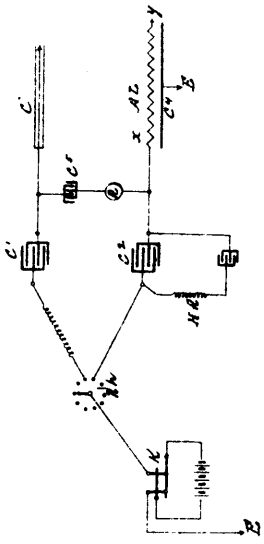
33026 Buckhart's Side Hill Plough.



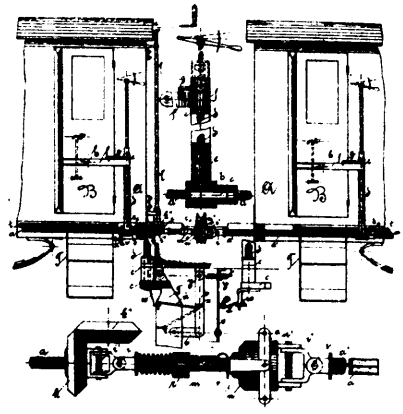
33027 Streeter's Oil Burning Apparatus.



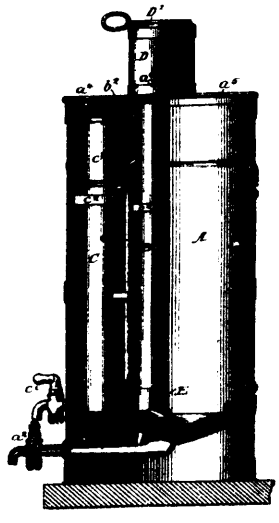
33028 Gethins' Galvanic Battery.



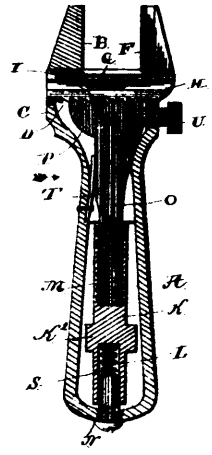
33029 Muirhead's Electric Telegraph.



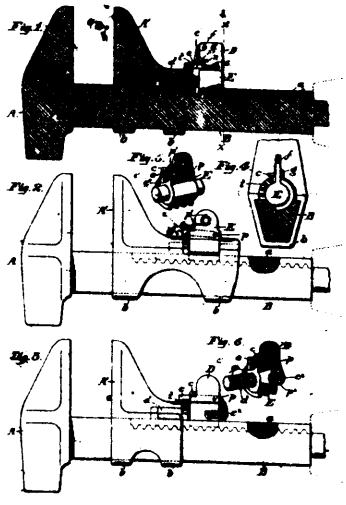
33030 Leimbrock's Door of Railway Passenger Carriage.



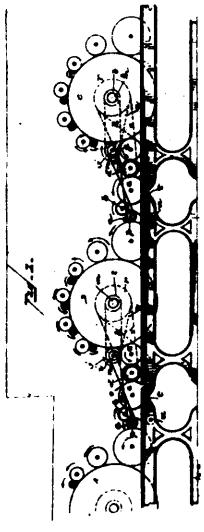
33031 Ellis' Oil Filter.



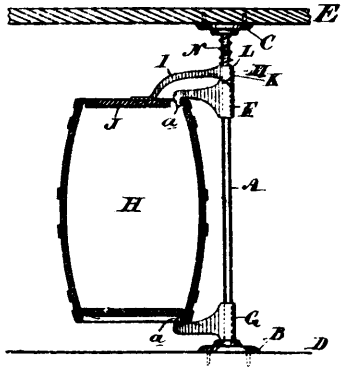
33032 Erickson's Wrench.



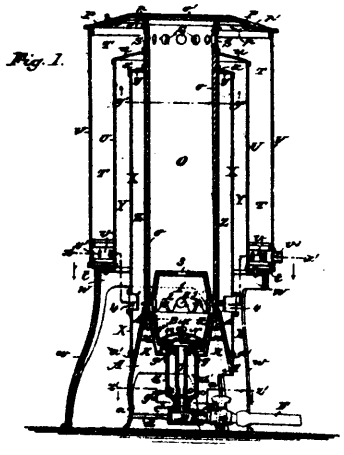
33033 McDonnell's Wrench.



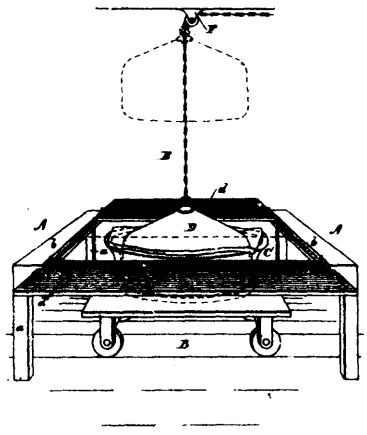
33034 Carpenter's Carding Machine.



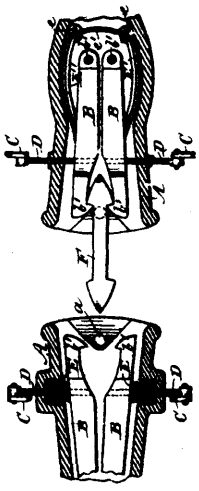
33035 Mason & Ham's Barrel Swing.



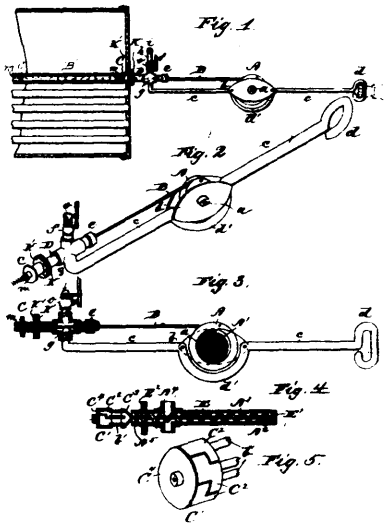
33036 Gibbons' Gas Stove.



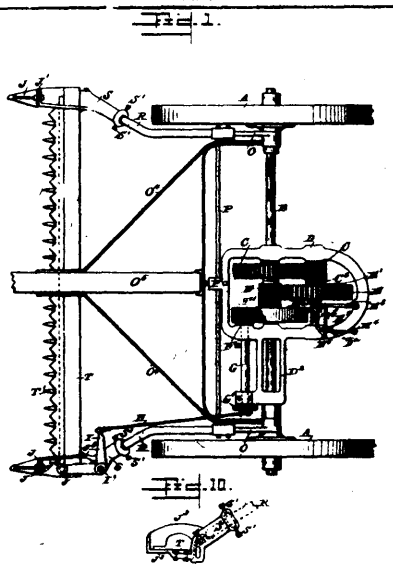
33037 Curtis's Process of Making Hollow Glass Ware.



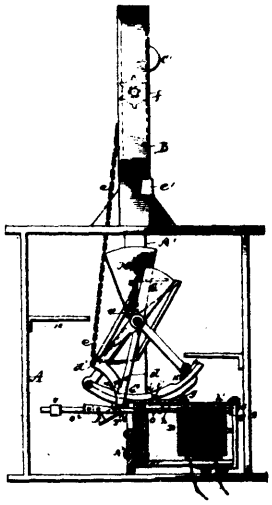
33038 Bunce's Car Coupler.



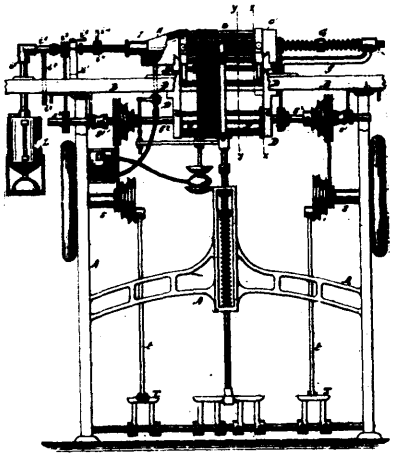
33039 Ehrlich's Flue Cleaner.



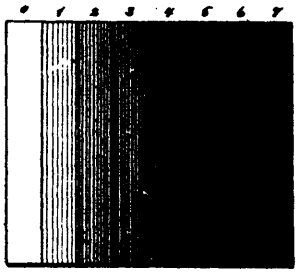
33040 Hill's Centre Draft Mowing Machine.



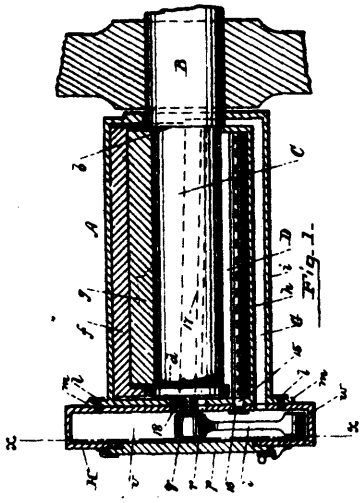
33041 Stitzel & Weinedel's Electric Semaphore.



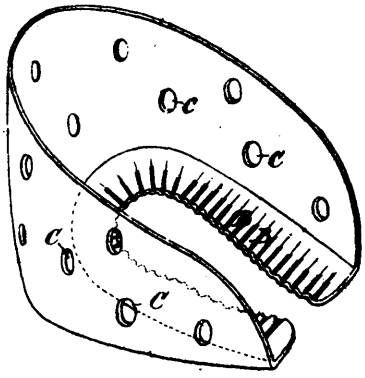
33042 Schmalz's Cigar Bunch Wrapping Machine.



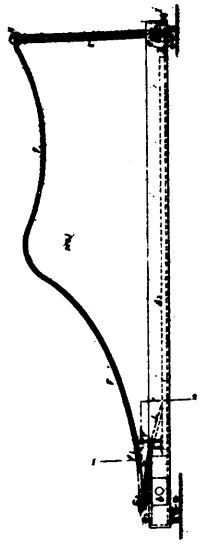
33043 Muller's Translucent Film, etc.



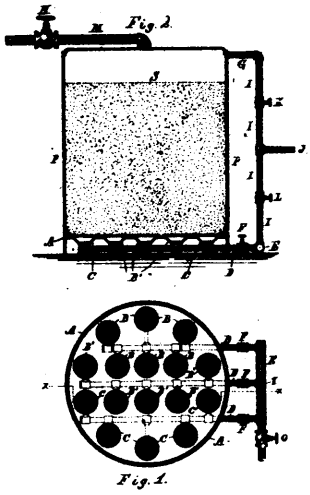
33044 Brownley's Journal Box, etc.



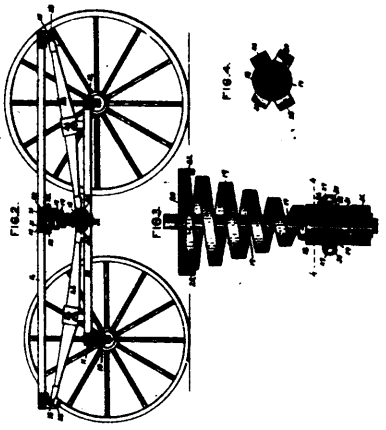
33045 Beacock's Heel Counter.



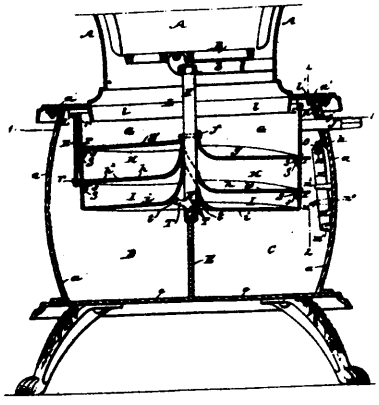
33046 Burroughes' Board or Table, etc.



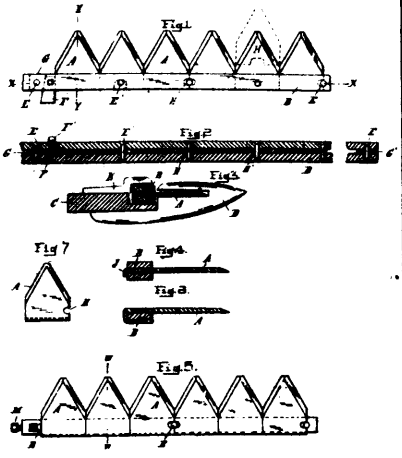
33047 Hyatt's Process of Cleaning Filter Beds.



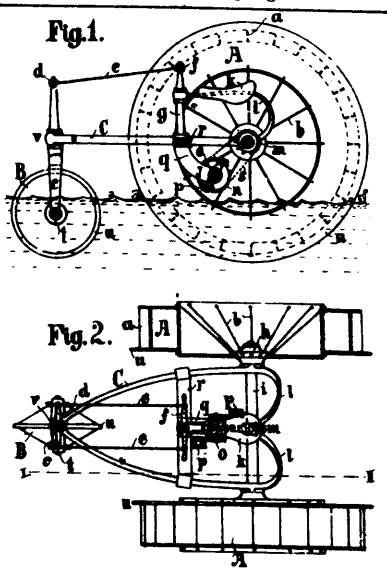
33048 Norfolk's Vehicle Spring.



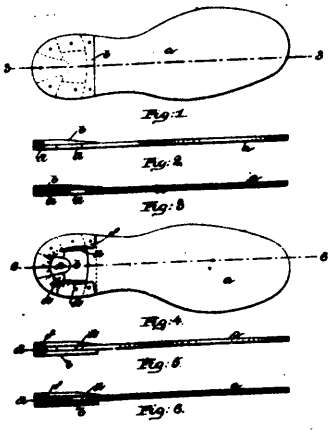
33049 Smith's Ash Sifter, etc.



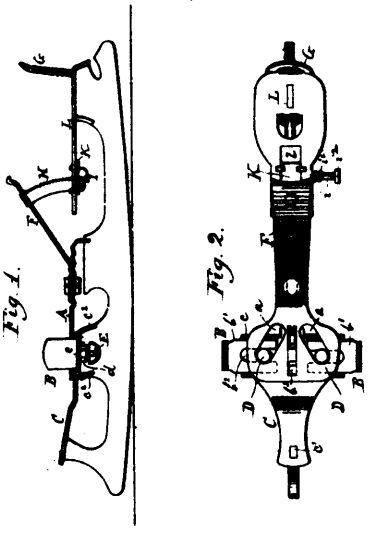
33050 Palmer's Sickle Bar, etc.



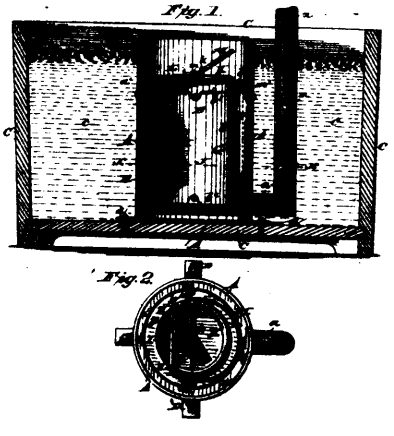
33051 Pinkert's Tricycle, etc.



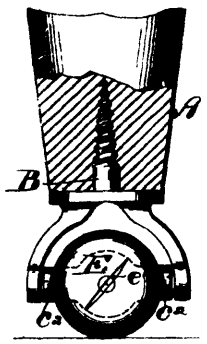
33052 Boivin's Semelle de Chaussure.



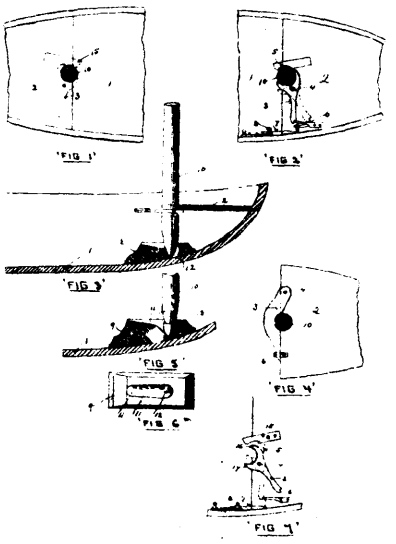
33053 Heinze's Skate.



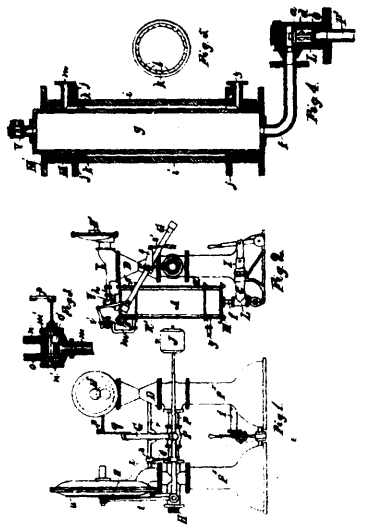
33054 Harrington's Water Heater.



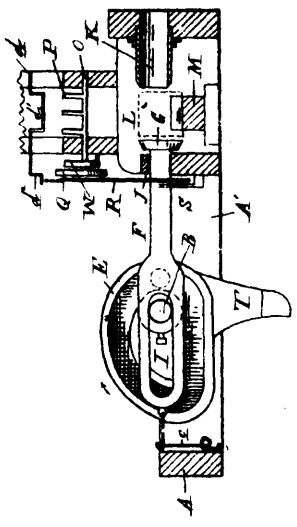
33055 Treat's Caster.



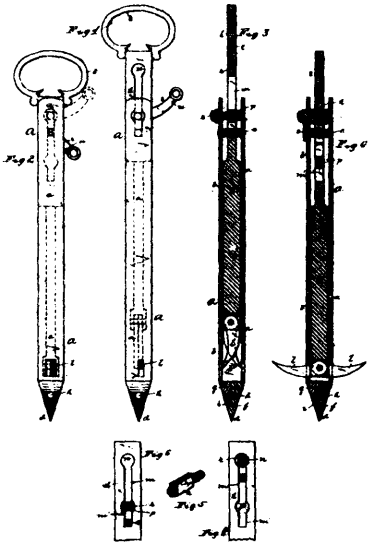
33056 Corick's Mast Supporter.



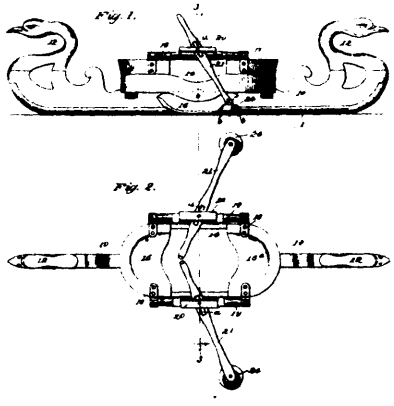
33057 Cottrell's Process and Apparatus for Making Gas.



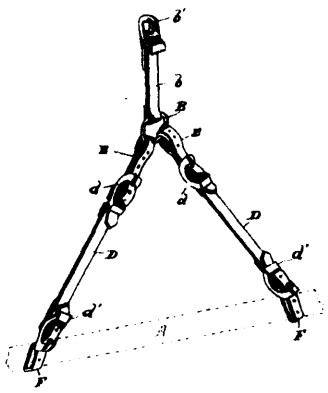
33058 Southworth's Paving Block Cutting Machine.



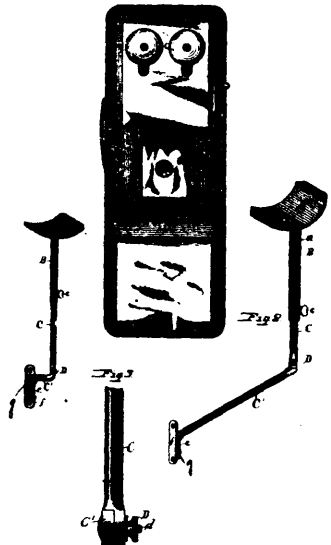
33059 Durning's Horse Hay Fork.



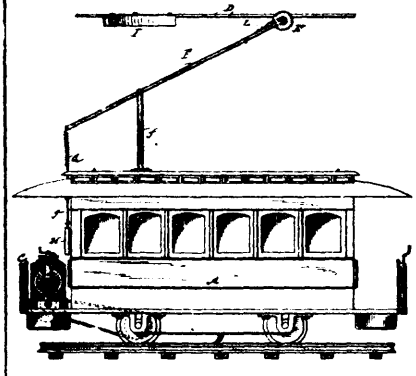
33060 Thomas' Sleigh.



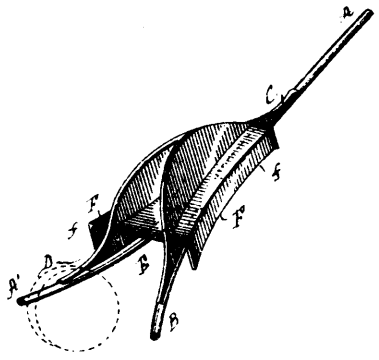
33061 Kimball's Tug Holder.



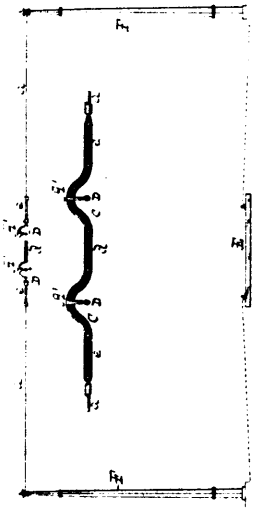
33062 Hammersbough & Wolf's Elbow Rest for Telephones.



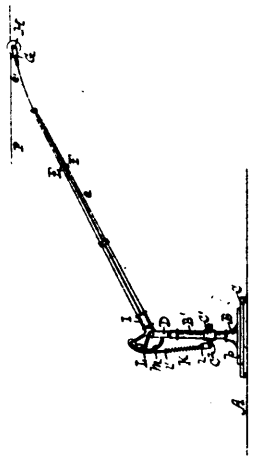
33063 Van Depoele's Suspended Switch, etc.



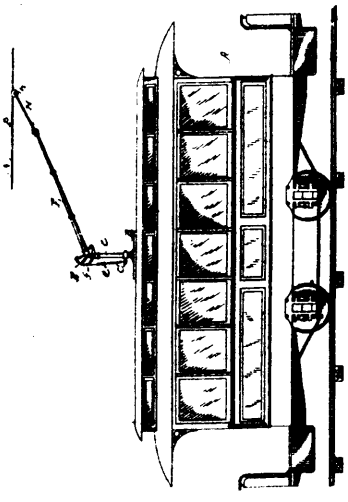
33064 Van Depoele's Switch, etc.



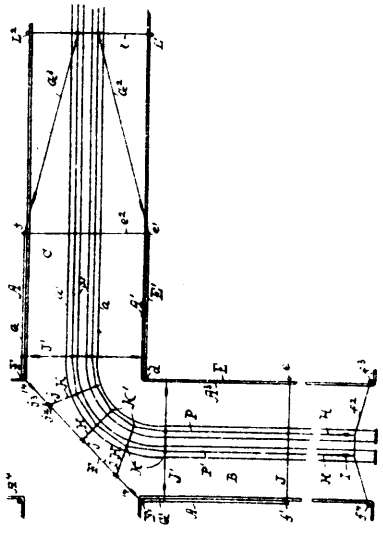
33065 Van Depoele's Arched Suspender, etc.



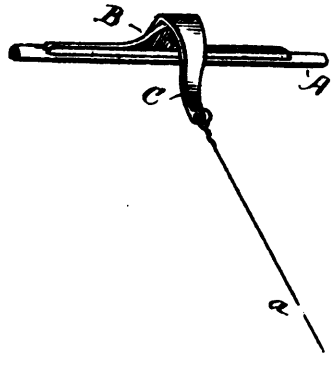
33066 Van Depoele's Constant Upward Pressure Contact, etc.



33067 Van Depoele's Duplex Upward Pressure Contact, etc.



33068 Van Depoele's Suspending Electric Conductors.



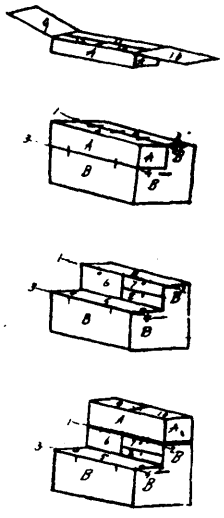
33069 Van Depoele's Hooked Suspender, etc.

33070 Van Depoele's Suspension Device, etc.

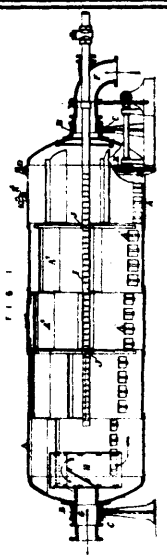
Fig. 1.

33071 Stedman's Dental Plate.

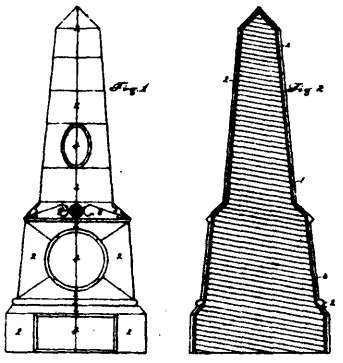
33072 Blackall's Parallel Ruler.



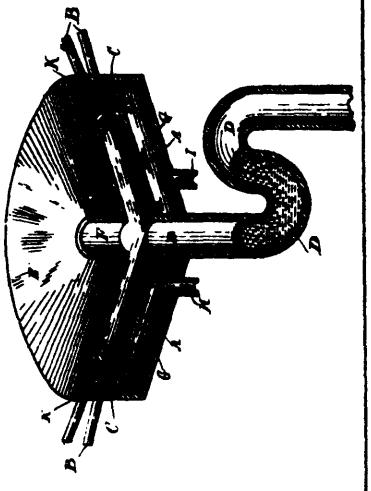
33073 Stephen's Trunk Lid.



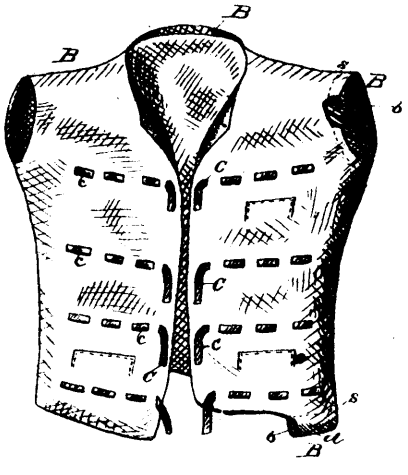
33074 Anderson's Purification of Water, etc.



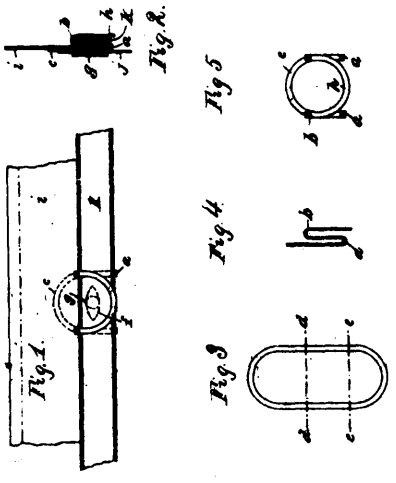
33075 Konigsberg's Ornamental Structure.



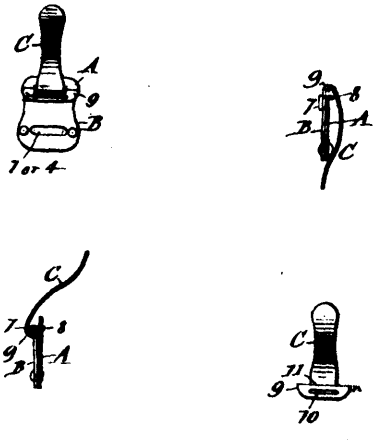
33076 Lloyd's Device for Evaporating Liquids.



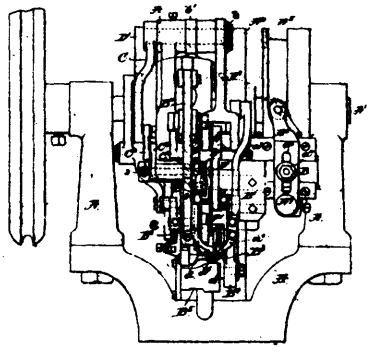
33077 Mudge & Masson's Paper Garment.



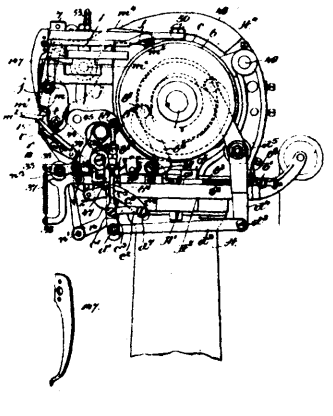
33078 Atwater's Scarf and Necktie Holder.



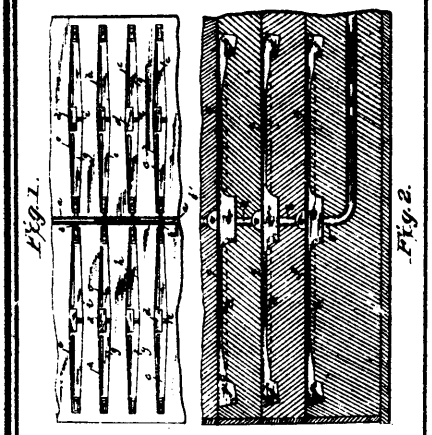
33079 Nase's Buckle.



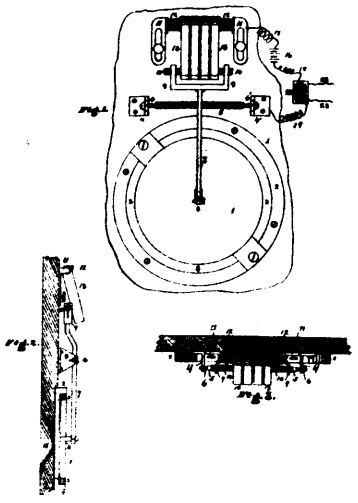
33080 French & Meyer's Sewing Machine.



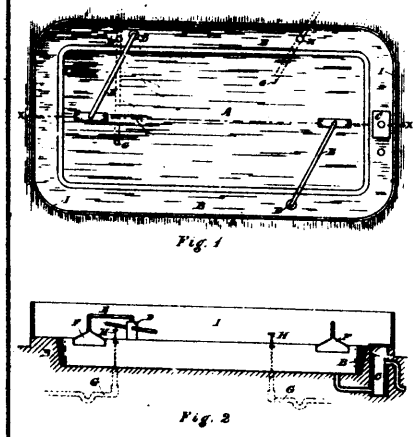
33081 French & Meyer's Sewing Machine.



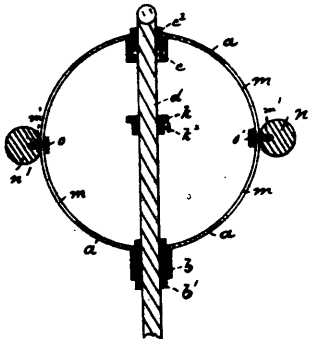
33082 LeRoy's Horse Shoe.



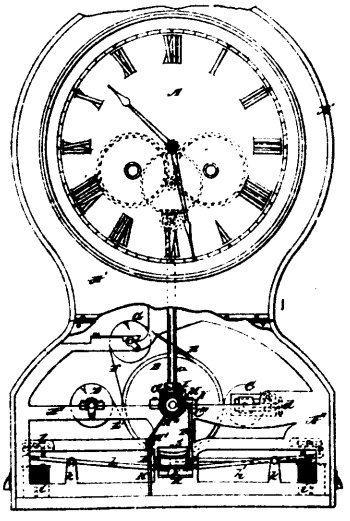
33083 Unger's Telephone Transmitting Instrument.



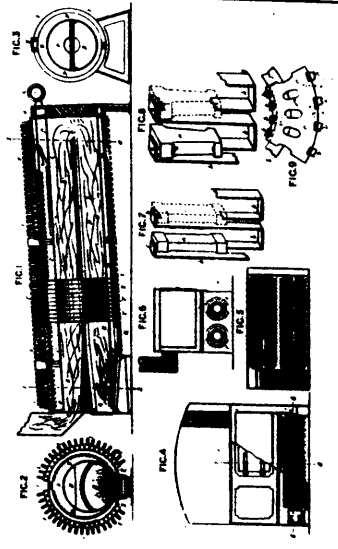
33084 Destroismaisons & Oligny's Device for the Manufacture of Pure Ice.



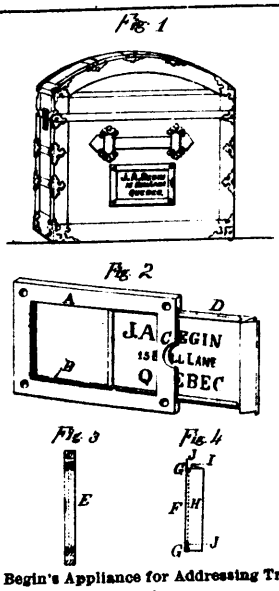
33085 Gartner's Electro Regulator.



33086 Bassford & Maynard's Time Register.

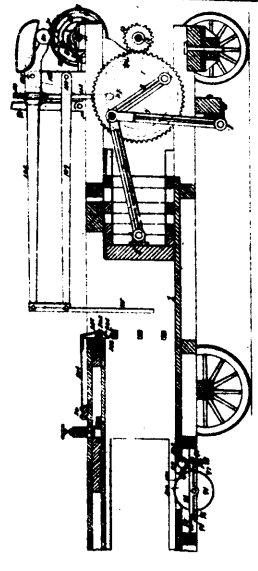


33087 Roberts & Mollison's Thermo-Electric Generator.

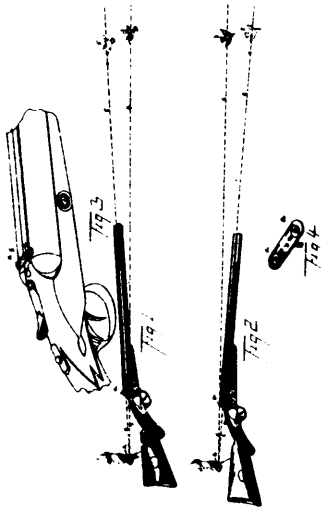


33088 Begin's Appliance for Addressing Trunks, etc

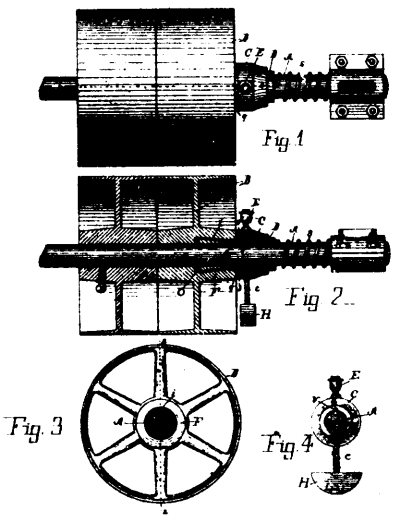
33089 Ridge's Game and Board, etc



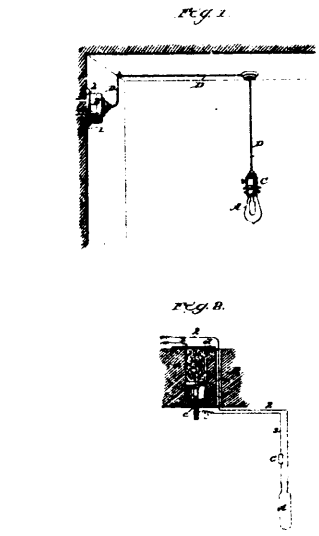
33090 Whitman's Baling Press.



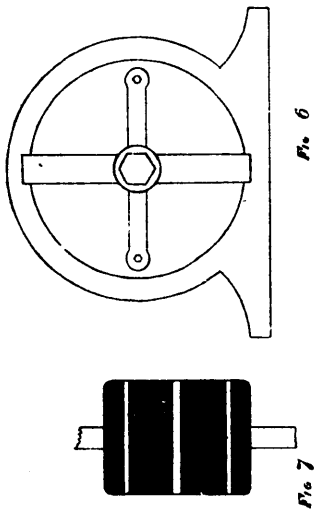
33091 Cutler's Sight for Fowling Pieces, etc.



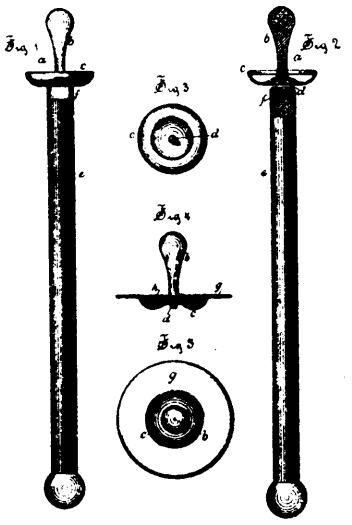
33092 Rhodes' Loose Pulley Lubricator.



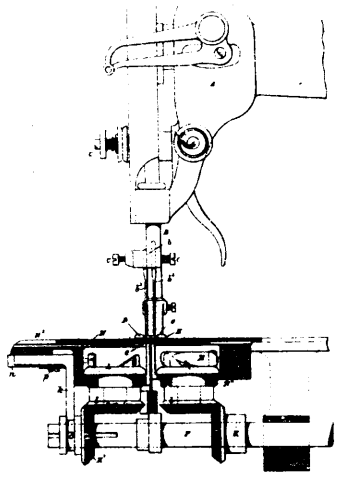
33093 Vansant & Anderson's Regulator for Electric Currents.



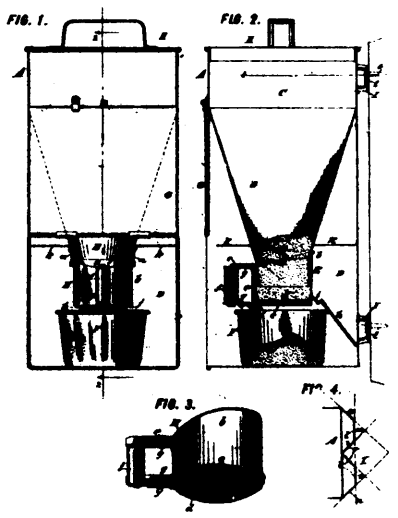
33094 Morrison's Governor for Electric Motors, etc.



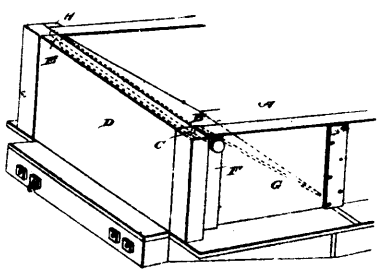
33095 Sperry's Pessary.



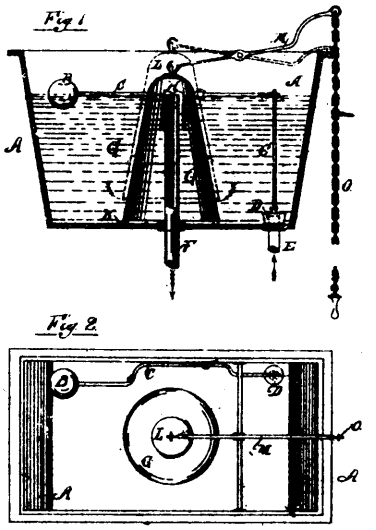
33096 Rosseter's Sewing Machine.



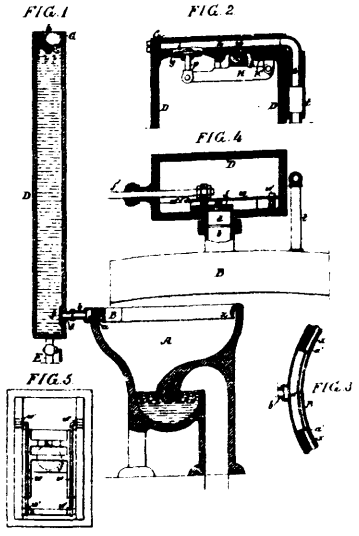
33097 Lary's Sieve for Flour, etc.



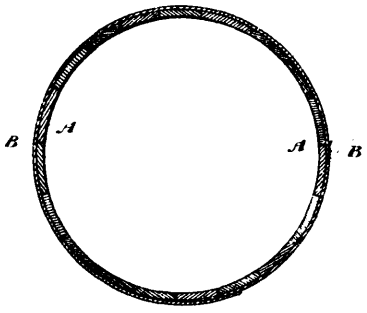
33098 Harshman's Unloading Attachment for Cars.



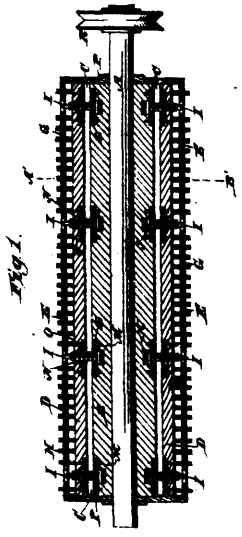
33099 Dwinnell's Closet Cistern.



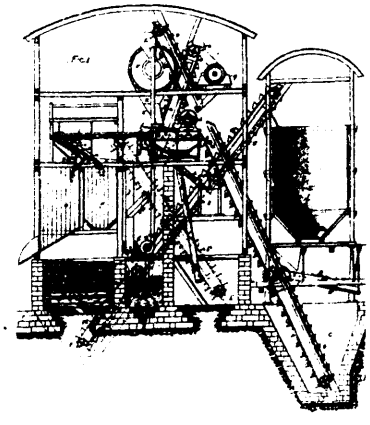
33100 Hughes' Water Closet, etc.



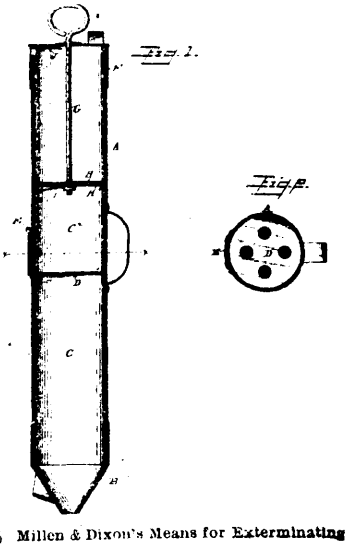
33101 Armstrong's Barrel, etc.



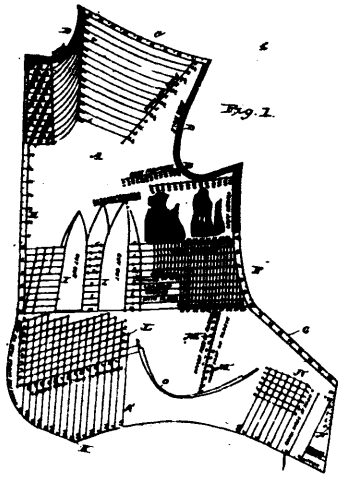
33102 Knowles & Philipson's Circular Brush.



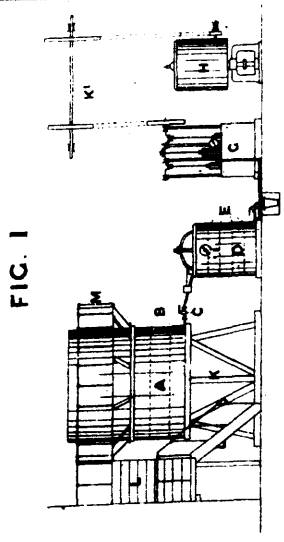
33104 Luhrig & Cunningham's Coal Washing and Cleaning Machinery.



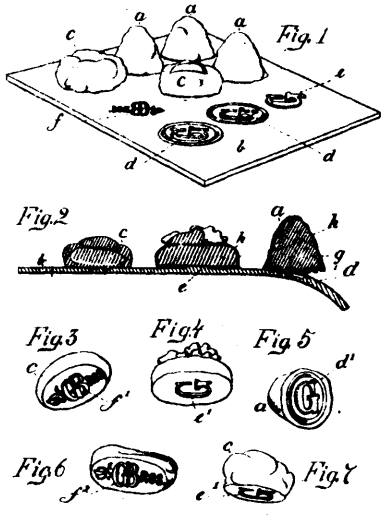
33105 Millen & Dixon's Means for Exterminating Gophers, etc.



33106 Penley's Dress Chart.

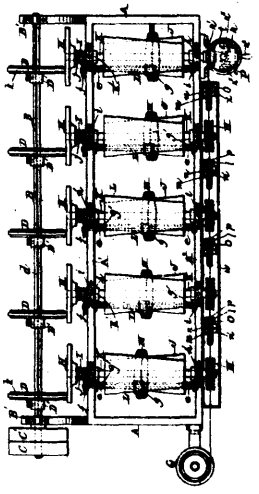


33107 Marmont's Process of and Means for Curing or Preserving all Kinds of Fish, etc.

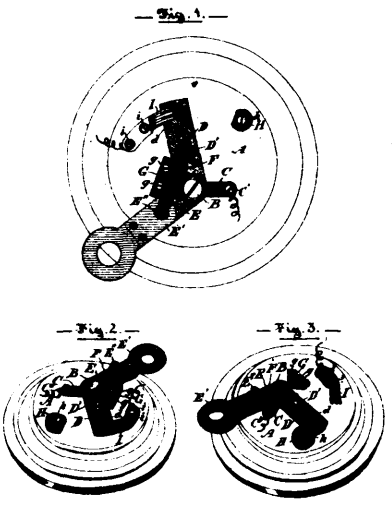


33108 Ganong's Mode of Making Confections, etc.

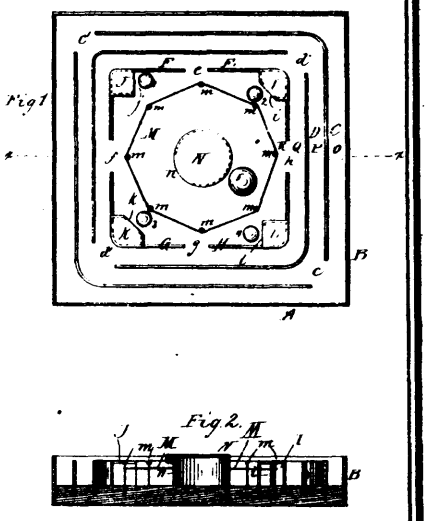
33109 Thompson's Attachment for Coffee and Tea Pots.



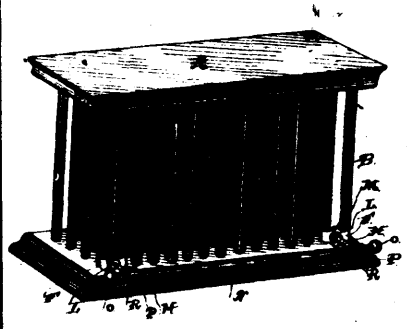
33110 **Smith's Wire Drawing Machine.**



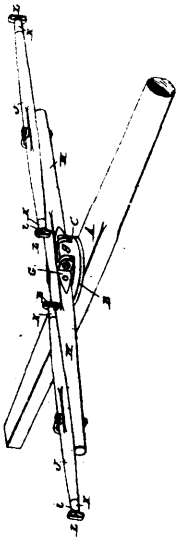
33111 **Coté's Electric Circuit Switch.**



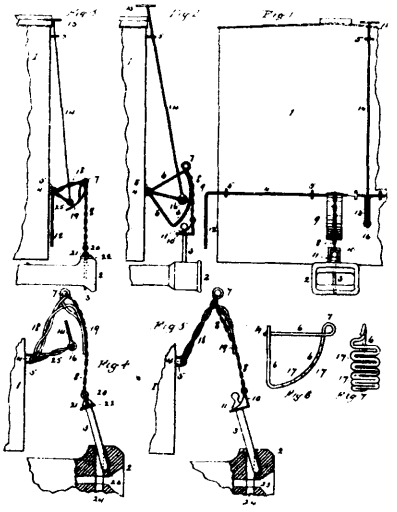
33112 **Dennis' Toy.**



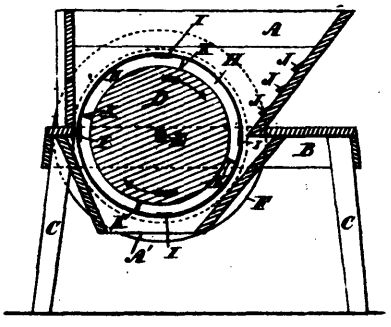
33113 **Sohn's Foot Rest for Steam Radiators.**



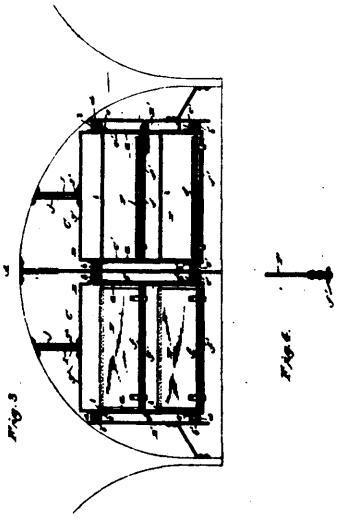
33114 **Rice's Device for Detaching Horses.**



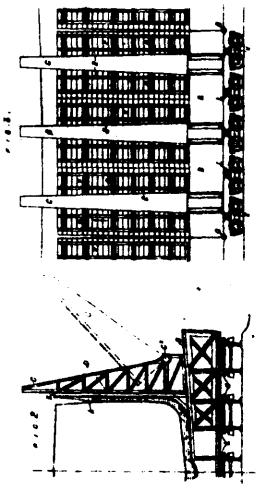
33115 **McEntee's Car Coupling**



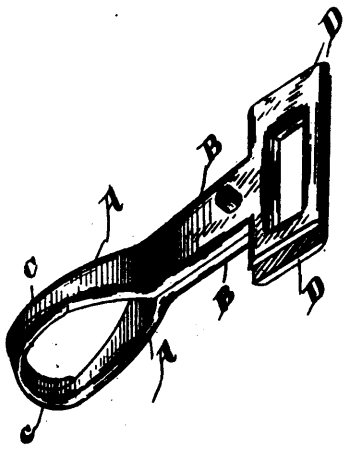
33116 **Willoughby's Root Cutter.**



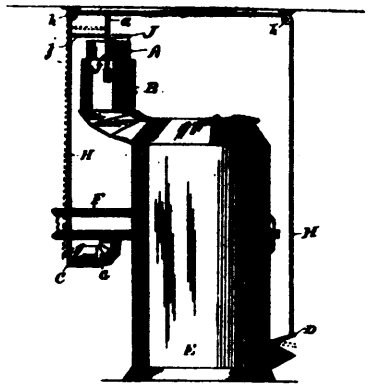
33117 **Snellenburg's Reciprocating Propeller.**



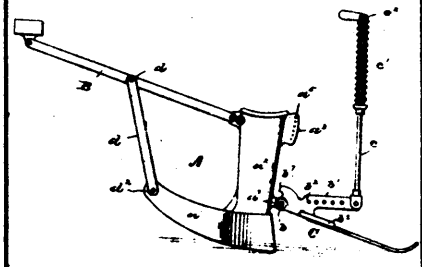
33118 **Smith's Car for the Conveyance of Ships on Ship Railway.**



33119 Waldron's Snap Hook.

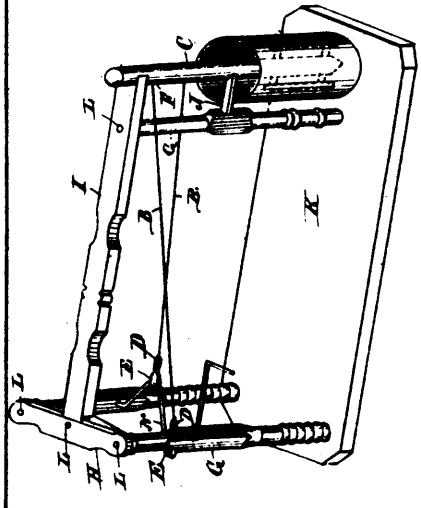


33120 Rockafeller's Draft Regulating Device.



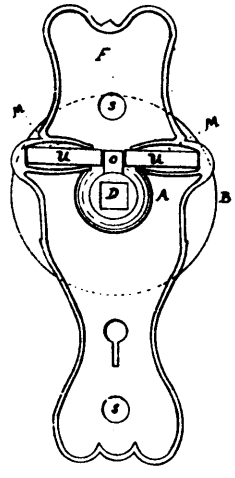
33121 Patric & Packham's Grain Drill.

33122 Weston's Toy Gun.



33123 Griffin's Churn and Churn Power.

Fig. 3



33124 Moody's Door Lock.

Fig. 1

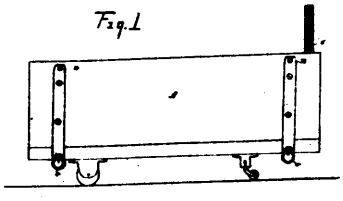
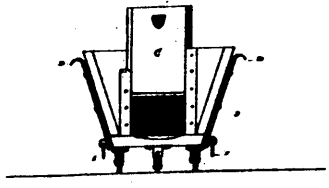
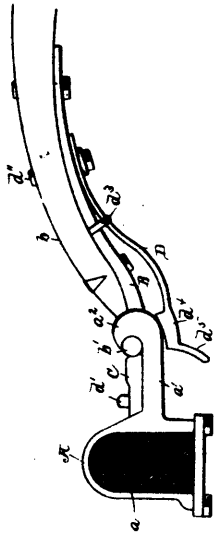


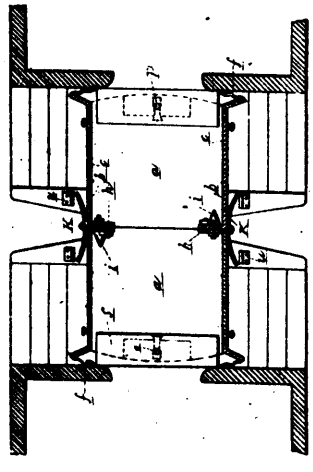
Fig. 2



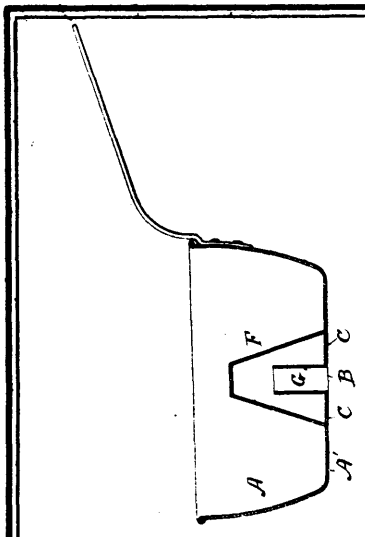
33125 Dompierre's Dough Raising Tray.



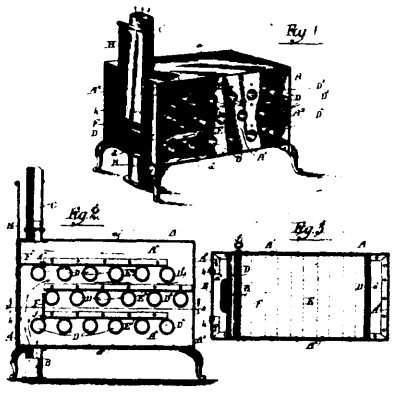
33126 Richardson's Thill Coupling.



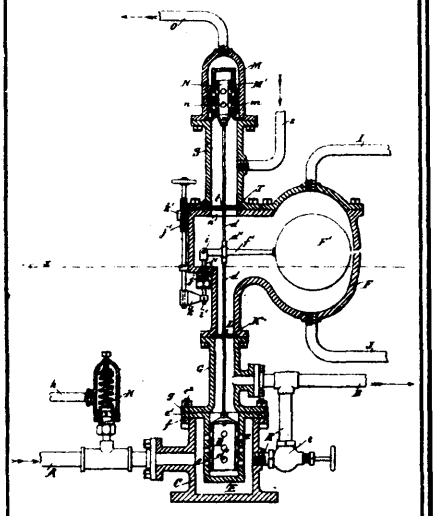
33127 Krehbiel's Vestibule Car.



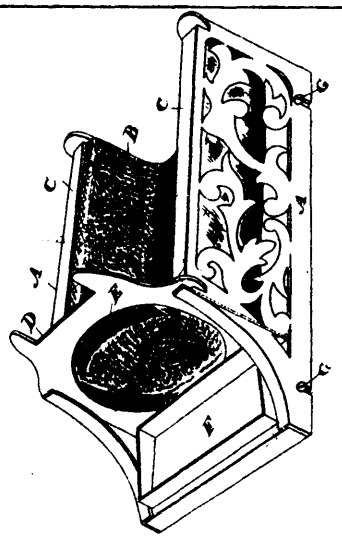
33128 Ward's Cooking Vessel.



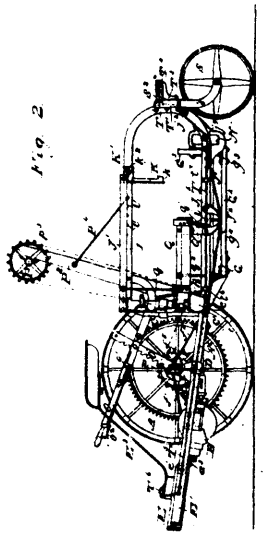
33129 Wolcott's Heating Drum, etc.



33130 Gunckel's Feed Water Regulator.

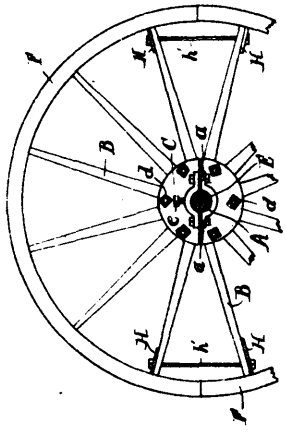


33131 Boeckh's Boot Scraper.

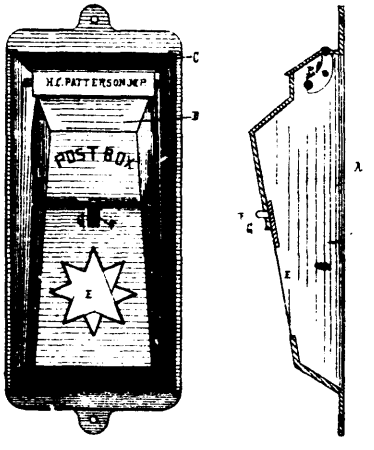


33132 Davis' Grain Binding Harvester Frame.

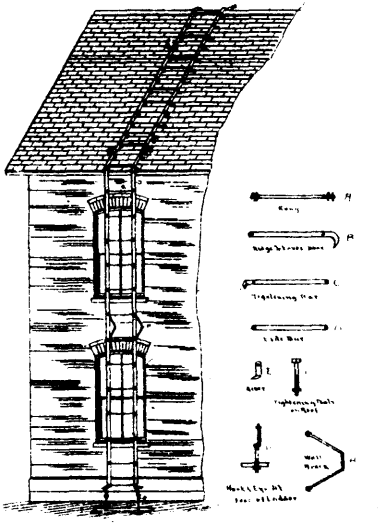
33133 Tarbox's Bracket for Lamps.



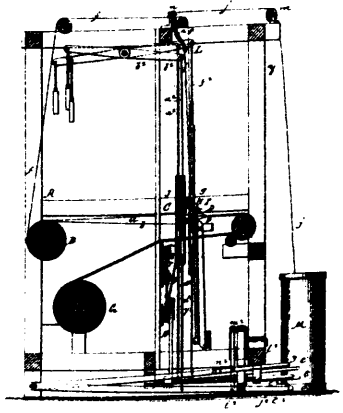
33134 Clark & Keasey's Pulley.



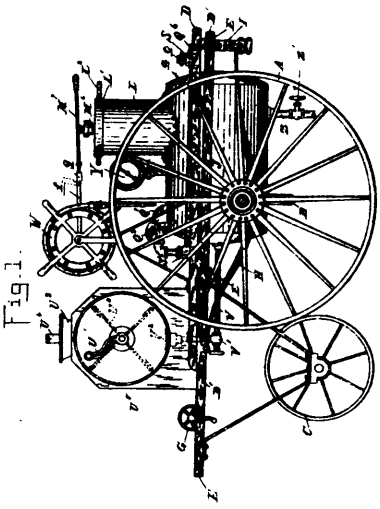
33135 Klasé's Mail Box.



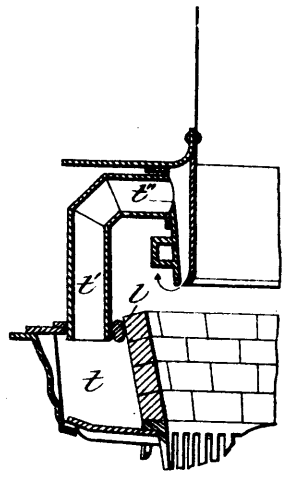
33136 English's Iron Ladder



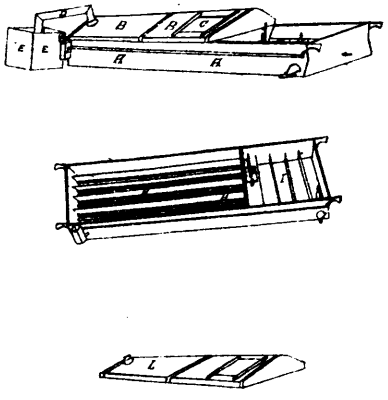
83137 Urbahn's Loom.



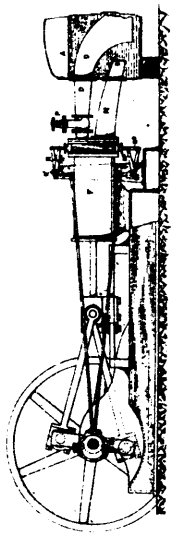
83138 Van Valkenburg's Chemical Engine.



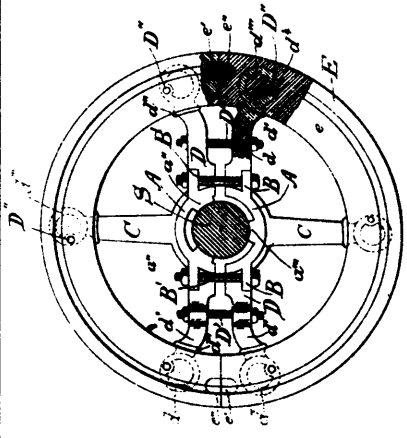
83139 Farquhar's Heater.



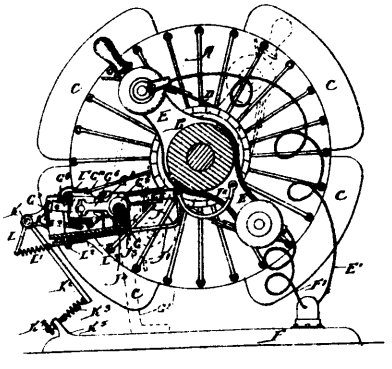
83140 Small's Sugar Evaporator.



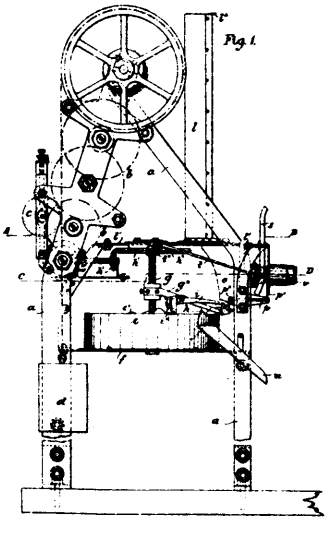
83141 Cleveland & Dove's Motive Power.



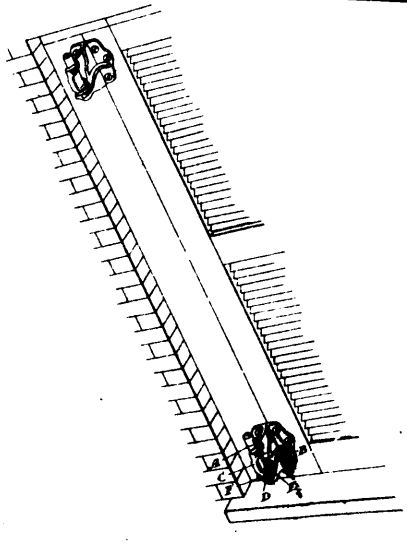
83142 McNaughton's Split Pulley.



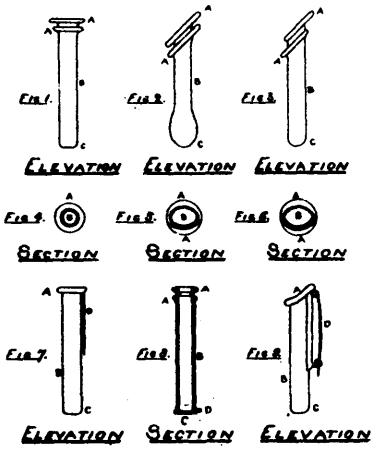
83143 Sperry's Dynamo Regulator.



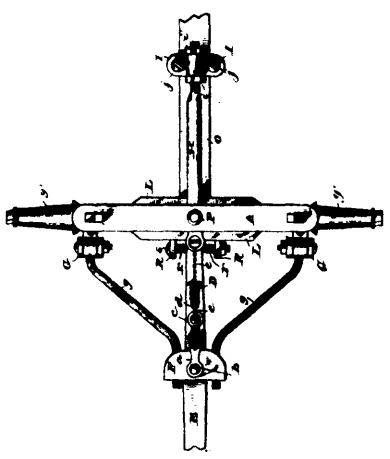
83144 Sacco's Apparatus for Automatically Photographing, etc.



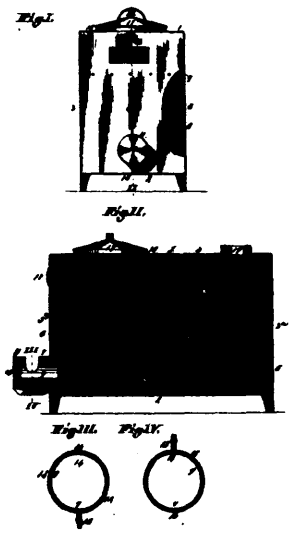
83147 Baker's Hinge.



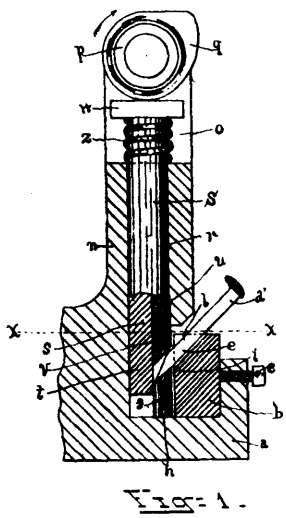
33148 Norgate's Flower Holder.



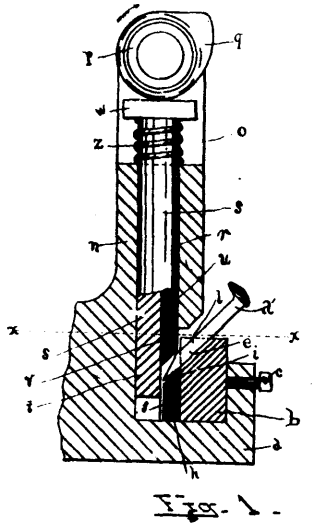
33149 Herby's Farm Waggon.



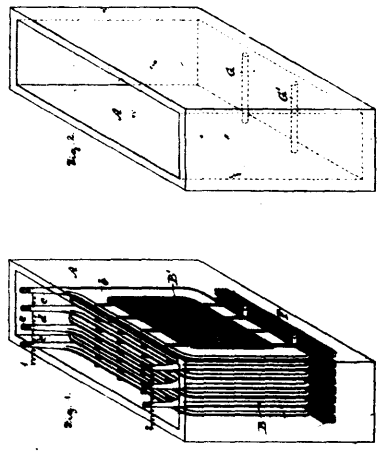
33150 Hagey's Heating Stove.



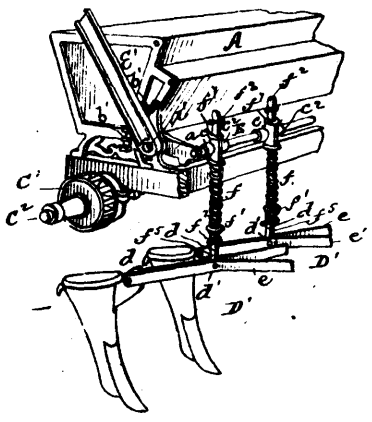
33151 Goldie's Spike Pointing Machine.



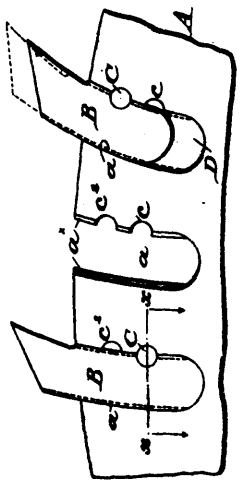
33152 Goldie's Method of Pointing Spikes.



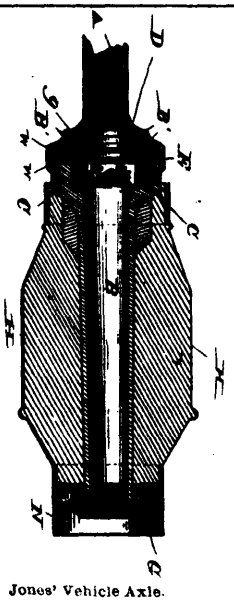
33153 Payen's Storage Battery.



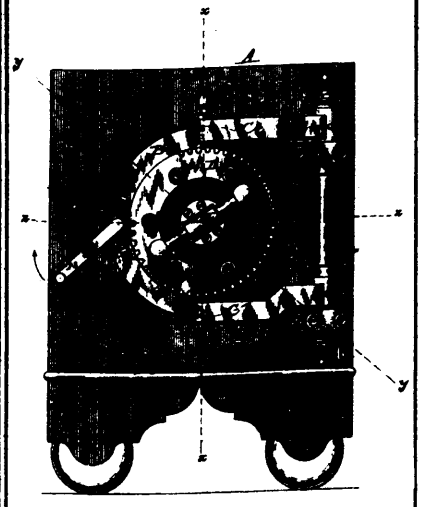
33154 Packham's Grain Drill.



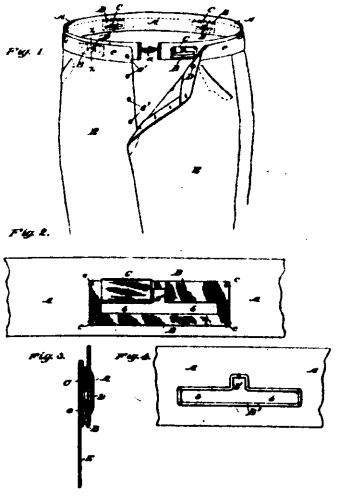
33155 Day's Saw.



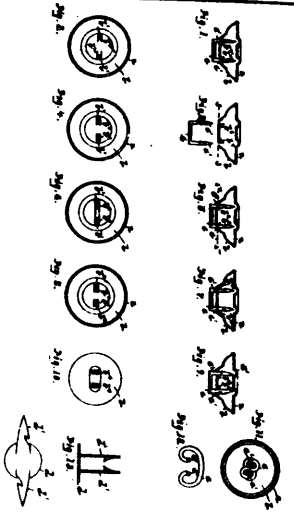
33156 Jones' Vehicle Axle.



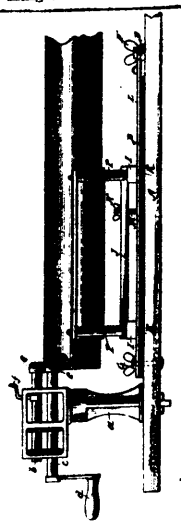
83157 King's Screw Door Safe.



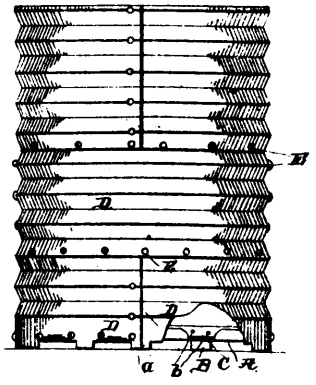
83158 Van Duzer's Suspender Belt.



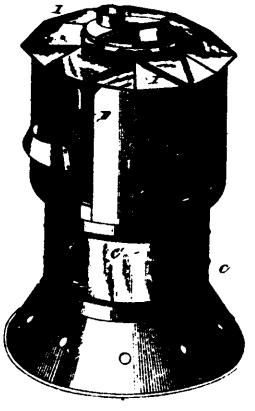
83159 Chapman & Ingram's Button.



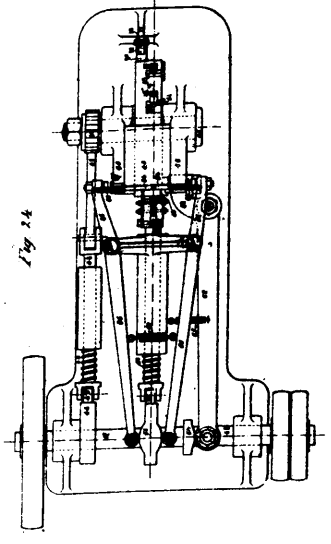
83160 Voight's Machine for Screw-Threading Pipes.



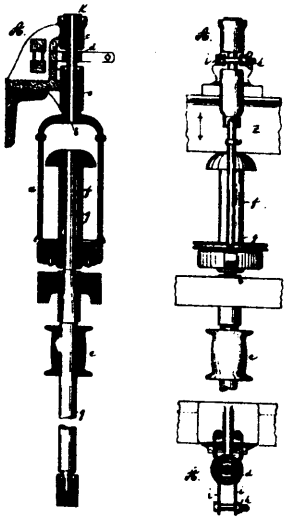
83161 Harry's Tank.



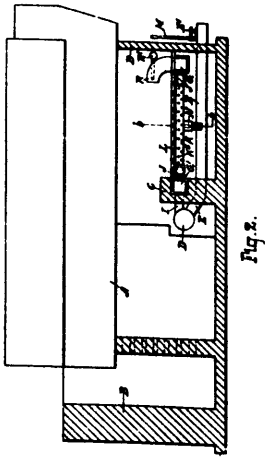
83162 McFarland's Sad Iron Heater.



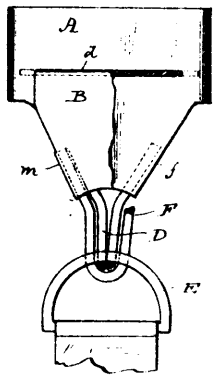
83163 Laughlin's Process and Machinery for Making Nails for Shoeing Horses, etc.



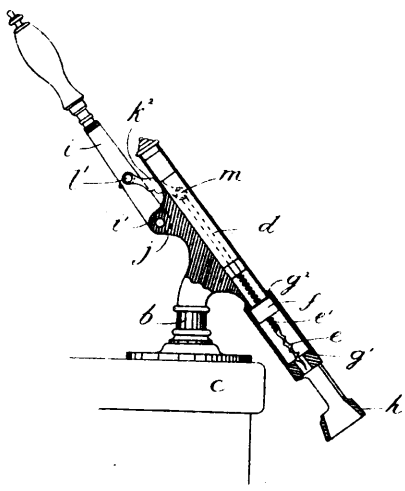
83164 Boelsterli's Spinning and Twisting Machine.



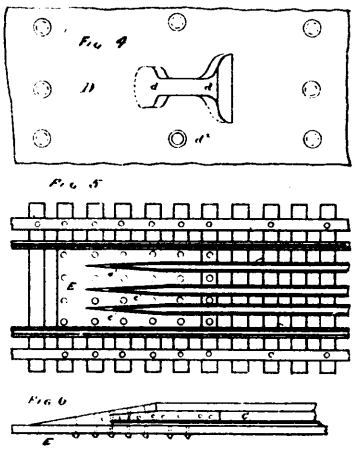
83165 Clark's Air Grate Furnace.



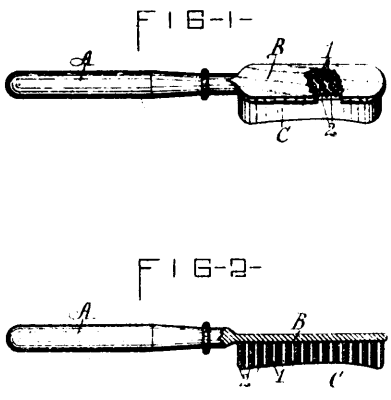
33166 Meyer's Buckle.



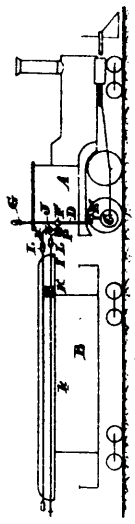
33167 Chambers' Cork Drawing Machine



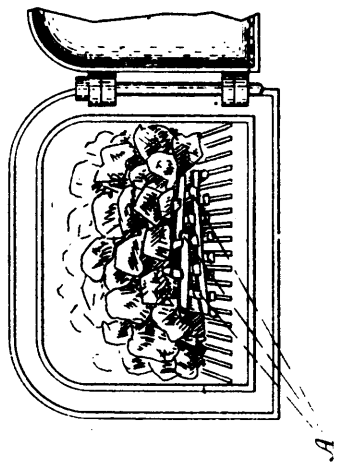
33168 Jordan's Guard for Railway Bridges



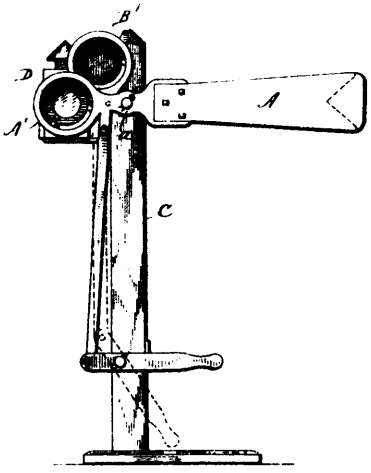
33169 Van Horne's Tooth Brush.



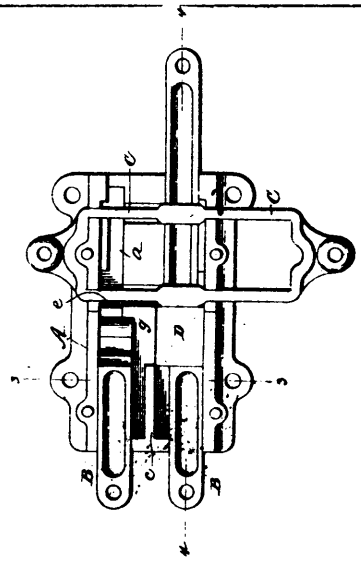
33170 Griggs' Train Signal.



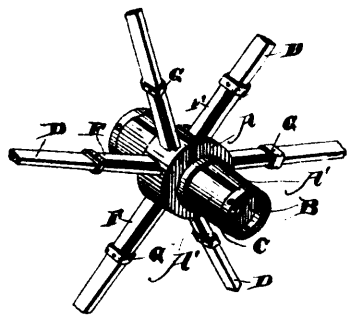
33171 Ribouds Préparation des Fagots à Allumer le Feu.



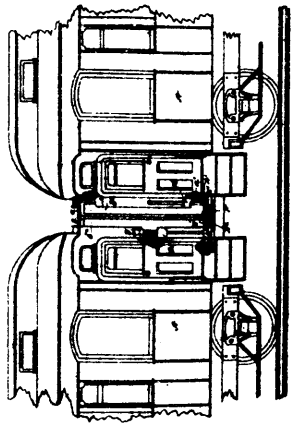
33172 Reiff's Semaphore Signal, etc.



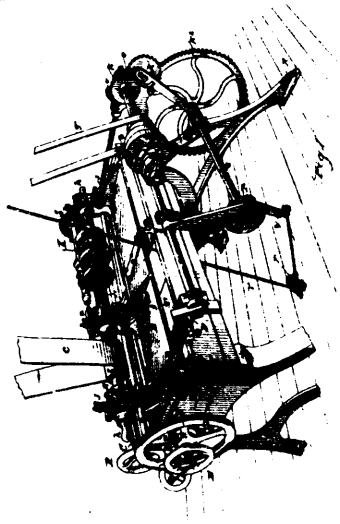
33173 Reiff's Railroad Signal Apparatus



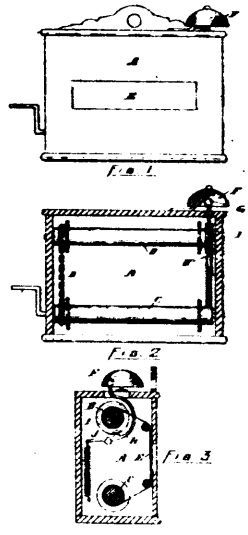
33174 Holland's Vehicle Wheel.



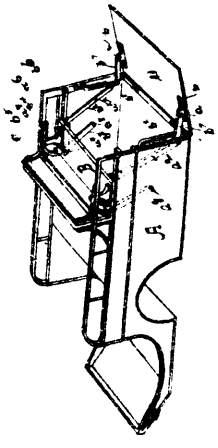
33175 Corvell's Vestibule Car.



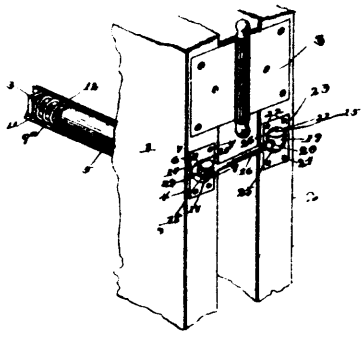
33176 Bacon's Wood Turning Machinery.



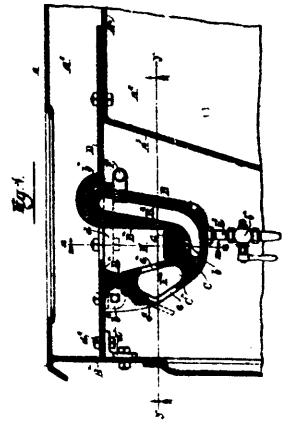
33177 Begin's Railway Station Annunciator.



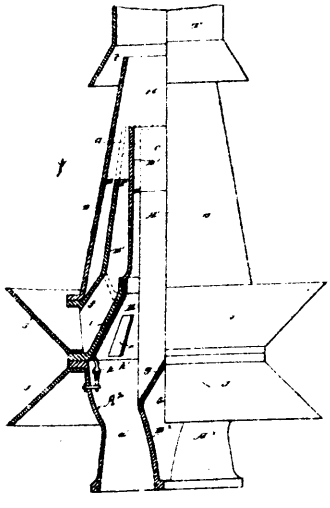
33178 Well's Vehicle Seat.



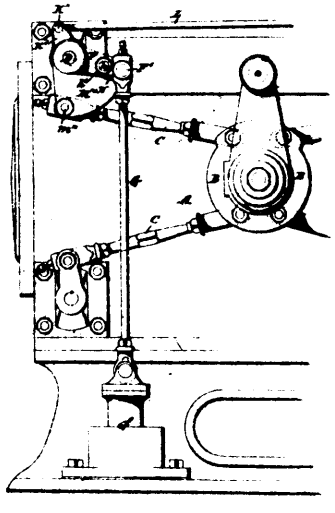
33179 Dudden's Door Spring.



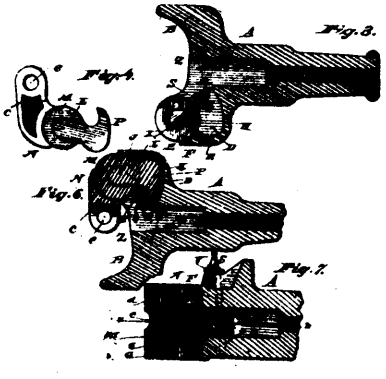
33180 Vogel's Burner for Liquid Fuel.



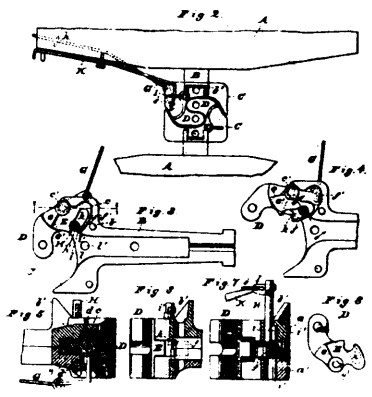
33182 Smith's Blast or Exhaust Apparatus.



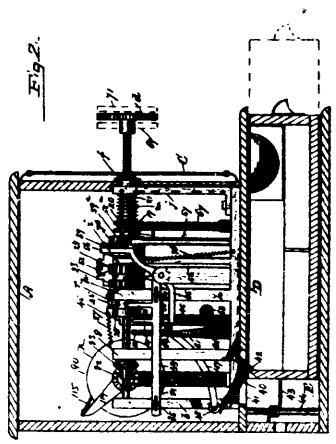
33184 Dixon's Releasing Valve Gear.



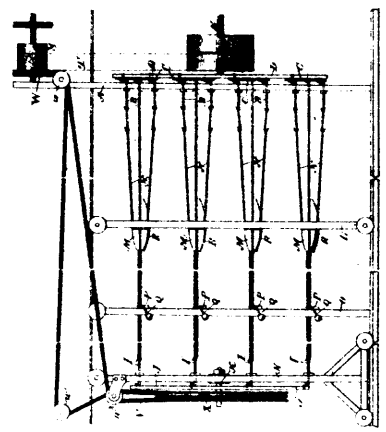
33185 Dowling's Car Coupling.



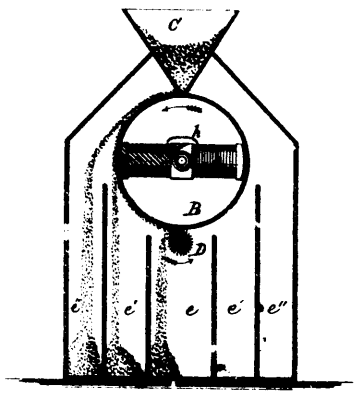
33186 Dowling's Car Coupling.



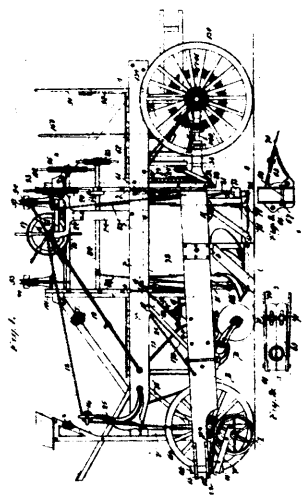
33187 Miles' Cash Register



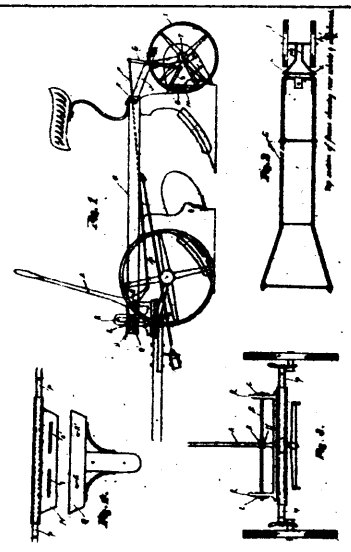
33188 Avis' Rope Twisting Machine.



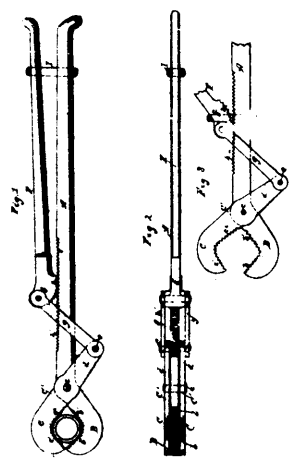
33189 Moffatt's Electro-Magnetic Separator.



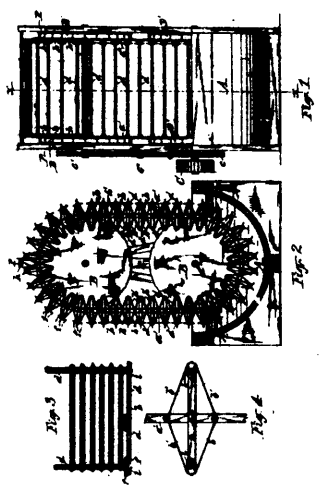
33190 Edwards' Grading and Ditching Machine.



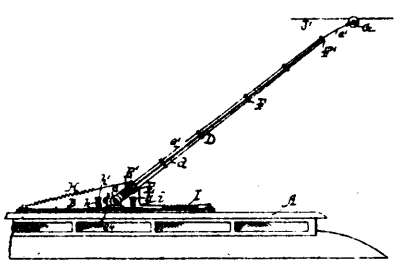
33191 Wilson's Double Furrow Plough.



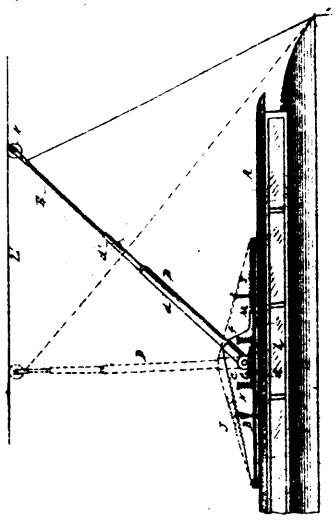
33192 Robbins' Pipe Wrench.



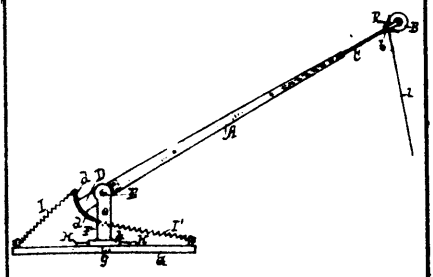
33193 Weldon's Yarn Dyeing Machine.



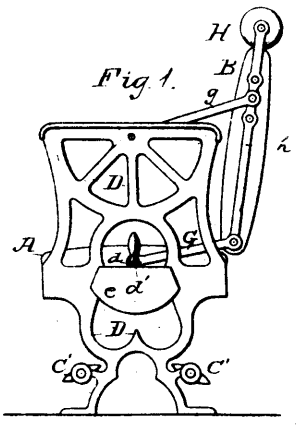
33194 Van Depoele's Contact Arm.



33195 Van Depoele's Contact Arm.



33196 Van Depoele's Contact Arm.



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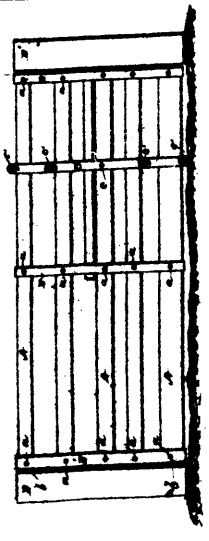

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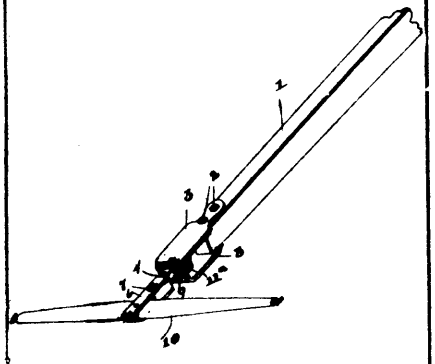

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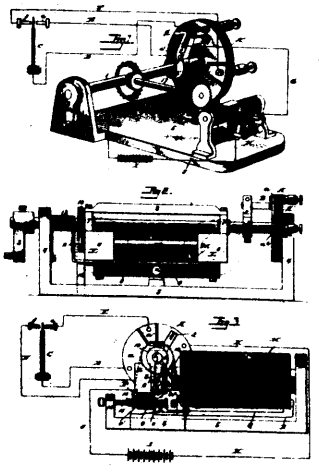

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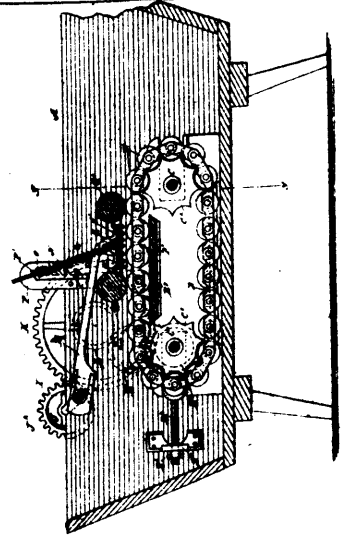

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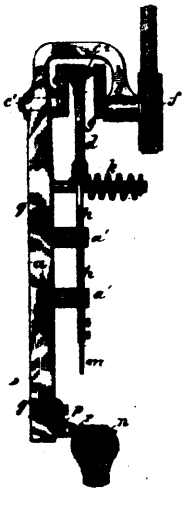

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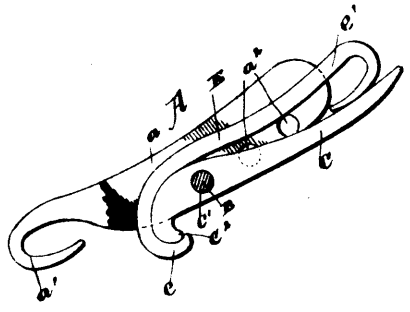

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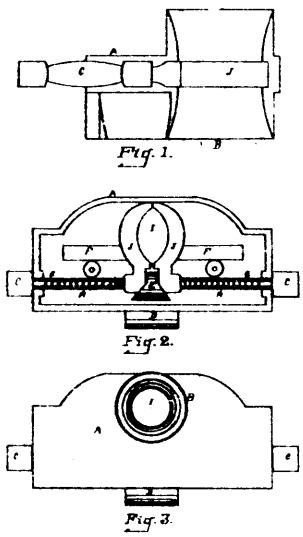

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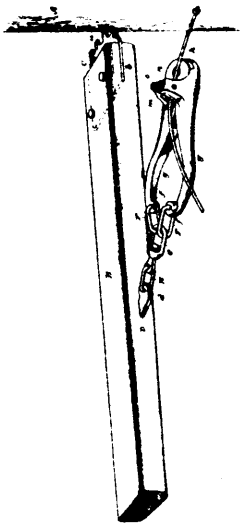

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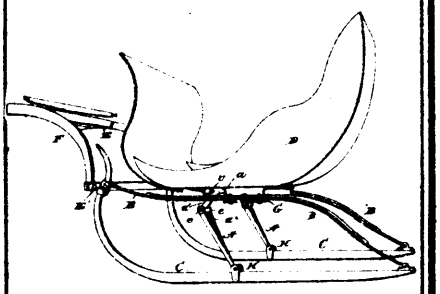

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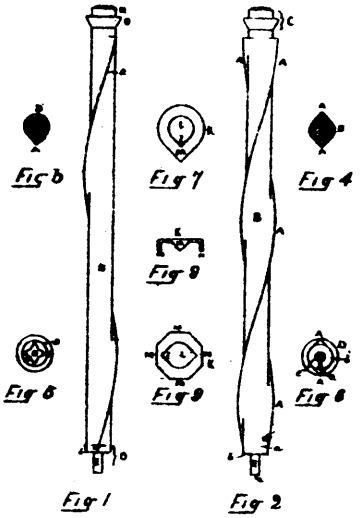

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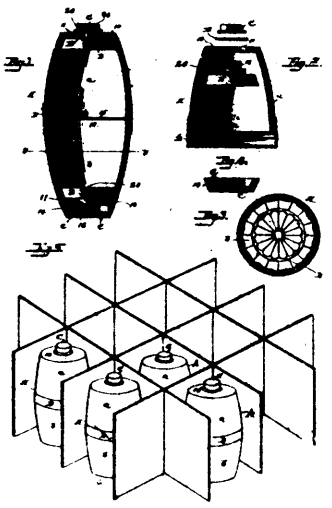

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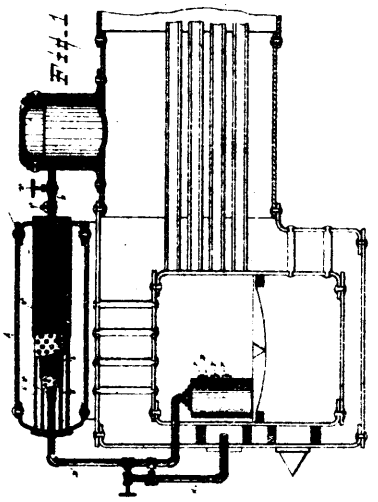

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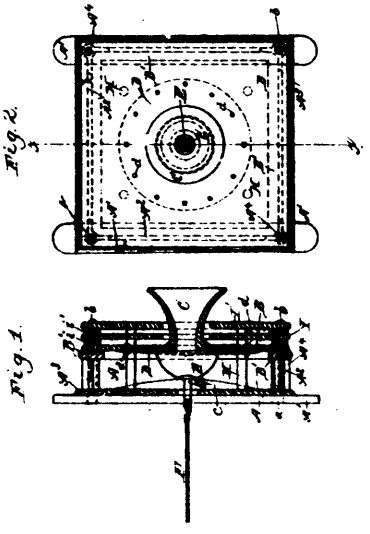

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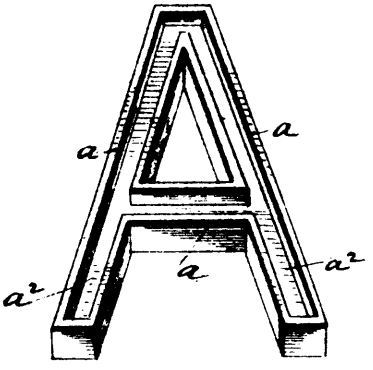

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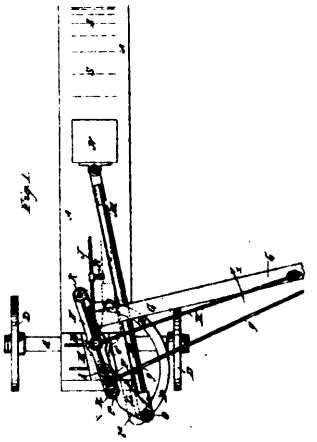

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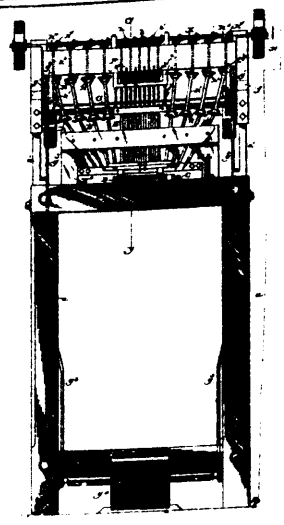

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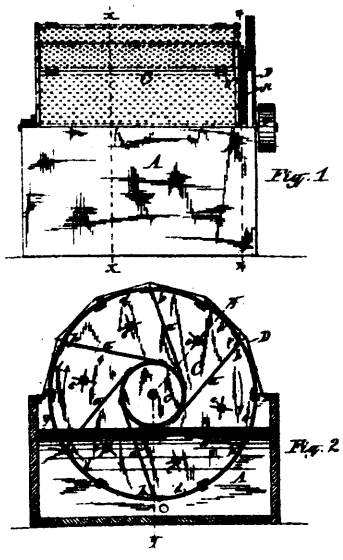

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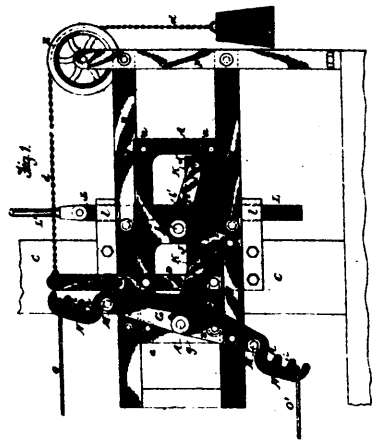

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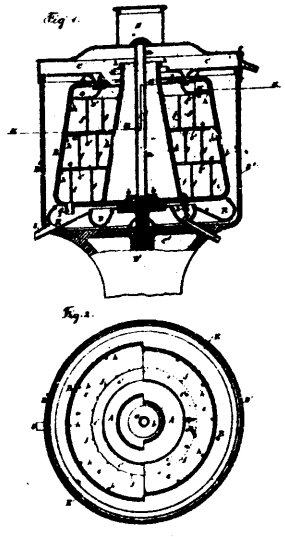

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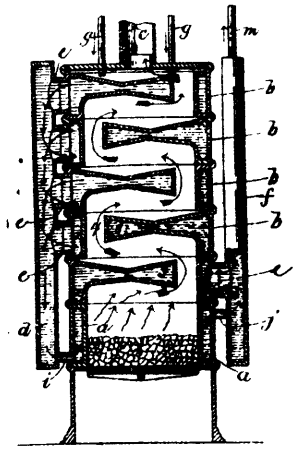

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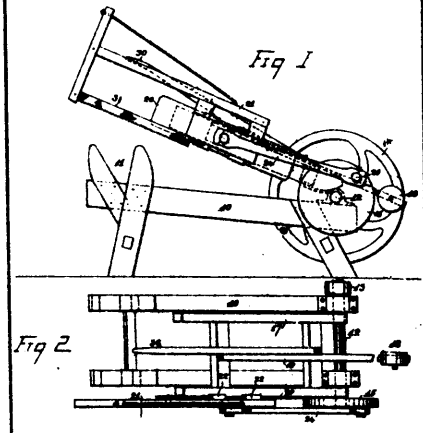

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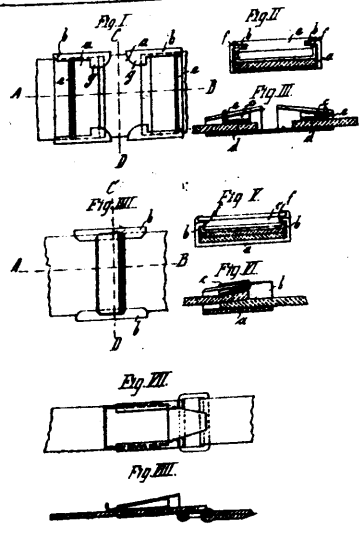

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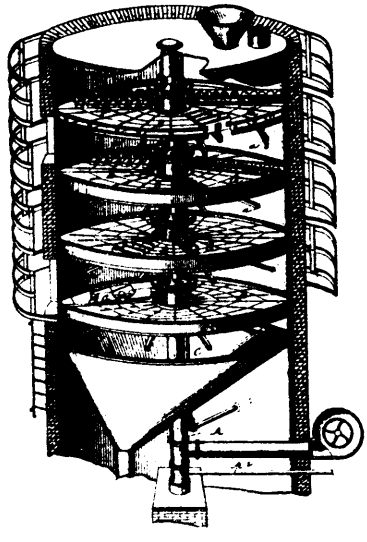

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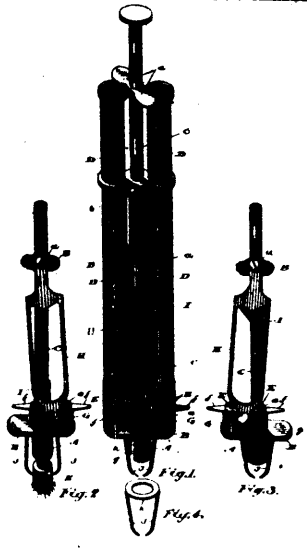

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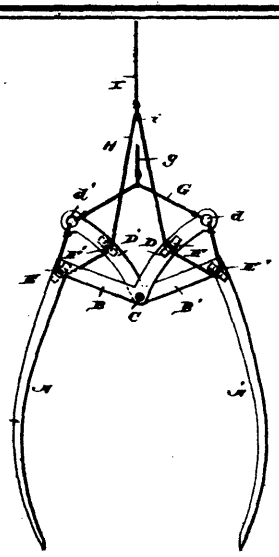

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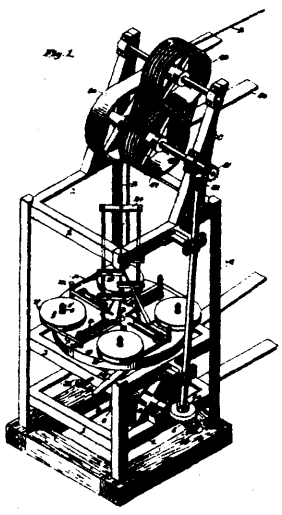

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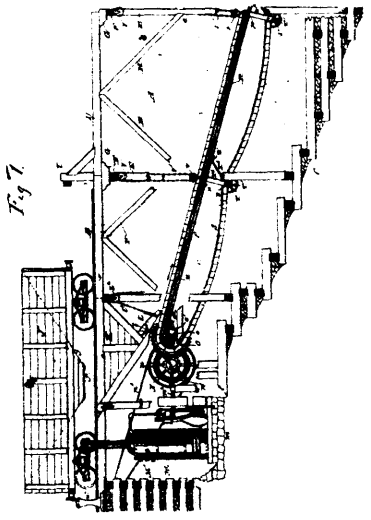

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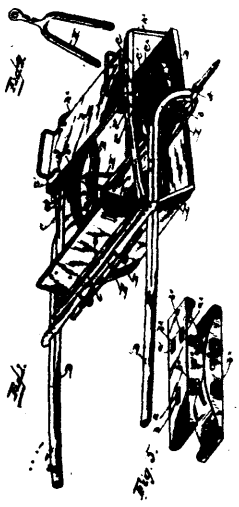

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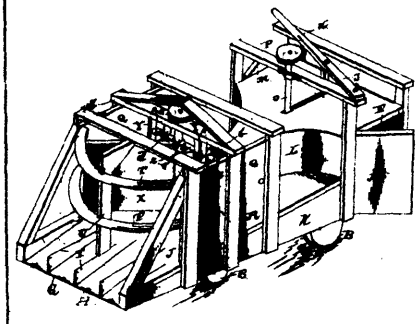

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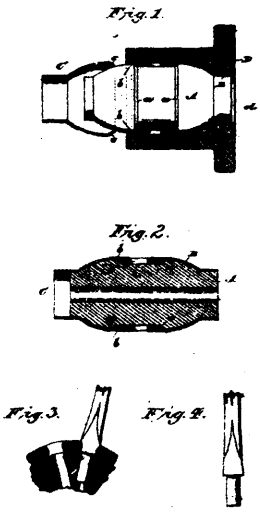

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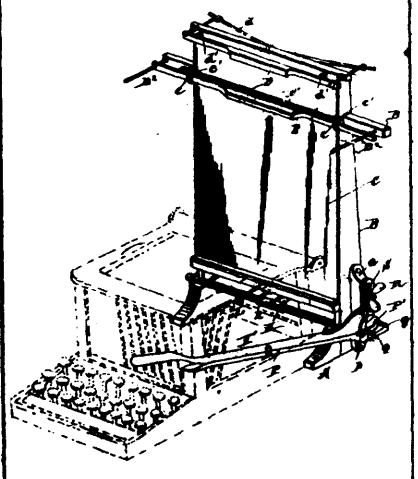

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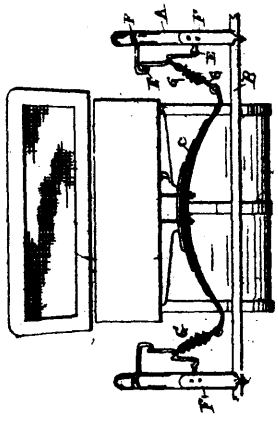

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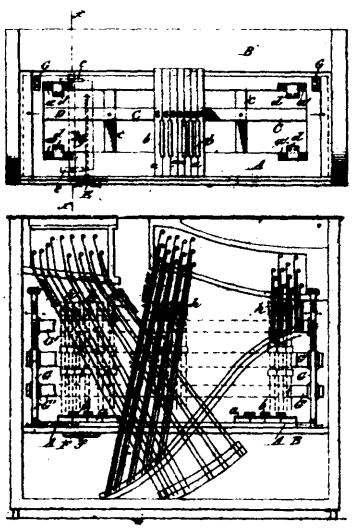

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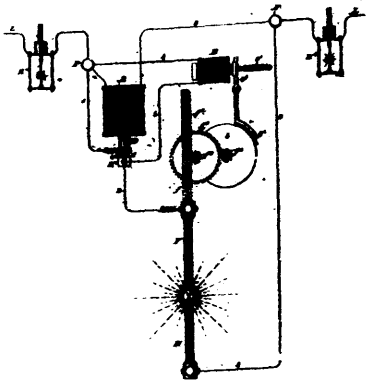

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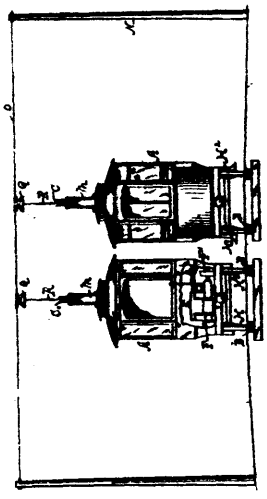

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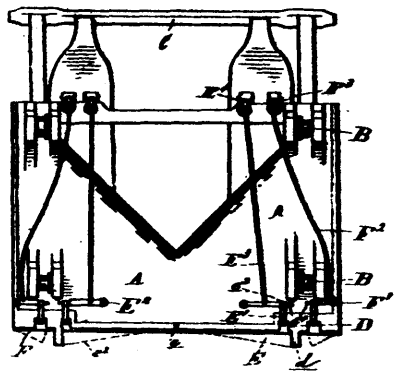

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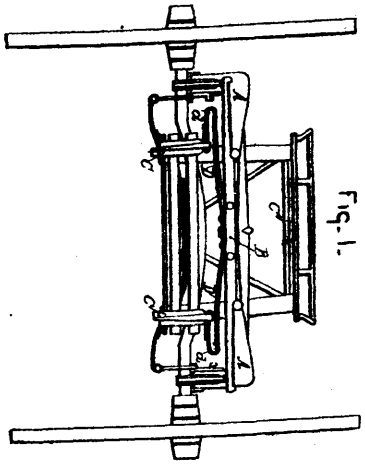

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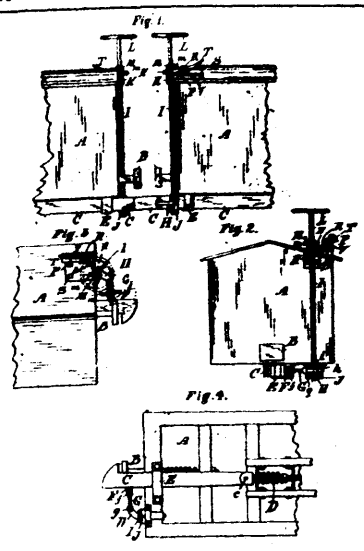

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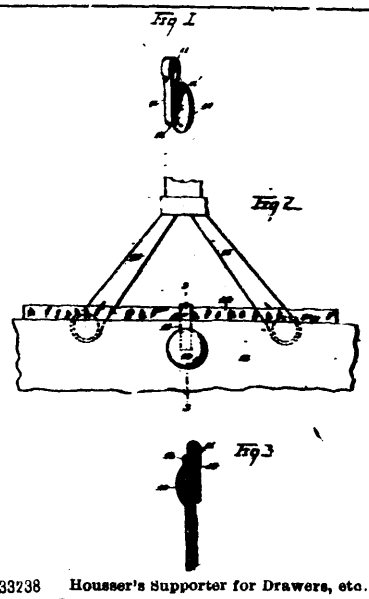

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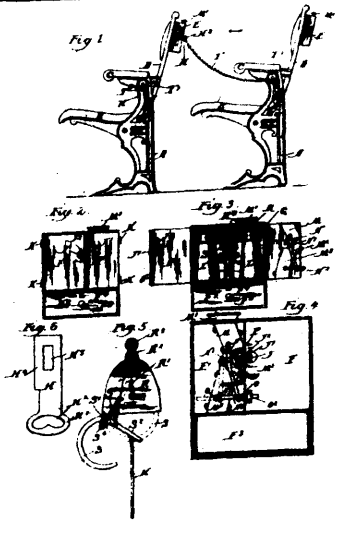

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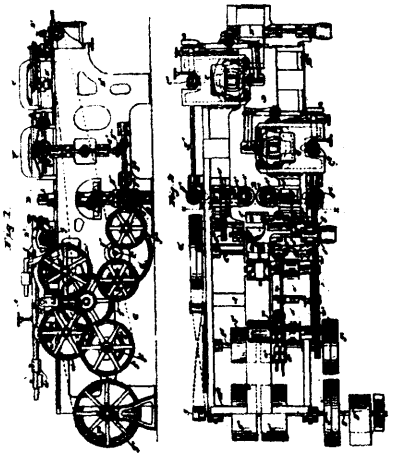

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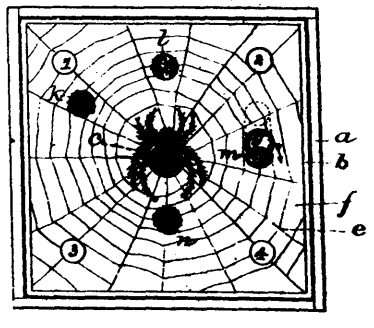

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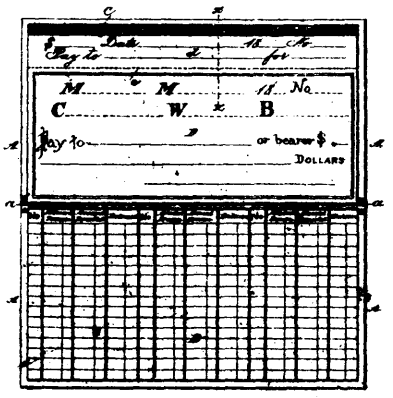

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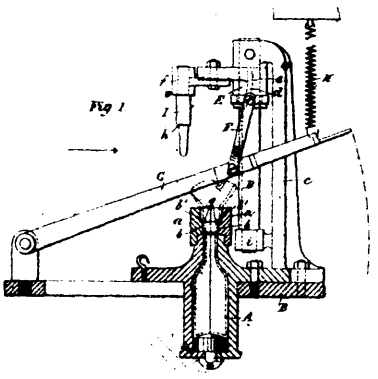

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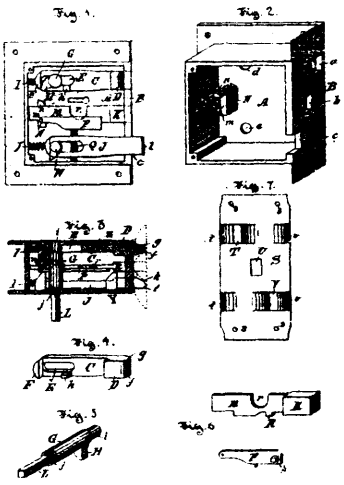

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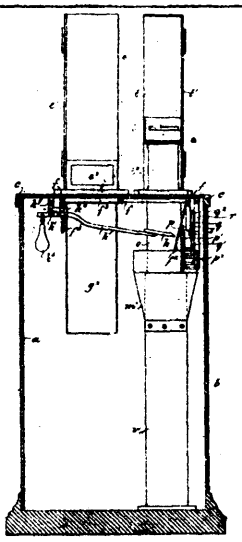

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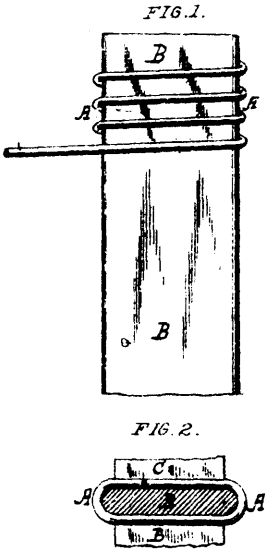

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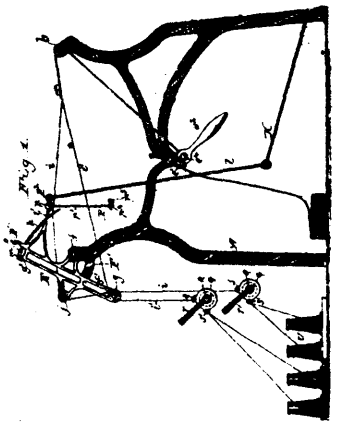

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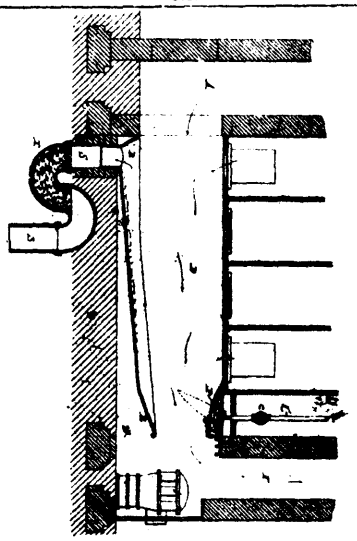

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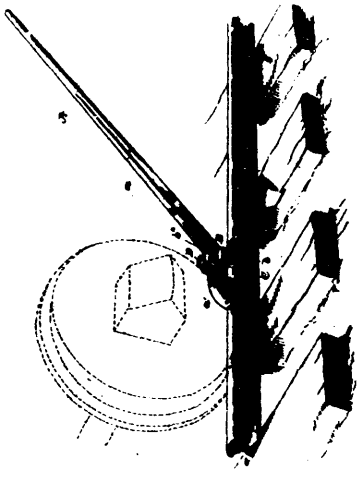

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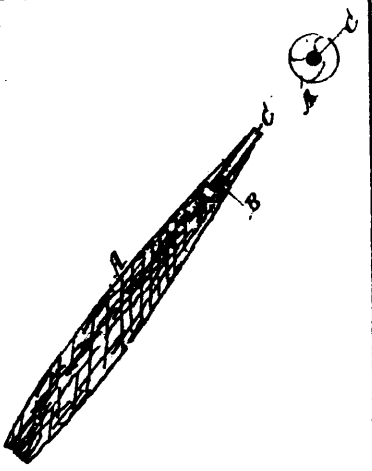

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