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INVENTIONS PATENTED.

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

No. 20,457. Spool Holder. (*Porte-Bobine.*)
Alexander A. Murphy and Feodor Boas, Montreal, Que., 3rd November, 1884; 5 years.

Claim.—1st. A spool holder, formed of a tube cut away at its lower end, as and for the purpose specified. 2nd. A spool holder, composed of a series of tubes, cut away at their lower ends and held together by end plates, substantially as and for the purpose specified. 3rd. The combination, in a spool holder, of the tubes A having openings a at their lower ends, the division plates, or platforms B₁, and end plates, substantially as and for the purpose set forth.

No. 20,458. Mechanism and Process for Concentrating Ore. (*Machine et Procédé de Concentration du Minerai*)
The Golden Gate Concentration Company, Augusta, Me. (assignee of H. P. Pobe, Wareham, and G. B. Thayer, Boston, Mass.) U. S., 3rd November, 1884; 5 years.

Claim.—1st. The lever a⁶ having two arms, and the table, combined with means for connecting one arm of the lever, with a steady or uniform service of power, such as the shaft a, and its other end with and reciprocate the table, whereby the speed of rotation of the lever is made to vary during different portions of each stroke, substantially as described. 2nd. The shaft a, provided with the crank and crank-pin, the sliding box a⁵, the lever a⁶ and its attached eccentric ring and the adjustable box and stud a⁷, combined with the table and the connecting rod, whereby the table may be reciprocated from the said eccentric, substantially as described. 3rd. The table and the lever a⁶, and the adjustable eccentric ring, combined with the connecting rod 4th. In an ore concentrator, the ore distributing trough arranged transversely with relation to the table and its agitator, combined with a reciprocating table to operate, substantially as described. 5th. The ore distributing trough, having an agitator therein and provided with an opening in its bottom for the discharge of waste mercury and amalgam, substantially as described. 6th. The ore distributing trough, having an agitator therein, and provided with a curtain arranged between the delivery edge of the trough and the trough below the delivery edge thereof, substantially as described. 7th. The reciprocating bed or table, combined with the stirring frame provided with pins, and with means to reciprocate the said frame transversely, substantially as described. 8th. In an ore concentrator from water current, and an inclined washing compartment continuous therewith, and a vessel to supply water to the washing compartments, combined with means, substantially as described, for removing the gangue and water at or near the junction of the said compartment, as specified and for reciprocating the said bed to effect both the stratification and travel of the said ore, substantially as described. 9th. The reciprocating ore bed upon which the mineral is settled and over which it travels, and a protecting plate, combined with means for removing the gangue and water from the upper side of the said plate, substantially as described. 10th. In an ore concentrator, the table and protecting plate, combined with an exhaust apparatus located above the said plate to remove the gangue and water, as set forth. 11th. In an ore concentrator, an inclined washing compartment, provided with a basin or depression,

and a protecting apron above it to receive the impact of the water supplied to the said bed, substantially as described. 12th. In an ore concentrator having an inclined washing compartment, a water-supply vessel h₁, arranged transversely to the said compartment and provided with a continuous slot, whereby water in the said vessel may be supplied to the end compartment from side to side as a continuous sheet, substantially as described. 13th. In an ore concentrator, a float collector adapted to take the float mineral from the surface of the water substantially as described. 14th. In an ore concentrator, a table provided with a bottom composed of slats separated from each other, and provided with dowel pins and having a covering sheet c₂ to operate, all substantially as described. 15th. The inclined washing compartment, combined with a water-supply and with a stirring frame provided with pins, and having a transverse movement in the said compartments, substantially as described. 16th. In a process for concentrating ores, the following continuous steps, viz.: stratifying the ore by settling the same in the presence of water having a current or flow sufficiently slow to permit the fine particles of the mineral to settle upon the ore bed, removing a portion of the lighter gangue and water from the strata of ore settled upon the ore bed, passing the mineral and remaining gangue while yet in stratified condition into a washing compartment, and washing the ore to effect the removal therefrom of all or any desired portion of the remaining gangue, substantially as described.

No. 20,459. Spinning Machine. (*Machine à Filer*)
Oscar Hanna, Hiram W. T. Earnshaw, Dover, Ky., James W. Womeldorf, Charles F. Corben, Middleport, Ohio, and James Earnshaw, Dover, Ky., U. S., 3rd November, 1884; 5 years.

Claim.—1st. The combination of the rail A having screw, or worm B, the upright frame swivelling thereabout and having pulley p and throat t, the gear wheel J and shaft J₁, the gears H, H₁, H₂, drum F, gears G₁, G₂, G₃, and the mechanism for laying on the yarn consisting of cross-grooved shaft L and vibrating eye d, or their equivalents, as described. 2nd. The combination of the arm E, with worm I, shaft 3, with gears 2 and 4, the gear 5, pitm in 9 and vibrating bar 10, with eye in its upper end, and as and for the purpose described.

No. 20,460. Nail Machine. (*Machine à Clou.*)
John A. Coleman, Providence, R.I., U. S., 3rd November, 1884; 5 years.

Claim.—1st. The method, herein described, of forming nails, the same consisting in punching b blanks from a bar of iron with the heads alternately in opposite directions, and then turning one set of blanks so as to direct them head downwards to the shaping and finishing rollers, substantially as and for the purposes specified. 2nd. The method, substantially as described, of forming nails, the same consisting in cutting the blanks from a bar of metal, then turning the blanks by suitable mechanism, so as to present their edges to a set of shaping rollers, then turning the blanks again, so as to present their flat sides to a second set of rollers, whereby they are finally shaped, substantially as and for the purposes specified. 3rd. The method, herein described, of manufacturing nails by punching blanks from a bar of iron, and afterwards pressing, squeezing and shaping the same in directions at right angles to each other, substantially as and for the purposes specified. 4th. The method, herein described, of forming nails, the same consisting in punching a series of blanks with heads alternately in opposite directions, then turning one set, so as to direct the whole heads downward to a pair of shaping rolls, then directing the blanks to a pair of finishing rollers, and finally removing the protuberance of metal from the blank to form the finished nail, substantially as and for the purposes specified. 5th. In a machine for manufacturing nails, the combination, with the dies and punches and their operating mechanism the conduits provided with obstructions, whereby both set of blanks are directed head downwards into the conduits in order to be properly presented to the shaping rollers, substantially as specified. 6th. In a machine for manufacturing nails, the combination, with the dies, the punches and their operating mechanism, of the conduits having yielding backs adapted to operate a suitable alarm, or to stop the machine in the event of the crowding of the blanks, substantially as specified. 7th. In a machine for the manufacture of nails, the combination, with the dies

engaged by said spring-catch of the overflow, a check-valve therein and a lever for said check valve under the control of the cam of the steam inlet-controlling valve lever, substantially as and for the purpose described. 9th. The combination, in an injector, of a perforated or ported base or diaphragm for the combining or mixing tube, and an annular valve or plate automatically opening or closing such perforations or ports, substantially as shown and described. 10th. The combination, with the steam inlets and ports *j*, *m* and the lifting and forcing tubes *z* and *p* respectively, of the steam valve *r* having the single opening *q* for ports *j*, *m* controlling such ports independently of one another, and operable with relation thereto to admit of the grading of the water-supply, and also the conversion of the machine from a lifting to a non-lifting injector and *vice versa*, substantially as shown and described. 11th. The combination, with the overflow, of an automatically seated check valve, a lever to unseat or open the same, and the live-steam valve-actuating lever operating in connection with said check-valve lever, substantially as shown and described. 12th. In an injector, the steam chamber *d*, the valve *g* therein, the suction chamber *e* with which the steam chamber communicates through the lifting jet tube *f*, under control of the said valve, the combining tube *h* aligned with the said lifting jet tube *h*, the overflow chamber *m*, the over flow-cock *o* therein, provided with the valve *q* having automatic play on its stem, and also by said stem adapted to be positively operated to close said overflow, all combined and arranged to operate substantially as shown and described. 13th. In an injector, the steam chamber *d*, the valve *g* therein, the suction chamber *e* with which the steam chamber communicates through the lifting jet tube *f* under control of the said tube, the forcing jet tube *j* in the supply chamber and communicating with the steam supply with an interposed valve *k*, the combining tube *h* having ports *l* in its base or flange to open communication between the suction and overflow or exhaust chambers, and the overflow *q* having an automatic and also a positive operation, all combined and arranged to operate substantially as shown and described. 14th. In an injector, the steam chamber *d*, the valve *g* therein, the suction chamber *e* with which the steam chamber communicates through the lifting jet tube *f* under control of the said valve, the combining tube *h* aligned with the said lifting jet-tube, the forcing jet-tube *j* in the supply chamber and, communicating with the steam supply with an interposed valve *k*, the combining tube *h* having ports *l* in its base or flange to open independent communication between the suction and overflow or exhaust chambers, the discharge tube *n* in the suction or exhaust chamber *m* aligned with the fore-combining tube, and the over flow-valve *q* having an automatic, also a positive operation, all combined and arranged to operate substantially as shown and described. 15th. The combining tube, having the auxiliary ports, substantially as and for the purpose described.

No. 20,470. Circuit-Closer for Electric Alarm. (*Commutateur de Tocsin Electrique.*)

Leo A. Brigel, Cincinnati, Ohio, U.S., 3rd November, 1884; 5 years.

Claim.—1st. A circuit-closer for electric alarm, consisting of the elements following, to wit: flexible board A, two wires P, N, that constitute the terminals of an open circuit of an electric alarm, and which are so attached to the board as to intersect one another at or near right angles, and of which one is held aloof from the other by curved springs C attached to the board, and through orifices *c* in which the said wire is rove, substantially as and for the purposes set forth. 2nd. In a circuit-closer for electric alarm, the combination of the described slit perforated and pan-formed tar-board A, the detached perforated springs *e* and the two electrical arms terminals P, N, of which both are so rove through the slits and perforations of the said board, and one of them through the orifices of the springs, as to intersect one another without contact, substantially as and for the purposes set forth.

No. 20,471. Handle-Turning Lathe.

(*Tour pour Tournier les Manches d'Outils*)

John Hurley, Bothwell, Ont., 3rd November, 1884; 5 years.

Claim.—1st. A hollow mandrel M, provided with a slot L, substantially as shown and described and for the purpose specified. 2nd. The combination of the sleeve G, and plate N provided with slot F, with the stationary collar E and collar O, substantially as shown and described and for the purpose specified. 3rd. The combination of the sleeve G, and plate N provided with slot T, stationary collar E and collar O, with the hollow mandrel M provided with key H, substantially as shown and described and for the purpose set forth. 4th. The combination of the sleeve G, provided with slot T, hollow mandrel M provided with slot L, with the knife or cutter K and screw bolt J, substantially as shown and described and for the purpose specified.

No. 20,472. Carriage Spring.

(*Ressort de Voiture.*)

Christopher C. Bradley, Sprauce, N.Y., U.S., 3rd November, 1884; 5 years.

Claim.—1st. The combination, with a carriage spring having a trunnion at its end and a socket in which said trunnion is seated, of interlocking parts formed respectively on the trunnion and socket and securing the spring and socket together, when these parts are in their normal position, while permitting the parts to be separated upon placing them in an abnormal position, substantially as set forth. 2nd. The combination, with a carriage spring having at its end a trunnion and a projecting ear, of a socket having at its inner end a projecting lip adapted to bear against said ear, whereby the socket and spring are secured together in the normal position of the parts, while permitting the trunnion to be withdrawn from the socket upon placing the parts in an abnormal position, substantially as set forth. 3rd. The combination, with a carriage spring having at its end a trunnion and a projecting ear, of a socket having a closed outer end, and provided at its inner end with a lip bearing against the ear of the spring in the normal position of the parts, substantially as set

forth. 4th. The combination, with a spring having a trunnion at its end, of a socket having a closed outer end, a yielding washer interposed between the ends of the trunnion and socket, and interlocking parts formed on the socket and spring near the inner end of the socket, whereby the latter and the spring are secured together, substantially as set forth. 5th. The combination, with a spring having a trunnion at its end, of a socket having a closed outer end and an internal recess, a lining seated in said recess and interlocking parts formed on the socket and spring near the inner end of the socket, whereby the latter and the spring are secured together, substantially as set forth.

No. 20,473. Permanent Way of Railway.

(*Voie Permanente de Railroute.*)

Fridolph Schauman, London, Eng., 3rd November, 1884; 5 years.

Claim.—In the construction of the permanent way of railways, the employment of stone or concrete sleepers with compressed or prepared cork washer-plates interposed between such sleepers and the rail, the said rail and the compressed or prepared cork washer-plates being secured to the said stone or concrete sleepers by screw bolts and nuts and spring clip plates, the whole arranged and combined as hereinbefore described and illustrated in the drawing hereto annexed and for the purposes set forth.

No. 20,474. Machine for Making Hoes.

(*Machins pour Faire les Hoes.*)

Richard E. Breed, Pittsburgh, Penn., U. S., 3rd November, 1884; 5 years.

Claim.—1st. In a machine for making hoes, the combination, with a clamp for holding and bending the hoe-blade, of a folding device composed of two corresponding portions or dies having a hinge connection and adapted to form the shank or socket of the hoe, substantially as described. 2nd. In a machine for making a shank or socket hoe from a single blank, the combination, with a socket or shank folder composed of two folding parts hinged to a fixed pin, of a swinging clamp for holding the blade of the hoe and folding it to the proper angle with its shank or socket, substantially as described. 3rd. In a machine for making a shank or socket hoe from a single blank, the combination, with a mandrel and a socket or shank folder composed of two folding parts hinged to a fixed pin, of a swinging clamp for holding the hoe-blade and folding it over to meet its shank or socket, substantially as described. 4th. In a machine for making a shank or socket hoe from a single blank, a clamping device composed of two parts having a hinged connection, one of said parts being provided with a sliding former adapted to determine the lines upon which the blank is to be folded, substantially as described. 5th. In a machine for making a shank or socket hoe from a single blank, the combination, with a clamping device comprising a swinging frame having a sliding former provided with a pointed and beveled end of a movable mandrel and a shank or socket folder adapted to be closed around said mandrel, substantially as described. 6th. In a machine for making a shank or socket hoe from a single blank, the combination, with a clamping device composed of two parts having a hinged connection, of a sliding former supported in one of said parts and means for actuating said former, substantially as described. 7th. In a machine for making a shank or socket hoe from a single blank, the combination of a swinging, clamping and binding device adapted to hold a hoe-blade, a sliding former capable of swinging with said clamping device, a folder and a mandrel for forming the hoe shank or socket and suitable operating mechanism, substantially as described. 8th. In a machine for making a shank or socket hoe from a single blank, the combination of a swinging, clamping device for holding the hoe-blade, a former adapted to have a swinging and sliding movement, a movable mandrel and a folding device for forming a shank or socket, said folding device being also adapted to act in conjunction with a portion of the clamping device as a die for folding down the ears of the hoe upon its blade, substantially as described. 9th. In a machine for making a shank or socket hoe from a single blank, the combination of a clamping device for holding the blade of a hoe blank, a sliding former adapted to determine the lines of bend, a mandrel and a folding device adapted to be closed around said mandrel, substantially as described. 10th. In a machine for making a shank or socket hoe from a single blank, the combination of a clamping device, one part of which has suitable guides, a sliding former adapted to be moved along the surface of said part, a movable mandrel and a folding device adapted to be closed around said mandrel, for the purpose of forming the shank or socket of the article, substantially as described. 11th. In a machine for making a shank or socket hoe from a single blank, the combination, with a clamping device composed of a trunnioned plate and a slide frame swinging on a common centre of motion, and adapted to hold the blade of the article to be formed, of a movable mandrel and shank folding mechanism, substantially as described. 12th. The combination, with a folding device for forming the shank or socket of a hoe, of a movable mandrel having an articulated extension and a plunger adapted to enter the folder and bear on said extension, for the purpose of forming the shank or socket with the requisite set or crook, substantially as described. 13th. The combination of a slotted table, a slide carrying a plunger, a folding device adapted to clamp the blade of a hoe, a folder adapted to form the shank or socket of such article, and having an opening near its upper end for the reception of the plunger, a hinged and jointed mandrel carried by a pivoted bar and connecting and operating mechanism, substantially as described. 14th. The combination, with a folding device adapted to form the shank or socket of a hoe-blank, of a movable mandrel, a plunger and actuating mechanism, substantially as described. 15th. The combination, with a folder adapted to close around a mandrel having an articulated end, of a plunger entering an opening in said folder and adapted to bear on the said articulated end of the mandrel, so as to hold it back against one side of said folder, substantially as described. 16th. The combination, with a movable mandrel and a folder adapted to close around the same, of a slide carrying a plunger, a movable rod and a bell-crank having one arm connected to the slide and the other arm connected to said rod, whereby the plunger is actuated, substantially

as described. 17th. The combination, with a socket or shank folding device, of a mandrel hinged to a pivoted bar and provided with an articulated extension, substantially as described. 18th. The shank or socket folder G, composed of two portions σ_1, σ_2 having a hinged connection, and provided with knuckles σ_2, σ_3 of uniform or varying size, substantially as described. 19th. The combination, with the folder G, of the mandrel F hinged to a pivoted bar E, and provided with an articulated extension f, substantially as described. 20th. The combination of the folder G, the pivoted bar E having lug α and the mandrel F hinged to said bar, substantially as described. 21st. The combination of the folder G, trunnioned plate I, slide frame H, sliding former K and mandrel F. 22nd. The combination, with the trunnioned plate I and slide frame H, of the sliding former K, cross-bar L carrying rollers ρ, ρ , and the cam-ways h, h , said camways being each formed of two curves, one of which is concentric with the point on which the trunnioned plate and slide frame swing, the other curve being eccentric to said point, whereby the sliding former, while swinging with the slide frame is withdrawn and returned at the proper time, substantially as described. 23th. The combination, with the trunnioned plate I, plate and slide frame H, of the springs l, l , substantially as described. 24th. The combination, with the trunnioned plate I and the folder G, of the connecting rods m, m , bell cranks M, M, toggles O, O, and connections N, N, substantially as described. 25th. The combination, with the folder G, pivoted bar E and mandrel F having articulated extension f, of the slide b carrying plunger c, the bell crank D and the rod d , substantially as described. 26th. The folder G composed of two corresponding leaves, provided with joints or knuckles ρ_2, ρ_2 journalled on a rod or hinge pin o having a tight collar ρ_3 , arranged to form one of the knuckles of said folder, substantially as described. 27th. The combination, with the slide frame H, sliding former K and folder G, of the trunnioned plate I having guides α, α and pins δ, δ , substantially as described. 28th. The combination, with the trunnioned plate I and folder G, of the rods m, m , toggles O, O, bell cranks M, M having swivelled ends n, n , and the jointed connections N, N, substantially as described. 29th. The combination of the trunnioned plate I, and slide frame H, pivoted on a common centre, the sliding former K adapted to swing with the trunnioned plate and slide frame, and having a cross bar L carrying rollers ρ, ρ engaging in cam-ways h, h , the mandrel F hinged to a pivoted bar E, the folder G adapted to close around said mandrel, means for connecting the trunnioned plate I and folder G, and means by which to actuate the trunnioned plate and slide-frame, substantially as described. 30th. The herein described method of forming a hoe with blade and socket from a single blank at one operation, consisting in folding the socket portion of the blank around a mandrel and simultaneously folding or bending over the blade to meet its socket at the proper angle, substantially as described. 31st. A hoe having its blade and socket formed from a single blank at one operation, substantially as described.

No. 20,475. Combined Chuck and Socket.

(Mandrin et Chaise de Tour Combinés.)

Simon P. Graham and James L. Blain, London, Ont., 3rd November 1884; 5 years.

Claim.—1st. The jaws D, D of the clutch, provided with two or more inclined flanges G, G, on each jaw, substantially as shown and described and for the purpose specified. 2nd. The slides C, C, provided with two or more inclined flanges G, G on each slide, substantially as shown and described and for the purpose set forth. 3rd. The jaws D, D, provided with two or more inclined flanges G, G, on each jaw, in combination with slides C, C, provided with two or more inclined flanges G, G, in each slide, substantially as shown and described and for the purpose specified. 4th. The parallel sleeve B, provided with a screw-thread extending throughout the whole of its inner face, and an inward flange I, substantially as shown and described and for the purpose specified. 5th. The combination of the parallel sleeve B, provided with a screw-thread on its inner face, with the slide D, provided with a screw-thread on its outer face directly over the grip of the jaw on the drill, substantially as described. 6th. A chuck, combined with a tapered socket F, substantially as shown and described and for the purposes specified.

No. 20,476. Oscillating Spring Chair.

(Fauteuil à Ressort Bascule.)

Henry R. Willis, Woodstock, Ont. (assignee of Ezra E. Fisher, West Brattleborough, Vt., U.S.), 3rd November, 1884; 5 years.

Claim.—1st. As an article of manufacture, a spring composed of the elastic elliptical strip α adapted to be attached to a base or foundation, and the rigid portion α' having the raised central portion 1 and offsets 2, 2, and adapted to be attached to a seat, as set forth. 2nd. The spring A, composed of the elastic elliptical strip α , and the rigid portion α' having the raised central portion 1 and offsets 2, 2, combined with the seat S, as set forth. 3rd. The plate P, having downwardly projecting lugs p , combined with the bolt s , packing B, spring A and foundation frame F, as set forth. 4th. The combination of the springs A, constructed as described, the seat s , the plates P, jamb C and the foundation frame F, all arranged and operating substantially as set forth.

No. 20,477. Electric Cable. (Câble Electrique.)

Thomas G. Turner, New York, N.Y., U.S., 3rd November, 1884; 5 years.

Claim.—1st. In a cable, the combination of the flexible core, a group of insulated conductors surrounding said core (one of which is an indicator), and an armor having a longitudinal seam substantially as set forth. 2nd. In a cable, the combination of the flexible core, a spirally disposed group of insulated conductors surrounding said core (one of which is an indicator) and an armor having a longitudinal seam, substantially as set forth. 3rd. In a cable, the combination of the perforated tubular core, a group of insulated conductors surrounding said core, an armor enclosing said conductors, and metallic binders arranged at intervals and connecting the core with the armor,

substantially as set forth. 4th. In a cable, the combination of the tubular core, a spirally-disposed group of insulated conductors surrounding said core (one of which is an indicator), and an armor consisting of a ribbon of metal folded around said conductors and having its longitudinal edges united by solder, substantially as set forth. 5th. In a cable, the combination of the tubular core, a spirally-disposed group of insulated conductors surrounding said core (one of which is an indicator) and an armor consisting of a ribbon of metal folded around the conductors, and having the outwardly projecting surplus of metal at its edges united by solder interposed between them, substantially as set forth. 6th. The improvement in the art of forming continuous cables, which consists in feeding a group of insulated conductors (one of which is an indicator), each having a separate spool, spirally upon a core, splicing the individual conductors as the respective spools become exhausted, folding a ribbon longitudinally upon the conductors as they are laid upon the core, and uniting the meeting edges of the ribbon by solder to form a longitudinal seam, substantially as set forth.

No. 20,478. Tuck Marker. (Traceur des Francis.)

Joseph S. Sackett, Wallingford, Ct., U.S., 3rd November, 1884; 5 years.

Claim.—1st. In a tuck marker, the combination of the tubular shaft B having an arm L to extend into connection with the mechanism of the sewing machine, whereby a rocking movement will be imparted to the shaft, the leading screw C arranged longitudinally within said shaft, the corresponding screw-threaded slide E also within said shaft, the arm F arranged upon said shaft in connection with the slide E, the slide G carrying the arm I and in connection with the screw C, said arms F and I carrying the creasing mechanism, substantially as described. 2nd. In combination with a tuck marking attachment for sewing machines, the shoe P arranged for attachment to the lower creaser arm, substantially as and for the purpose described. 3rd. In a tuck marker, the combination of the tubular shaft B having an arm L to extend into connection with the mechanism of the sewing machine, whereby a rocking movement will be imparted to the shaft, the leading screw C arranged longitudinally within said shaft, the corresponding screw-threaded slide E also within said shaft, the arm F arranged upon said shaft in connection with the slide E, the slide G carrying the arm I and in connection with the screw C, said arms F and I carrying the creasing mechanism and the guide R with the leading screw I, substantially as and for the purpose specified.

No. 20,479. Seal Lock for Car Doors.

(Serrure Scellée pour Portes de Chars.)

Joseph M. Edgar, Argentine, Ks. U.S., 3rd November, 1884; 5 years.

Claim.—1st. A sealing device for car doors, adapted to receive a seal on a hook or hooks, and having the engaging end of said hook inserted into and concealed in a suitable aperture in the door, said hook being automatically fastened inside the door, substantially as and for the purposes specified. 2nd. A seal lock for car doors, consisting of a bolt provided with a hook upon one end, and a keeper upon its opposite end, and a self-acting engaging device concealed within the door and engaging with said keeper, as and for the purpose specified. 3rd. A seal lock for a car, consisting of a bolt provided with a hook upon one end, and a keeper upon its opposite end, and a self-acting engaging device concealed within the door, and engaging with said keeper, for the purpose specified. 4th. The combination, with the door of a car having suitable perforations, of a seal bolt having a hook upon one end and a keeper upon its opposite end, and a seal plate adapted to receive and retain said seal bolt, of a spring bolt arranged within said door to engage with said keeper, for the purpose specified. 5th. The combination, with the door of a car having suitable perforations and countersunk, as described, of a spring bolt adapted to be operated, as shown and described. 6th. The combination, with a car door having suitable perforations, of the seal bolt provided with a hook and keeper, as described, a seal plate adapted to permit the entrance of said seal bolt, a spring bolt concealed within the door and a hasp, as and for the purpose specified.

No. 20,480. Fog Alarm. (Sifflet de Brume.)

The Neptune Fog Horn Company, Quebec, (assignee of Noah S. Woodward, Sherbrooke, Que., 3rd November, 1884; 10 years.

Claim.—1st. In a fog-horn apparatus, the combination, of a steam generator, a steam cylinder, and an air cylinder having in them pistons which are raised by the force of steam admitted to the underside of the piston of the steam cylinder, and which fall by their own gravity, substantially as described. 2nd. In a fog-horn apparatus, the combination, of the steam cylinder B, air cylinder B₁, rods E, E₁ and an automatically-operating valve mechanism consisting of a lever G, disk D, arm C and rod A, the parts being arranged to operate substantially as and for the purpose set forth. 3rd. In a fog-horn apparatus, the combination, of the rods E, E₁ operated by pistons of the cylinders B and B₁ and the valve operating lever G, when constructed and operating substantially as set forth. 4th. In a fog-horn apparatus, the combination, of the steam-induction pipe A, induction valve A₃, arm C and educting valve C₅, the parts being arranged with reference to each other, substantially as set forth. 5th. In combination, with the eduction pipe, of a fog-horn apparatus, and eduction valve for allowing the steam to pass from the cylinder, and a cock or valve for regulating the passage of steam in such a manner as to control the downward movement of the pistons in the cylinders thereof, substantially as set forth. 6th. In a fog-horn apparatus, the combination, of the cylinders B and B₁ and their respective pistons, whereby they are arranged with reference to each other, as described, whereby the piston of the air cylinder is made to force air through a trumpet or horn provided with a suitable vibrating reed and thus cause an intermittent alarm to be given, and whereby the piston of the steam cylinder is made to move the induction valve into its open position, and the piston of the air chamber is made to close the same, substantially as described.

No. 20,481. System of Writing Music.*(Système d'écriture de la Musique.)*

Noah Drew, Fowlerville, Mich., U.S., 3rd November, 1884; 5 years.

Claim—Blank music paper having a series of seven staff lines, provided with two columns or divisions at one end thereof, containing respectively the letters from C to C and numerals from 1 to 12, and a blank column adjacent to that provided with the numerals adapted to receive a character or symbol to indicate the base or key note, substantially as set forth.

No. 20,482. Boiler Ash Pan.*(Cendrier de Chaudière.)*

James C. Anderson and Frank H. Latimer, Winnipeg, Man., 1884; 5 years.

Claim—1st. In a boiler ash pan, air chambers having at their inner openings bevels either adjustable or stationary, substantially as described and for the purposes set forth. 2nd. In a boiler ash pan, the combination, with a supporting frame, of a series of slats journaled in the sides of the pan, having their pivots in a line close to one side of the slat and being opened or shut by rockers attached to a rocking rod, said rocking rod being moved by a series of arms attached to a rocking shaft, one of which arms is counterweighted, substantially as described and for the purposes set forth. 3rd. In a boiler ash pan, the combination of air chambers having hoods or covers, with a false bottom, substantially as described and for the purposes set forth. 4th. In a boiler ash pan, the combination of the rocking rod *a*, with rockers *b*, the slats *c*, the rock shaft *d* having at one end thereof the weighted arm *e* (and the arm *d*, as most convenient), substantially as described and for the purposes set forth.

No. 20,483. Iron Board and Frame.*(Table et Mètier à Repasser.)*

Trayton F. F. Baker, Oakville, Ont., 3rd November, 1884; 5 years.

Claim—1st. An ironing board *A*, having a rounded surface, in combination with a frame *B*, having a slide-board *a* actuated by a spring, substantially as and for the purpose specified. 2nd. A rectangular frame *B*, arranged to receive the ironing board, and having in its head a slide board *a* held to the frame *B* by pins passing through it, and oblong holes *b* in the board *a*, and the shank *d* projecting beyond the end of the frame *B*, in combination with the spring plate *C*, secured to the end of the frame *B* by pins or screws *e* passing through oblong holes made in the plate *C*.

No. 20,484. Armature and Tube Coupling in Apparatus for Manufacturing Cellulose. *(Armature et Joint de Tube pour Appareil de Fabrication de la Cellulose.)*

Alexander Mitscherlich, Hanov-Munden, Germany, 3rd November 1884; 5 years.

Claim—1st. A pipe-connection for a boiler, consisting of the combination of tube *a* having head or flange *g*, with nut *b*, screw cap *c*, packing *i* and pipe *d*, whereby, upon screwing up the cap *c*, the packing is compressed against the end of tube *a* and is caused to embrace the pipe *d* and thereby make a tight joint, substantially as set forth with reference to Fig. 1 of the drawing. 2nd. An armature-connection for a boiler consisting of a tubular armature *A* clamped to and projecting into the boiler, a thermometer projecting into its interior and openings *B* and *M* into its end interior to the boiler for the connection of manometer and test-cock or gauge tube, substantially as set forth, with special reference to Fig. 2 of the drawings. 3rd. The combination, with the boiler, of armature *A* projecting into it having tubular extension *a*, internal thermometer-tube *g*, thermometer *T*, with its prolonged bulb extending into said tube, so as to be entirely surrounded by the liquid, and openings *B*, or both communicating with the space within said armature for the connection of test devices, substantially as set forth with reference to Fig. 1 of the drawing.

No. 20,485. Car-Coupling.*(Accouplage de Chars.)*

John C. Bryan, Holly Springs, Ark., U.S., 3rd November, 1884; 5 years.

Claim—1st. The combination of the frame *E* having cross-bar *F*, the apron *L* having adjustable arms hinged on said bar, the spring or lever *O* loosely mounted on said bar, and the chain *Q* for holding one end of the spring or lever, substantially as shown and described. 2nd. The combination of the frame *E*, the apron *L*, the spring *O*, the chain *Q*, the hangers *S*, the forked and slotted bar *G* and clip *H*, substantially as shown and described. 3rd. The combination of the frame *E*, carrying the pin *D*, the spring-actuated plate *C* for supporting the pin, and the swinging arms *U* and hangers *S*, substantially as shown and described.

No. 20,486. Spring Bed. *(Sommier Elastique.)*

Robert Swazey and Joseph Gauntlett, Milan, Mich., U.S., 3rd November, 1884; 5 years.

Claim—1st. A bed spring, constructed substantially as described, having a rectangular loop at its lower end to embrace a bed slat, and a compound arm formed integral with the spring by means of which it is locked to its fellow springs on two sides, substantially as described. 2nd. In a spring bed bottom, the combination of the slats, with the spring having a rectangular loop at its lower end to embrace said slat, and means, substantially as described, for locking the upper ends of such springs together, substantially as and for the purposes specified.

No. 20,487. Curd Agitator Implement.*(Ménole de Fromagerie.)*

David M. Macpherson, Lancaster, Ont., 3rd November, 1884; 5 years.

Claim—1st. In a curd mill, in combination with frame *A*, feed chute *H* and shaft *B*, the rotary cutting wheel *D*, with radial slots each having a longitudinal cutting edge projecting from one face of the wheel, and on the opposite side knives *f* set transversely to the slots, as and for the purpose set forth. 2nd. In a curd mill, in combination with the frame *A*, feed chute *H* and shaft *B*, the rotary cutting wheel *D* provided with radial and transverse cutting knives and a rim or flange *E* to steady and increase the cutting power of the wheel, as set forth. 3rd. In a curd mill, the combination of the frame *A*, shaft *B*, feed chute *H* and wheel *D* provided with cutting knives on opposite sides of radial slots, to operate as described for the purpose set forth.

No. 20,488. Button-Setting Instrument.*(Machine à Poser les Boutons.)*

The Pratt Manufacturing Company, Portland, Me., (assignee of S. L. Pratt, Hingham, and A. M. English, Boston, Mass.) U.S., 4th November, 1884; 5 years.

Claim—1st. In an apparatus for setting buttons, a rest or support for the fastening, or hook, and a plunger provided with an anvil, combined with a spring-clamping jaw to grasp the shank of a button, and with a spring *h* to permit the movement of the plunger and anvil have acted to press the material upon the shank of the fastening or hook below its point, substantially as an *l* for the purpose described. 2nd. In an apparatus for set buttons, a plunger, combined with a button-holding clamp composed of plates, substantially as described, to form shoulders or rests to act upon one face of the shank, and a spring jaw having its ends turned inwardly to bear against the opposite face of the said shank, substantially as described. 3rd. In an apparatus for setting buttons, the frame-work or head *A*, provided with the guide *a*, and the button-carrying plunger therein, combined with a lever and a link, arranged substantially as described, whereby the operator to actuate the plunger to set a button may grasp in one hand the said guide and lever, substantially as set forth.

No. 20,489. Pulley. *(Poulie.)*

Alexander M. Smart and James A. Bailev, (assignee of M. L. Jack and J. L. Thomson,) Syracuse, N. Y., U.S., 4th November, 1884; 5 years.

Claim—1st. The combination, with a pulley, of a crowned facing composed of two or more layers of fibrous material of successively diminishing width cemented together, and to the periphery of the pulley, with the narrowest layer at the outside, substantially as described and shown. 2nd. The combination, with a pulley, of a bogging composed of one or more layers of textile fabric wrapped around the periphery of the pulley and cemented thereon, and a crowned facing composed of two or more layers of fibrous material of successively diminishing widths cemented together and to the aforesaid bogging with the narrowest layer of fibrous material of the outside, substantially as described and shown. 3rd. A multiple belt-carrying pulley having two or more crowned faces, each composed of two or more layers of fibrous material of successively diminishing widths cemented together and on the periphery of the pulley, each succeeding overlying layer being narrower than the preceding layer, substantially as described and shown. 4th. The combination of a pulley of one or more layers of textile fabric wrapped around the periphery of the pulley and covering the entire width thereof and cemented thereon, and two or more crowned faces each composed of two or more layers of fibrous material of successively diminished widths cemented together and on the textile fabric wrapping aforesaid, substantially as described and shown.

No. 20,490. Automatic Fire Alarm and Indicator. *(Tocsin et Indicateur d'Incendie Automatiques.)*

Frank A. Simonds and Frank Hall, Grand Rapids, Mich., U.S., 4th November, 1884; 5 years.

Claim—1st. In a fire alarm and indicator, the combination, with the building, of the alternate series of wires or cords, arranged on the ceiling of each room or compartment of the same, said alternate cross-wires being of a length insufficient to reach a cord drawn in a straight line between their points, a zigzag longitudinal wire or cord connecting with each of the alternate cross-wires or cords and extending down to the basement cellar or other convenient place over suitable pulleys, a weight attached to the lower end of the longitudinal wire or cord, indicators fastened to the same, a transverse wire or cord connecting with the weighted wire or cord and also connecting with the operating mechanism of a bell, whistle or other alarm, as set forth. 2nd. In a fire alarm, the combination, with the building, of the alternate series of cross wires or cords arranged on the ceiling of each room or compartments, said alternate cross-wires being of a length insufficient to reach a cord drawn in a straight line between their points, a longitudinal wire or cord connecting with each cross wire or cords and extending down to the basement or cellar, a weight at the lower end of the longitudinal wire or cord, the latter with operating mechanism of a bell, whistle or other alarm, as set forth. 3rd. In a fire indicator, the combination, with the building, of the alternate series of cross wires or cords arranged on the ceiling of each room or compartment, said alternate cross wires being of a length insufficient to reach a cord drawn in a straight line between their points, a longitudinal wire or cord connecting with the alternate cross wires and extending to the basement or cellar, the longitudinal wire or cord having a zigzag course on the ceiling, a weight at the lower end of said wire or cord and indicators attached to the weighted wire or cord and suitably numbered or lettered, as and for the purpose set forth. 4th. In a fire alarm and indicator, the combination, with the building, of the series of cross wires or cords arranged along the ceiling of each room or compartment one

extending from one side of the room to about the center of the ceiling and the other set A extending from the opposite side in a similar manner intermediately between the set A and thus forming an alternate series of wires or cords on the ceiling, each wire or cord being constructed of suitable lengths connected by fusible joints A wire or cord C extending along the length of the room on the ceiling and engaging or connecting with hooks E on the wires A A and thereby arranged in a zigzag line, said wire or cord C extending down to the basement cellar or other convenient place and weighted at its lower end and indicator arranged on the wire or cord C and an alarm connecting with the said wire or cord, as set forth.

No. 20,491. Vehicle Body. (Caisse de Voiture.)

Harlan P. Colby, Charlotte, Mich., U.S., 4th November, 1884; 5 years.

Claim.—1st. A vehicle body having a sill, with a groove, and a solid head forming a continuation of one of the walls of the groove, with a panel without beads resting upon the bottom of the groove, substantially as described and shown. 2nd. A vehicle body, having a corner iron (or any other suitable metal), with ribs near its outside edges resting in transverse grooves in panels, substantially as described and shown. 3rd. A vehicle body having an inside corner iron (or any other suitable metal) with a footing, whereby it can be secured to the sill by means of bolts or rivets, and a continuation by a joy near the top to form a corner to receive and hold secure the rail by means of screws or rivets.

No. 20,492. Folding Box. (Boîte Brisée.)

Patrick Fagan, Albany, N.Y., N.S., 4th November, 1884; 5 years.

Claim.—1st. The folding box having its sides, ends and lid hinged together, said lid having a hinged flap provided with an oblong aperture, which receives a turn-button like fastening connected to the front of the box, substantially as and for the purpose set forth. 2nd. In a folding box, the combination of the bottom A, the front B, the back C and ends D, D hinged to said bottom, the re-enforcing flaps F, F hinged to said front and back, the lid E hinged to the back with or without a hinged front closing flap Et, and the turn-button like fastening H connected to certain of said hinged sections or pieces, and fitting through slots h in other hinged sections or pieces to be looked or united with them, essentially as shown and described. 3rd. In a folding box having its sides, ends and lid hinged, as described, and its end re-enforced by hinged flaps secured by turn-button like fastenings H, the combination therewith, of a partition G hinged to the bottom of the box, substantially as specified.

No. 20,493. Steam Pump. (Pompe à Vapeur.)

Leon B. Carricaburn, New York, N.Y., U.S., 4th November, 1884; 5 years.

Claim.—1st. The combination, with the steam and water cylinders in a steam pump, of an air vessel between the heads of the respective cylinders, and the piston rod and tubular guide passing through such air vessel, substantially as set forth. 2nd. The combination, with the steam and water cylinders, piston and piston rod, of a tubular piston rod guide, and a removable tube surrounding and moving with the piston rod, substantially as set forth. 3rd. In combination, with the steam and water cylinders, pistons and piston rod, a tubular piston rod guide extending from the head of the steam cylinder, to the head of the water cylinder, and a packing around the piston rod and within the tubular piston rod guide, said packing moving with the piston rod, substantially as set forth. 4th. The combination, with the steam and water cylinders, pistons and piston rod of a tubular piston rod guide, the cylinder heads at the ends of the same and a lining to the interior of such tubular piston rod guide, substantially as set forth. 5th. The pump valve having trunnions, in combination with a spring receiving the trunnions and acting to close the valve or to allow it to rise bodily from its seat, substantially as specified. 6th. In a pump, a valve having trunnions extending out at the sides, in combination with a spring having coils around the trunnions, and arms that press upon the valve, and chest respectively, whereby the valve is kept in its place by the spring and allowed to open and close, substantially as set forth. 7th. A valve chest having the valve seats and waterways, and removable caps at the sides of the chest, in combination with polygonal bolts rounded at the ends and provided with screw threads and nuts, the bolts passing through polygonal holes in the chest so as to be held from turning, substantially as set forth.

No. 20,494. Ruffing Attachment for Sewing Machines. (Machine à Coudre faisant les Francis.)

Joseph S. Sackett, Wallingford, Ct., U.S., 4th November, 1884; 5 years.

Claim.—1st. In a ruffler for sewing machines, the combination therewith, of the horizontal bar E, mechanism substantially such as described, for imparting to said bar, an intermittent or step by step movement to the right or left a guide F for carrying the strip to be ruffed, and mechanism, substantially such as described, to adjust said guide on said bar to a greater or less distance from the needle, and whereby the angle of presentation of the strip may be varied, substantially as specified. 2nd. In a ruffler for sewing machines, the combination therewith, of the horizontal bar E, mechanism, substantially such as described, for imparting to said bar an intermittent or step by step movement to the right and left, the loop-shaped guide F constructed with an arm I, the yoke H arranged to slide longitudinally on said bar, with an opening through said yoke at right angles to said bar, and through which opening the arm I of the guide extends and whereby said guide is made adjustable both on the bar and at right angles thereto, substantially as described. 3rd. In a ruffing attachment for sewing machines, the combination of the horizontal sliding bar E constructed with a right angular slot L, the guide F, the disk M carrying the stud e in said slot L, the ratchet R in con-

nection with said disk, the lever N one arm carrying pawls r, s to engage said ratchet, the other arm in connection with the vibrating arm of the ruffler, substantially as described. 4th. In a ruffing attachment for sewing machines, the combination of the horizontal sliding bar E constructed with a right angular slot L, the guide F, the disk M carrying the stud e in said slot L, the ratchet R in connection with said disk, the lever N, one arm carrying pawls r, s to engage said ratchet, the other arm bifurcated forming two prongs l, m between which the arm of the ruffler lever will play and an adjusting screw n, substantially as and for the purpose described. 5th. In a ruffing attachment for sewing machines, the combination of a guide to conduct the strip to be ruffed, a pawl and ratchet arranged to impart a right and left intermittent movement to said guide a vibrating lever, one arm of which carries said pawl, the other arm being in connection with the ruffing mechanism, whereby a vibratory movement is imparted to said lever provided with a set screw whereby the extent of vibration of said lever and consequent throw of the pawl may be varied or adjusted, substantially as described. 6th. In a ruffing attachment for sewing machines, the combination therewith, of the plate P carrying the guide F and the mechanism, substantially such as described, for imparting a right and left step by step movement to said guide, the said plate constructed with hook-shaped ears T, I arranged to stand each side the separator arm 4 and beneath the base plate 3 of the ruffler and the key 5 to interlock said plate with the base plate by means of said hooks T and arm 4, substantially as described.

No. 20,495. Halter for Horses.

(Licou de Cheval.)

John Corbett, Berlin Falls, N. H., U.S., 4th November, 1884; 5 years.

Claim.—The halter, substantially as described, consisting of the two rings, the pair of straps to each ring, the buckles and cross straps and the holding strap and its snap hook, arranged and applied, essentially as set forth.

No. 20,496. Injector. (Injecteur.)

Albert S. Eberman, Cleveland, Ohio., U.S., 4th November, 1884; 5 years.

Claim.—1st. In an injector, the combination, with the main valve controlling the steam-supply passage, of a loosely-attached valve controlling the passage of steam to the injector or combining-tube, a by-pass valve controlling the passage of water around the injector discharge nozzle, an overflow valve and suitable intermediate connections, whereby all of said valves may be operated by the manipulation of the main valve, substantially as described. 3rd. The combination, with the main valve, the lifting jet devices and the valve loosely attached to the main valve for controlling the flow of steam to the injector discharge nozzle, of a by-pass valve arranged to control the flow of water around said injector discharge nozzle, and suitable connection between the main valve and by-pass valve by means of which the latter may be operated by the movement of the main valve, substantially as described. 3rd. The combination, with the main valve and the loosely-attached valve for controlling the flow of steam to the injector discharge nozzle, of an overflow valve connected with the main valve for operation thereby, substantially as described. 4th. In an injector, the combination, with the water and steam supply passages and injector discharge nozzle, a by-pass valve arranged to control the flow of water around the injector discharge nozzle and an overflow valve connected with said by-pass valve and arranged to operate the same, substantially as set forth. 5th. In an injector, the combination, with the main casing and main water passage, of the injector discharge nozzle having a water passage around it and carrying a valve for closing said passage, substantially as described. 6th. The combination, with the main valve for controlling the passage of steam to the interior of the main casing, the injector discharge nozzle of a combining-tube, and a valve for controlling the flow of steam to the said injector discharge nozzle or combining-tube, of a by-pass valve for controlling the flow of water around the same and means connecting said main valve and by-pass valve whereby the latter will be operated by the former, substantially as described.

No. 20,497. Coupling Attachment for Locomotive Tenders. (Barre d'Attelage de Tender.)

George H. Colby, Boston, Mass., U.S., 4th November, 1884; 5 years.

Claim.—An improved coupling attachment, adapted to be secured to the rear end of a locomotive engine tender, consisting of the coupling or case 3, provided with a recess or opening through which the coupling bar extends, in combination with a spring-actuated bumper contained within and with its head projecting rearward through said case, a shaft or rod having its bearing in said case, and a chain secured at one end to said shaft or rod and at the other end to said coupling bar, to move the latter in a lateral direction, substantially as described.

No. 20,498. Electric Arc Lamp.

(Lamp à Arc Electrique.)

Francis M. Newton, Belfast, Ireland, 4th November, 1884; 5 years.

Claim.—1st. In an electric lamp, the combination, with the movable carbon, of an oscillating or rocking device having elastic or spring arms, fingers or feelers arranged to operate so that while part of said arms are feeding the carbon forward part are receding into position for the next forward stroke, substantially as and for the purpose specified. 2nd. In an electric lamp, the combination, with the movable carbon and a feeding device having elastic or spring arms in contact with said carbon or its holder, of an electro-magnet or solenoid connected to said feeding device, substantially as and for the purpose specified. 3rd. In an electric lamp, the combination, with the movable carbon and a feeding device having elastic or spring arms in contact with said carbon or its holder of an electro-magnet or solenoid and a make-and-break apparatus, substantially as and for the pur-

pose specified. 4th. In an electric lamp, the combination of the upper and lower carbons and their holders, with an oscillating device for feeding the upper carbon, substantially such as described, and an electro-magnet operating the lower carbon in striking the arc, substantially as described.

No. 20,499. Harrow. (Harrow.)

Charles A. Brostrom, Rock Island, Ill., U.S., 4th November, 1884; 5 years.

Claim.—1st. A harrow tooth, constructed substantially as described, with its upper end bent at right angles to its body portion, said bent end having a longitudinal slot or cavity which terminates in a socket or depression adapted to receive the bent end of a fastening pin, as set forth. 2nd. An angular or L-shaped tooth beam for harrows having its side provided with perforations, and its base with angular slots, substantially as and for the purpose specified. 3rd. A harrow-tooth having its upper end at right angles to its body to form a head, and provided with a slot or cavity adapted to receive a wrought metal in combination with an angular or L-shaped tooth beam having its sides formed with perforations and its base with angular slots, substantially as and for the purpose described. 4th. The combination, with an angular tooth beam for harrows having perforations in its sides and angular slots in its base, of a series of harrow teeth formed with angular heads, and having a slot and socket at right angles to each other and a fastening-pin adapted to fit therein as a means for securing the teeth to the beam, substantially as and for the purpose set forth.

No. 20,500. Coal Sifter. (Crible à Charbon.)

George A. Blanchard, Concord, N. H., U. S., 4th November, 1884; 5 years.

Claim.—A coal sifter, consisting of the box or case A having at its bottom two drawers B, C, the three grates or screens *d*, *d*₁, *d*₂ arranged as shown, the chute *c* under the grate or screen *d* and the single incline plane *e* under the grate or screen *d*, to direct the separated ashes and dust against the grate or screen *d*₂, all as described.

No. 20,501. Steam Engine Governor.

(Gouverneur de Machine à Vapeur.)

Jesse M. Smith, Detroit, Mich., U.S., 4th November, 1884; 5 years.

Claim.—1st. In a governor, the combination, with a shifting eccentric or similar regulating means, of the equalizing weight, flying weight and spring connected and operating, substantially as described. 2nd. The combination of the equalizing weight, flying-weight connecting lever and spring, substantially as described. 3rd. In a governor, the composition, with a flying weight and spring, of a lever bent, as explained, so that movements of said weight and spring are as nearly radial as may be. 4th. The combination of the flying weight, equalizing weight, bent lever and spring, substantially as described. 5th. The combination of the flying weight, equalizing weight lever having arms of unequal length and spring, substantially as described. 6th. The combination with the lever carrying the flying weight, of the spring and rod separately connected with said lever, said rod serving to communicate the motion of the lever to the shifting eccentric, or similar governing device, substantially as described. 7th. The combination of the lever carrying the flying weight, the equalizing weight, the spring and the rod for communicating motion to the shifting eccentric, or other governing device, the connection of said rod with said lever being at a greater distance from its fulcrum than the connection of the spring or equalizing weight with the same, substantially as described. 8th. The combination with the flying weight and equalizing weight of connections, as explained, whereby the centrifugal force of the equalizing weight becomes a constant quantity within the limits of movement, substantially as described. 9th. The combination with the spring of the equalizing and flying weights, and connections proportioned, substantially as described, so that the greater part of the centrifugal force of the flying weight is balanced by the centrifugal force of said equalizing weight, substantially as described. 10th. The combination with a lever of unequal arms, of a flying weight carried by the long arm of the lever and the spring arranged to act against the short arm of the same, substantially as described. 11th. The combination in a speed governor of the character described, of a clamp for attaching the same to a shaft or wheel hub, substantially as described. 12th. The combination of the shifting eccentric, the shaft carrying the same and the counter weight, substantially as described. 13th. The combination of the shifting eccentric, the shaft carrying the same, the counter weight and the governor, substantially as described, so that the said counter weight tends to maintain the governor in its mid-position, which corresponds with the normal speed of the engine. 14th. The combination with the main shaft, of the parallel short shaft, the shifting eccentric at one end of said shaft, and the governor connections at the opposite end, substantially as described. 15th. The combination, with the governor and clamp for attaching the same to a shaft or hub, of a buffer or buffers carried by said clamp, so that when the governor is turned over to reverse the motion of the engine, the buffer remains in the proper position, substantially as described.

No. 20,502. Blueing Compound.

(Composition pour Bleuir.)

George A. Conant, West Acton, Mass., U. S. (assignee of Thomas McCabe, Ottawa, Ont.), 4th November, 1884; 5 years.

Claim.—1st. A blueing for laundry purposes composed of aniline, alcohol, saccharine matter and water, in the manner described, substantially as set forth. 2nd. A blue compound for laundry purposes consisting of aniline, alcohol, saccharine matter and water, and adhered to paper tablets, as described and for the purpose set forth.

No. 20,503 Means for Working and Locking Railway Signals and Points.

(Moyens de Manoeuvrer et Fixer les Signaux de Chemin de Fer.)

Illins A. Timmis and Stanley C. C. Currie, London, Eng., 4th November, 1884; 15 years.

Claim.—1st. In a railway signal apparatus, the combination, with signal arms (ground lamps, &c.) of electro-magnetic devices for lowering the signals, said devices being provided with means, whereby the current operating to lower the signals may be reduced from a maximum "lowering current" to a minimum "maintaining or demagnetized retaining current," substantially as described. 2nd. In railway signals, the combination, with the signal arms (ground lamps, &c.) and electro-magnetic devices for operating the same, of means for locking the arms or signals at "danger," substantially as described. 3rd. The improvement on railway signals and joints herein specifically described.

No. 20,504. Weighing Scales. (Balance.)

The Emery Scale Company, Stamford, Ct. (assignee of Albert H. Emery, New York, N.Y.), U.S., 4th November, 1884; 5 years.

Claim.—1st. In a beam scale, with appliances for suspending its weight and load on opposite sides of the fulcrum, a beam 2 supported and attached to its pillar or standard 1 by a thin plate or plates 3 clamped at either or both ends, substantially as set forth. 2nd. The combination of a main beam 2, and an indicator-beam 21, connected at or near the supporting fulcrum C and independent at the ends, to relieve the indicator beam from the effect of the bending of the main beam by the weight or load. 3rd. The combination of a scale-beam 2, sustaining the load, and the weights on opposite sides of its fulcrum 6, and a secondary beam 21 connected to the same fulcrum supports, but independent from the main beam at its end, or ends, and connected to an indicator rod 22 having greater angular motion. 4th. A suspension rod or rods 11, 13, 39, for a weight or a load platform connected to the scale beam by one or more thin flexible plates 15_a, 16_a or 35 clamped thereto, substantially as described. 5th. The combination of a scale beam 2 and indicator rod or beam 22 connected thereto, and having greater angular motion and separate load platforms 14, 40 applied to the respective beams, so as to weigh different loads with the same weight on the main beam 2. 6th. The combination of two connected beams 2 and 22, one having much greater angular motion than the other, a load platform 14 on the first beam 2, and a load platform 40 suspended adjustably on the second beam 22, so that it may be changed in its distance from the fulcrum thereof, to vary the relative effects of loads applied to the two platforms. 7th. A lever 2 fulcrum 1 by a thin plate 3 adjusted and secured by a gauging shoulder and clamp plate 4, as set forth. 8th. A platform 14, 40, suspended from a scale beam 2, or indicator rod 22, by their plates 16_a, or 35, clamped to the said beam or rod at a point above the centre of motion thereof, to increase the sensitiveness of the scale. 9th. The combination with a beam scale having thin fulcrum plate connections of a fibre testing device, device 52, 54, 55, substantially as herein described.

No. 20,505. Weighing Machine.

(Balance à Bascule.)

The Emery Scale Company, Stamford, Ct. (assignee of Albert H. Emery, New York, N.Y.), U.S., 4th November, 1884; 5 years.

Claim.—1st. In an hydraulic pressure support, constructed with a base 3 and a hollow shell or casing 4, fixed thereto by tap screws 5, countersunk in one member and extending only partially through the other member, or a flange thereon, so as to admit of forming a tightly sealed joint, as set forth. 2nd. An hydraulic pressure support, provided with a removable metallic cap 15, substantially as described. 3rd. An hydraulic pressure support, provided with a bell-shaped cap 15, constructed substantially as described, to adapt it to exclude dirt from the upper part of the case and protect the moving parts. 4th. In an hydraulic pressure-support, the combination of a pressure column 7, a cap 15, an interposed cushion 13 of gum elastic, or other suitable material, interposed between them. 5th. In an hydraulic pressure-support, the combination of a pressure column 5, a cap 15, an interposed cushion 13 and a retaining ring 14 surrounding said cushion, substantially as set forth. 6th. An hydraulic pressure-column 7, for weighing machinery secured to its base 3 by an annular diaphragm. 7th. An hydraulic pressure column 7 for weighing machinery, centered with a surrounding shell or casing 4 by one or more annular diaphragms or flexible fixing plates 11. 8th. An hydraulic pressure column, for weighing machinery, made in two parts, 7, 10, one secured to the base 3 and the other to the surrounding shell or casing 4. 9th. In combination, with one or more simple, or compound pressure supports 2, one or more reducers 16, through which pressure is transmitted from the support to the weigh-beam, substantially as set forth. 10th. In combination with a load platform and the pressure column 7 of an hydraulic support, one or more supporting springs 13 interposed between the said platform and pressure column or columns, substantially as set forth. 11th. A packing ring 301 for a liquid pressure diaphragm, formed with one or more confining ledges 302, 303 adapted to yield at points having undue prominence, substantially as set forth, and cause an effective bearing completely around the sealing surface. 12th. A sealing ring 301 and confining rings 302, 303, in combination with a suitable sealing surface, substantially as and for the purposes set forth. 13th. A liquid pressure support, constructed with a head 10 flexibly connected to the surrounding casing 4 and resting on the pressure column 7 without permanent connection. 14th. The combination, with the base 3 of a liquid pressure support, of a lining plate 53 and a continuous diaphragm 51 connected to said lining plate, so as to form a sealed pressure chamber. 15th. A corrugated lining 53, or diaphragm 54, in combination with a support base 52 or column 51, recessed to receive it, substantially as set forth. 16th. A diaphragm, or fixing plate 6, for a pressure chamber, constructed with a bent edge or edges, in combination with a column 7, casing base 3, or other part grooved for the reception of said bent edge or edges, as set forth. 17th. A diaphragm or fixing plate E for a sealed pressure chamber, or a pressure column

bent at its edge or edges, and secured within a suitable groove or grooves by metal run or pressed therein, substantially as set forth. 18th. In an hydraulic pressure support, a continuous diaphragm 54, permanently secured to the base 52, or its lining 53, and separable from the pressure column 51. 19th. In a liquid pressure support, the combination of a lining plate 53 and a conducting plug 55 fixed thereto, substantially as set forth. 20th. The combination of a lining plate 53 and conducting plug 55 fixed thereto, and a nipple 56 attached to a conducting pipe 56a, and connecting with the conducting plug through a lateral opening, substantially as set forth. 21st. The combination of a liquid pressure pipe 56a leading from an hydraulic support or reducer, a pressure chamber 53, 54, and a coupling and sealing plug 56 for connecting them as herein set forth. 22nd. In a hydraulic scale, a plug, or pipe socket with a vent 34 permitting the escape of air while the plug is entering as explained. 23rd. In combination with the pressure-column of a scale, or reducer, one or more transmitting pressure-chambers separably removable, and each consisting of a chambered piece 23, diaphragm 25, ring 26 and a small pressure-column 24 which transmits pressure to the said scale or reducer-column either directly or through the medium of one or more intervening levers. 24th. A pressure-reducer constructed of a base 223, one or more liquid pressure-supports 222 thereon, a column 230, for transmitting pressure to the weigh-beam and one or more levers 305 fulcrumed on flexible plate connections 298 and transmitting reduced pressure from the said liquid pressure-supports, to the said weigh-beam column, substantially as set forth. 25th. A pressure-reducer constructed of a base 223, two or more pressure-columns 307 and a stay-plate or plates 308 connecting the pressure-columns at the opposite sides of the base, to fix them against horizontal while permitting free vertical motion, substantially as set forth. 26th. A gauge or scale reducer 60 secured to the base 66 of a weigh-case, in combination with a pressure-column 59, substantially as set forth. 27th. In a weighing machine gauge, or dynamometer, the combination of a flexible fulcrum-plate 298 or 306 with a fulcrum block 296 or a pressure-column 307 and a lever 305, or with two levers, said parts having grooves adapted to receive and hold the said fulcrum-plate, as set forth. 28th. In a weighing machine gauge or dynamometer, a flexible fulcrum-plate 298 secured by forcing it at either end under pressure into a groove forming a seat for it, substantially as and for the purposes set forth. 29th. The combination, with a beam 72 provided with one or more weighing weights 192, of a supplemental weight-rod 90 carrying one or more balance-weights 88, 89, as and for the purposes set forth. 30th. The combination of the beam-supporting pillar 71, formed with a horizontally projecting lug, the weigh-beam 72 having a heel projecting beneath said lug and a flexible fulcrum-plate 73 connecting the said weigh-beam and its supporting pillar and receiving compression in the act of weighing. 31st. In a weighing machine, the combination of the weigh-beam 72, and an indicator 84 having greater angular motion than said beam. 32nd. The combination with a weigh-beam 72 of an indicator rod 84 having greater angular motion than said beam, and a weight 86 counterbalancing said indicator rod, substantially as set forth. 33rd. The combination, with one or more weigh-beams or levers 72, of an indicator rod 84 connected to one of said beams or levers by one or more flexible fulcrum-plates 85, and having greater angular motion than the beam or lever to which it is connected. 34th. The combination of the indicator rod 84 longitudinally adjustable in its holding block 83, and the thin attaching plates 83, 85, as and for the purpose set forth. 35th. The combination, with the scale-frame and weigh-beam, of an indicator rod 84 working in front of an indicator-plate, and on or within a guide 184, said indicator-plate and guide being attached either to the frame or beam or one to each, as preferred. 36th. In combination, with the weigh-beam 72, a movable weight-rod 110 and supporting bar or frame 118 having suitable projections to support a plurality of weights 114 and apply them in succession to the beam, substantially as set forth. 37th. The combination of a suspension-bar or rod 110 and a weight supporting-bar or frame 118, each having suitable projections so that a movement of the weight-supporting bar or frame relatively to the beam or suspension rod will cause a successive application or removal of the weights. 38th. The construction of the weight-supporting bar or frame 118, and the suspension-rod 110, with cones or projections at different distances asunder, so as to cause a successive application or removal of the weights, as explained. 39th. A weighing machine having a weight-elevating platform bar or frame 100, 118 and primary and secondary levers 103, 121, 156, etc., with suitable connections for operating the same. 40th. In a weighing machine, the combination, with a weight-operating lever, of a guiding and sustaining friction-box 162 and fixing rod 133 for retaining the said lever in any position in which it is set. 41st. In a weighing machine, a weight-operating bar and lever 121 applying a greater or less number of weights according to the extent of its movement, in combination with a differential counterweight 167, having a varying effect on the weight operating bar in proportion to the amount of the weighing weights supported thereby. 42nd. In a weighing machine, a weight-operating bar 118 and lever 121, provided with a pointer 158 and scale 107, to indicate the number or value of the weights applied to the scale-beam. 43rd. A double weigh-beam case 197, 198 constructed substantially as herein set forth. 44th. A track scale platform constructed with longitudinal and transverse beams 203, 206 and held against longitudinal and lateral motion by stay-plates, or rods 215, as herein shown and described. 45th. In a railway track scale, a load-platform 203, 204, 206, sections resting by their ends independently on the platform supports 2, as herein explained. 46th. The combination, with one or more hydraulic pressure-supports 2, of an intermediate load frame 206, 212 fixed against horizontal motion and a separate load-platform 203, 204, as and for the purpose set forth. 47th. A railway track scale constructed with a sectional platform 203, 204 resting on hydraulic pressure-supports 2 connected in pairs with a pressure reducer 16, from which pressure is communicated to the weigh-beam connections by a pipe or pipes 32 common to two or more primary pressure-supports.

No. 20,506. Lever Platform Scale. (Balance Basculé à Levier.)

The Emery Scale Company, Stamford, Ct., (assignee of Albert H. Emery, New York, N.Y.,) U.S., 4th November, 1884; 15 years.

Claim.—1st. The combination, with a scale-platform 5, and its levers 32, 33, of thin flexible plates 64, 65, clamped to and directly connecting the said platform and levers, as and for the purposes set forth. 2nd. The combination, with the platform 5, platform lever or levers 32, 33, and the frame or bed 66, of a scale of flexible stay-plates 83 to stay the said platform against horizontal motion, as explained. 3rd. The combination, with the platform lever 32, of adjustable stop-screws 72, abutting against the frame or bed 66, or one or more lugs 66a on the said bed to stay the lever against lateral motion. 4th. In combination with the platform levers 32, 33, and the scale-frame or bed 66, the thin flexible plate-fulcrums 67, 68 offering such slight resistance that a small fraction of the full load of the scale will deflect the levers to the extent of their permitted movement. 5th. In a platform scale, the lever or levers 32, 33 having thin flexible plate fulcrums 64, 65, 67, 68, 71, in combination with weighing mechanism 87, extraneous to said fulcrums. 6th. The combination of primary platform levers 32, and secondary platform levers 33 connected by thin flexible plate-fulcrums 71 offering such slight resistance that a small fraction of the full load of the scale will deflect the levers to the extent of their permitted movement, substantially as set forth. 7th. The hollow pillar 11, provided with flanges 74, 75, in combination with the bed 66 and weigh-beam case 77, as and for the purposes set forth. 8th. A platform-scale constructed with a bed 66, supporting a platform 5, through the medium of levers 32, 33 and flexible plates 64, 65 a case or head 77, a weigh-beam 87, contained in said case or head, a flanged hollow pillar 11 connecting the platform bed and weigh-beam case and flexible transmitting plates 71, 69 connecting the platform levers to one another and to the weigh-beam. 9th. The combination of the scale platform 5, levers 32, 33, supporting the same, the weigh-beam 87 and a column 34 connecting the said levers and weigh-beam stay against lateral motion, substantially as described. 10th. The combination, with the scale beam 87 and its case or frame 77, of a pair of adjustable stop screws 112, 113, to limit the vertical movement of the beam in either direction. 11th. The combination of the scale platform 5, the levers 32, 33, supporting the same, flexible fulcrum plates 67, 68, 71, supporting and connecting said levers, a column 34 transmitting movement to the weigh-beam and suitable stay plates 83, to secure the mechanism against horizontal movement. 12th. The scale beam or lever 32, stay-plate lugs: horizontal movement by one or more flexible plates 83, attached to it and to another part of the scale. 13th. The weigh-beam 87 and weight rod 93, connected by a strap 94 within an opening in the weigh-beam case, serving to limit the movement of the parts. 14th. The combination of one or more scale levers 32, 33 and a flexible fulcrum plate or plates 67, 71 connecting either of said levers to another part of the scale, and secured by a clamp and a gauging shoulder, substantially as described.

No. 20,507. Pressure and Vacuum Gauge and Dynamometer. (Indicateur à Pression et à Vide et Dynamomètre.)

The Emery Scale Company, Stamford, Ct., (assignee of Albert H. Emery, New York, N.Y.,) U.S., 4th November, 1884; 5 years.

Claim.—1st. A pressure gauge, or dynamometer, constructed with a pressure column 8, a pressure diaphragm 7 and a sealing plug or cap 5, securing the margin of the diaphragm and forced home by a coupling or clamp screw 4, substantially as herein set forth. 2nd. In a pressure gauge or weighing dynamometer, a pressure column 8, acting through a lever, or system of levers 13, 18, 23 on a rotary indicator 31, substantially as described. 3rd. In pressure gauge or dynamometer, the combination of a pressure-column 8, one or more transmitting levers 13, 18, 23 to take up the load, one or more flexible load transmitting plates 13 connecting the said parts, substantially as described. 4th. In a gauge or weighing dynamometer, a pressure column 8, one or more transmitting levers 13, 18, 23, an indicator 31, and a setting rod 38 connected, with one of the transmitting levers through the medium of a spring 36, for the purpose of regulating the resistance of the spring or adjusting the position of the indicator without opening the case. 5th. In a gauge or weighing dynamometer, one or more load-transmitting levers 13, 18, 23 connected to a moving part and to the case by flexible fulcrum plates 12, 27, 21, 14, 19, 24, 6th. In a gauge or weighing dynamometer, a load-pressure column 8, a rotary indicator 31, and one or more transmitting levers 13, 18, 23 attached to a fixed of the instrument, and to each other by flexible fulcrum plates. 7th. In a gauge or dynamometer, the combination with a transmitting or indicating lever 23, of one or more weighing arms 27 extending above or below said lever, so as to offer a varying resistance to the pressure, substantially as set forth. 8th. In a gauge or dynamometer, the combination, with a transmitting or indicating lever 23, of a weight 26 mounted on an arm 27 projecting from the said lever and adjustable vertically, or horizontally, or both, so as to said lever and adjustable vertically, or horizontally, or both, so as to balance the levers and their connections or to offer a varying resistance thereto in different positions, as set forth. 9th. The combination, in a pressure or vacuum gauge or weighing dynamometer, of a pressure column 8, one or more transmitting levers 13, 18, 23, one or more flexible connecting plates 12, 17, 21, a transmitting band 28 and a rotary indicator 31, substantially as set forth. 10th. In a pressure or vacuum gauge or weighing dynamometer, a transmitting lever 23 constructed with an upwardly projecting heel 22 to afford attachment for the moving fulcrum-plate 21 above the level of the attachment of the fixed fulcrum-plate 24, substantially as and for the purposes set forth.

No. 20,508. Weighing Machine and Dynamometer. (Machine à Peser et Dynamomètre.)

The Emery Scale Company, Stamford, Ct., (assignee of Albert H. Emery, New York, N.Y.,) U.S., 4th November, 1884; 5 years.

Claim.—1st. In a dynamometer or weighing machine, the pair of beams 2, 6, and rods 5 connecting them, constituting a rigid suspension yoke and supporting a case 3, capable of limiting vertical motion relatively to the said yoke. 2nd. In a dynamometer or weighing machine, a casing 3 and a suspension yoke 2, 5, 6, connected by flexible plates 4, 7, to prevent lateral while permitting vertical

longitudinal motion. 3rd. A weighing apparatus or dynamometer constructed substantially as herein described, with a beam 6, a pressure column 11 resting thereon, a case 3 moving relatively to the said beam and pressure column, and a lever 12 resisting or sustaining the load or pressure between the case 4 and column 11, and connected to the latter by a flexible fulcrum plate 13. 4th. In a weighing dynamometer, a load-attaching device 65 fixed to a moving cross-head 67, resting through the medium of a spring 68 on a cross-head 69 attached to the case 3, substantially as described. 5th. A weighing dynamometer, constructed substantially as herein set forth, with coupled load beams 2, 6, one or more load levers 12, 19, and a case 3 in which they work. 6th. In a weighing dynamometer, the combination of a casing 3 to which the load is applied, a suspension yoke 2, 5, 6, in which the case has limited vertical movement, one or more weight levers 12, 19, to balance and indicate the load and a stop 31, or 119, to limit the upward movement of the case when relieved of a load. 7th. A weighing dynamometer, constructed with a case 3, to which the load is applied, a suspension yoke 2, 5, 6, on which the case has limited vertical motion, a pressure column 11 sustained by the said yoke, a resisting lever 12 connected to the case 3 and pressure column 11 by flexible plate 15 and 13, and a weight lever 19 having greater angular motion than the lever 12 and connected to the said lever 12 and to the case 3 by flexible fulcrum plates 20 and 22, substantially as set forth. 8th. The combination, with the case 3, suspension yoke 2, 5, 6, pressure column 11, and levers 12 and 19, of an indicator rod 46 having much greater angular motion than the second lever 19. 9th. The combination, with the weight lever 19, of the flexible fixing plate 62, staying the said lever against horizontal motion, substantially as described. 10th. The combination of the shouldered weight 10 32, and stop post 34, substantially as and for the purposes set forth. 11th. A weighing dynamometer, constructed with a pocket 41 for di-used weights to maintain uniformity in the weight of the apparatus, as described.

No. 20,509. Knitting Machine.

(Machine à Tricoter.)

Richard Schofield, George Davidson and John Penman, Paris, Ont., 4th November, 1884; 5 years.

Claim.—1st. In a knitting machine, a pivoted arm H arranged to support the thread E, and provided with an arm b, in combination with the thread D carried below an arm b, for supporting the arm H, substantially as and for the purposes specified. 2nd. The pivoted arm H, provided with a curved spring end h, with a forked end to receive the thread E, in combination with the thread D arranged to support the arm H, substantially as and for the purposes specified. 3rd. The arm H having at its end a hollow guide i through which the thread E passes, and a curved spring h extending from i, and having a forked end to hold the thread E, in combination with the thread D arranged to support the arm H, substantially as and for the purposes specified. 4th. A bracket F, provided with guide-holes a and c through which the thread D passes, in combination with the pivoted arm G arranged to support the thread D, and having the tail e to fit below the spring f. 5th. The pivoted arm G, arranged to support the thread D between the guide-holes a and c, and having a tail e, in combination with the spring f arranged to come in contact with the tail e, substantially as and for the purposes specified. 6th. In a knitting machine, the bobbins B and C arranged to supply thread of the same colour, the combination of a device arranged to hold one thread out of action until the other thread breaks, substantially as and for the purposes specified.

No. 20,510. Washing Machine.

(Machine à Laver.)

Charles K. Buchanan and Albert R. Byington, Brantford, Ont. (assignee of Elgar S. Burnham, Buffalo, N. Y., U. S., 4th November, 1884; 5 years.

Claim.—The cylinder a having a rim at commencing closely at the sides of the same and gradually curving outward, as specified, in combination with the piston-head a6, an open ring e4, the bottom, a rod a2 and handle, a spring e3, adjustable collar a7 and a detachable cover c1 projecting down and slightly inclining inward toward the sides of the cylinder a, substantially as and for the purposes specified.

No. 20,511. Tobacco Box. (Boîte à Tabac.)

Charles H. Seales and James R. Silliman, Toronto, Ont., 4th November, 1884; 5 years.

Claim.—1st. A package for a tobacco box, butt, or caddy, composed of the sides E, D, and F bound together by the flanged sheet metal caps C, substantially as and for the purposes specified. 2nd. A package for a tobacco box, butt, or caddy, composed of the sides E, D and F bound together by the flanged sheet metal caps C and the band G, substantially as and for the purposes specified. 3rd. A metal cap C having an annular hole cut out of its centre and flanges p formed around its edges, substantially as and for the purposes specified.

No. 20,512. Printing Machine.

(Machine à Imprimer.)

David T. Simpson, New York, N. Y., U. S., 4th November, 1884; 5 years.

Claim.—1st. Process for self-feeding printing machines from the web, or roll, by dividing and sub-dividing the quantity of paper for the required number of sheets. Process: To print one or more impressions, miss one or more impressions (leaving blanks between), then or afterwards filling up the missed impressions, or blanks. 2nd. The adoption of the above process to flat form printing. 3rd. The combination of rollers C, with rollers C 5 which divides and subdivides the paper and throws the blanks down, substantially as described. 4th. The belt L, which measures off the length of paper required for the number of sheets wanted. 5th. The male catch upon the belt which drives the form, and the female catch attached to the carriage, for the purpose as set forth. 6th. The elevator which rises and depresses the form, substantially as described, and I do claim all of which my specifications set forth as original and invented by myself.

No. 20,513. Car Platform. (Plateforme de Char.)

Samuel M. Beery, Omaha, Neb., U. S., 4th November, 1884; 5 years.

Claim.—1st. A sliding platform F, placed upon rods and pressed outward by springs, substantially as described. 2nd. The combination, with the sliding platforms F, rods G, springs H and parallel bars D, of the parallel bars E, arranged substantially as and for the purpose set forth. 3rd. The rods G, formed with the round portions a, shoulders g1 and flat portions g2 by which latter they are secured to the cross-timbers C, substantially as described. 4th. The sliding platforms F, provided at their adjacent edges with the friction balls c, substantially as and for the purposes set forth. 5th. The rods G attached to the frame of the platform, in combination with the sliding platform F and curved fulcrum bars b, substantially as described.

No. 20,514. Necktie Supporter.

(Gansse de Cravate.)

Benjamin B. Scully, Lynn, Mass., U. S., 4th November, 1884; 5 years.

Claim.—1st. The body a of a necktie supporter, having the intuned ends p arranged to form an open loop to sustain the overlying collar of the wearer, substantially as specified. 2nd. The combination, with the body a, formed with openings p, of securing pins d formed with bent m, loop (and pointed end n, and arranged to be secured to said body, substantially as specified. 2nd. In combination, with body a, the attaching loop e formed of elastic wires bent centrally, as at i1, and also as at h, h, to form four parts or members g parallel, or nearly so, and with said central part i1 and ends j, j, bent loop-like and secured in position, substantially as specified. 4th. In a necktie supporter, the combination of body a, the stud engaging loop e and the eyelet v inserted in said body, and engaging the loop at its centre i to secure the same to said body, substantially as specified. 5th. In combination, with body a of a necktie supporter, a projection 5 extending therefrom to engage the collar stud, substantially as specified. 6th. In a necktie supporter, the combination of body a having hook or loop 3, the neck band 2 and its loop 6 adapted to be engaged by said hook, substantially as specified.

No. 20,515. Spring Hinge for Doors.

(Penture à Ressort pour Portes.)

John S. Stevens and Charles G. Major, Buttersea, Eng., 4th November, 1884; 5 years.

Claim.—1st. In a double or single action spring hinge for doors, the combination of the spring, with an opposing liquid check, substantially as described and for the purposes set forth. 2nd. In a double or single action spring hinge for doors, the combination of the spring J, with the piston I and piston rod E, operating in a cylinder or dash-pot F against an opposing liquid check, substantially as described and for the purposes set forth. 3rd. In a double or single action hinge for doors, the combination of the spring J, with a piston I and piston rod E operating in a cylinder or dash-pot F, and an exterior bank B to contain a liquid to surround and enter the cylinder or dash-pot F, so as to form a liquid check to the spring, substantially as described and for the purposes set forth. 4th. In a double or single action spring hinge, against which fluid is used as a check, a door having a heel spindle A pivoting in and passing through a floor hole, and a crank or cam, in combination with and operating a piston I and piston rod E antagonized by a spring J, substantially as described and for the purposes set forth. 5th. In a double action spring hinge, against which fluid is used as a check, piston rods E, E, operating alternately into cylinders or dash-pots F, F, in combination with pistons I having a sleeve into which the piston rod E slides, whereby one of the piston rods is enabled to travel into its cylinder without moving the piston, while the other makes its exit from the other cylinder, substantially as described and for the purposes set forth. 6th. In a double or single action spring hinge for doors operated above or below the floor line, the combination of the door pivot A and a variable notch, crank or cam with, and operating a piston rod E, piston I and spring J, whereby the mechanical effect of the spring is diminished as its elastic force is increased, as described and set forth. 7th. In a double or single spring hinge for doors operated above or below the floor line, the combination of the adjusting lock, nuts or set screws d, d on the pistons E, the variable crank or cam and the door pivot A, whereby the door may be set accurately to its proper position, as set forth. 8th. In a single action spring hinge against which fluid is used as a check for double action doors, the combination of a single fixed cylinder or dash-pot F, spring J, piston I, piston rod E with a double-ended variable motion crank or cam and the door pivot A, substantially as described and for the purposes set forth. 9th. In a single action spring hinge, against which fluid is used as a check for double action doors, the combination of a single oscillating cylinder F, rearward connection rods l, l, double end crank or cam C, and door pivot A, with spring J, piston I and piston rod E externally pivoted on the fixed point G, substantially as described and for the purposes set forth. 10th. In a single action spring hinge, against which fluid is used as a check for double action doors, the combination of a single cylinder oscillating upon a fixed point G, having a spring J, piston I and piston rod E, having a cross-head a with connecting rods l, l pivotally attached to the ends of the cross-head, a double-end crank or cam C and door pivot A, substantially as described and set forth. 11th. In a double or single action spring hinge, against which liquid is used as a check, the combination of the door pivot A and piston C having projections on its periphery, with the interacting link chain E, piston J, spring J and cylinder F, substantially as described and for the purposes set forth.

No. 20,516. Waggon. (Wagon.)

Benjamin C. Seaton, Tullahoma, Ten., U. S., 7th November, 1884; 5 years.

Claim.—1st. The combination of the front axle having the castings secured on top at its ends, and provided on their inner faces with vertical tongues, the front bolster having the end-plates provided with vertical grooves receiving said tongues, springs interposed between

the axle and bolster, and the hounds passing under the castings on the axle, and provided with braces passing over said castings, substantially as and for the purpose set forth. 2nd. The combination, with the rear axle and the arms of the reach, of the castings D, D with grooved bases, the helical springs D₁, D₁, the grooved castings E₁, E₁ with cross-bars E₃ and the securing bolts passed through the bolster and the rear axle, substantially as specified. 3rd. The combination, with the double tree bar, of the spring S, guards S₁, hooks T and the coiled springs T₁, substantially as specified.

No. 20,517. Land Roller. (*Rouleau d'Agriculture.*)

Kinzy W. Jones, Lemoore, Cal., U.S., 7th November, 1884; 5 years.

Claim.—1st. The spring I, for the seat, consisting of a single leaf, one end of which is riveted fast and the other is curved inwardly on itself, and has a play by reason of a slot *j* and guide-pin J, substantially as herein described. 2nd. The rear frame A, having rollers B and connecting arms *b*, in combination with the frame C having roller D, curved bar G, seat spring I having a raised rear portion under which and over the bar G, the arms *b* are pivoted, substantially as herein described.

No. 20,518. Sewing Machine. (*Machine à Coudre.*)

David L. Keeler, Grand Rapids, Mich., U.S., 7th November, 1884; 5 years.

Claim.—The face plate of a sewing machine, formed with ways *h, h*, in combination with the needle-bar, the cross-head H secured to said needle-bar, and two screws *f, f* on the two ends of the said cross-head, which screws bear against the ways *h, h*, of the face plate and are adjustable thereto, whereby the rear may be taken up in both ends or either end of the cross-head between the screws *f, f* and the ways *h, h*, substantially as set forth.

No. 20,519. Stencil. (*Patron.*)

Benjamin Walker, Detroit, Mich., U.S., 7th November, 1884; 5 years.

Claim.—1st. A stencil plate, cut from any suitable material and secured to wire cloth, whereby a perfectly formed letter or design is produced, substantially as described. 2nd. The combination of a stencil plate, with a wire cloth front, the parts being secured together, substantially as and for the purposes specified.

No. 20,520. Fence Post. (*Pieu de Clôture.*)

John W. Davy, Kingston, Ont., 7th November, 1884; 5 years.

Claim.—1st. The post A, having loops B, B₁ to incline in opposite directions, and pins C inserted through the loops and driven into the ground intersectingly, holding the post erect, as set forth. 2nd. In combination, with the post A, having loops B, B₁ and intersecting pins C, the stay or brace D, having socket E fitting in the post and fastened thereto by a wedge and secured to the ground by a pin or staple G, as set forth. 3rd. The combination of the post A, having notches A₁, fence wire A₂ and wedge A₃ to hold the wire in the notch, as set forth. 4th. The combination of the post A, block H sleeved thereon, and having mortices inclining in opposite directions, and pins C driven through the mortices and into the ground for holding the block H and post A, as set forth. 5th. The combination of the post A, fixed cross-bar I having loops at the ends inclining in opposite directions, and pins C driven through the loops into the ground, as set forth.

No. 20,521. Dust Collector.

(*Aspirateur de Poussière.*)

Barnim F. Ortman, Buffalo, N. Y., and Horatio R. Taylor, Leavenworth, Kas., U.S., 7th November, 1884; 5 years.

Claim.—1st. In a dust collector, the combination of a bent or curved air passage constructed with a perforated wall, which deflects the dust-laden air out of its course, and a dead air chamber which receives the dust particles which are driven through the said perforated wall by their momentum, while the air passes off through said passage in another direction, substantially as described. 2nd. In a dust collector, the combination, with a spiral passage having an outer perforated wall, of a spiral dead air chamber, arranged on the outer side of said perforated wall, substantially as described. 3rd. In a dust collector, the combination, with a bent or curved air passage, constructed with a perforated wall which deflects the dust laden air out of its course, a dead air chamber arranged on the outer side of said perforated wall, and partitions arranged in said dead air chamber, whereby its continuity is broken, substantially as described. 4th. In a dust collector, the combination, with a bent or curved air passage, constructed with a perforated outer wall, which deflects the dust laden air out of its course, and with a perforated bottom, of a dead air chamber arranged on the outer side of said perforated wall and below said perforated bottom, substantially as described. 5th. The combination, with the spiral air passage B, having an outer perforated wall *b*, inlet spout A and discharge spout D, of the spiral dead air chamber E open at the bottom, and a receiver K arranged below the said chamber E, substantially as set forth. 6th. The combination, with the spiral air passage B having an outer perforated wall *b*, inlet spout A and discharge spout D, of the spiral dead air chamber E provided with partitions *f*, and receiving hopper K, substantially as described.

No. 20,522. Method of Electrically Detecting and Locating Mineral Veins. (*Méthode de Recherche et de Localisation des Filons par l'Electricité.*)

August P. Lighthill, Boston, Mass., U.S., 7th November, 1884; 5 years.

Claim.—1st. In an apparatus for detecting, finding and locating mineral deposits, a battery or other source of electricity, a galvanometer, electrodes E x E, helices H, H, H₁, H₁ having polarized cores and connections are specified, whereby said battery galvanometer,

electrodes and helices are included in one and the same circuit. 2nd. In an apparatus for detecting, locating and finding mineral veins, electrodes E x E, formed of magnetizable metal and connected through a battery and galvanometer, as specified, and helices C, C surrounding said electrodes, with connections through a battery and key, whereby said electrodes may be magnetized when desired. 3rd. In an apparatus for detecting, finding and locating mineral veins, the combination of a battery or other source of electricity, a galvanometer electrodes E x E, and insulating bridge block to which said electrodes are secured, and electrical connections, substantially as described. 4th. The method of electrically detecting, locating and finding mineral veins, which consists in applying the terminals of an electric circuit, including indicating devices to the earth's surface, but without contact with said veins, the presence or absence of said veins being shown by changes in the indicating apparatus. 5th. The method of electrically detecting a d locating mineral veins, which consists in applying the terminals of an open electric circuit containing indicator devices to the earth, but not in contact with the said veins, the presence or absence of said vein being indicated by the variations in the electric circuit due to the presence of said veins.

No. 20,523. Car-Coupling. (*Accouplage de Wagons.*)

Joseph B. Willaman, Charles Stratton, Henry S. Lynch and Harvey Bumbaugh, Salem, Mass., U.S., 7th November, 1884; 5 years.

Claim.—1st. The combination of the head D, having the recesses *g₁*, bore *d* and passages *d₃* and the recess *b₁*, of the draw-bar B, having the enlargement *b₂*, the bolt F and the flanges G with the lever H, links *h₄* and with means for operating one of the flaps, substantially as specified. 2nd. The combination of the flaps G, lever H, screw or bolt *h*, spring *h₁*, connecting links *h₄* and the head D, substantially as specified. 3rd. The combination of the flap G, having the depression *g₂*, and the pintle *g₃*, with the bolt F, having the slots *f₁*, *f₂*, substantially as shown and described. 4th. The combination of the connecting link E, constructed as described, with the head D having the conical mouth *d₁*, the central bore *d*, the transverse passage *d₃* and the recess *b₁*, with the draw-bar B, having the enlargement *b₂*, the flaps G having the depressions *g₂*, pintles *g₃*, bolts F, having the concavities *f* and curved slots *f₁*, the links *h₄*, lever H, chain I and lever J, substantially as shown and described.

No. 20,524. Attaching the Strings to the Tuning Pins of Piano Fortes. (*Méthode d'Attacher les Cordes aux Chevilles des Pianos.*)

Thomas J. Brinsmead, London, Eng., 7th November, 1884; 5 years.

Claim.—1st. In a pianoforte, the combination, with each string, of a screw-threaded wrest pin or tuning pin in line with the string, a nut screwing on said pin and bearing against the frame, means to prevent the pin turning whilst permitting its longitudinal motion, and means, substantially as described, of attaching the string to the pin at a point beyond the nut, and at or near the outer or farther end of the pin, in such manner that the stress of the string shall be in the longitudinal direction of the pin, substantially as shown and described. 2nd. In a pianoforte, the combination, with the wrest plank formed of a rib projecting from, and cast in one piece with the frame at about right angles with the plane of the framing, of screw pins *a*, in line with the strings, nuts *b*, washers *c*, the means of attaching the strings to the outer ends of the pins, and the means of preventing the pins from turning, substantially as shown and described. 3rd. In a pianoforte, the mode of attaching the string to the outer end of a screw-threaded wrest pin, or tuning pin, placed in line with and string by bending the string around a succession of at least two and preferably three corners or bends formed on the pin, substantially as shown and described. 4th. In a pianoforte, the combination, with each string, of a screw pin in line with the string and having a longitudinal groove at one side, and means of attaching the string to the outer end of the pin, a nut screwing on the pin and supporting in the tension of the string, a washer having a feather engaging in the groove of the pin and engaging with the wrest plank so as to be prevented from turning, substantially as and for the purpose specified. 5th. In a pianoforte, the combination, with a screw-threaded wrest or tuning pin placed in line with, and provided with a longitudinal passage for the string, a transverse hole for receiving the end of the strings, a string passing lengthwise of the pin and bent across the outer end of the pin, and a cap ferrule, or its equivalent, for retaining the end of the string in said hole, substantially as shown and described.

No. 20,525. Mowing and Reaping Machine. (*Faucheuse-Moissonneuse.*)

James Marr, Simcoe, Ont., 7th November, 1884; 5 years.

Claim.—1st. The combination of the serpentine wheel A, swivel C, pitmans E, E, substantially as and for the purpose hereinbefore set forth. 2nd. The combination, with the pitmans E, E, and the levers F, F, and the knives K, substantially as and for the purpose hereinbefore set forth.

No. 20,526. Railway Track. (*Voie de Railroute.*)

George Cowdery, Sidney, N.S.W., 7th November, 1884; 5 years.

Claim.—1st. A railway rail composed of two sections, each having one or more bearing surfaces and adapted to be interchanged, substantially as described. 2nd. A railway rail, composed of two sections, each having two treads or bearing surfaces, such sections being interchangeable and each independently reversible, substantially as described. 3rd. The combination of two independently reversible and interchangeable rail sections, with a chair having a base plate C and a central supporting rib *d* for the rail sections and fastening devices, all substantially as described. 4th. The combination, with the chair having a central rib *d*, the lugs *f₁*, *f₂* of the rail sections, each composed of an inclined web and two treads and the lateral bolts, all substantially as described. 5th. The combination of the chair having

the central ribs *d*, the lugs *f*, *f* and the depression *g*, of the interchangeable and reversible rail sections and the lateral bolts, substantially as described. 6th. In combination with a railway chair and the rail sections *A*, *A* supported thereby, the lateral bolts *E* passing through the rail sections and having their ends turned at an angle, substantially for the purpose set forth.

No. 20,527. Culvert and Trap for Sewers.

(*Ponceau et Trappe pour Egouts.*)

Alfred Medcalf, Toronto, Ont., 7th November, 1884. 5 years.

Claim.—1st. A culvert and trap constructed with a cylindrical, or other form of receiver, having a flange cast around its inner circumference for supporting a funnel which rests thereon, the said funnel having its lower end dipping in water retained in a basin formed by an overflow pipe leading to the sewer and the bottom of the receiver, as shown and described. 2nd. The reservoir *A*, with flange *a* and bottom *E* forming a basin *b*, the combination of the funnel *B* with eye-bolts *F*, *F*, the sewer pipe *c* with ball and socket joint *c* and grate *D*, the whole constructed and arranged and operating substantially as set forth.

No. 20,528. Dredging and Excavating Machine. (*Machine à Draguer et Creuser.*)

Hale E. Hawk, Minerva, Ohio, U.S., 7th November, 1884; 5 years.

Claim.—1st. In combination with an oscillating truss frame in an excavating or dredging machine, and a sliding carriage arranged in suitable guides within said frame, a bucket carrier frame attached to said carriage and moving upon a suitable track-way within the truss frame, and adapted to be extended beyond, and in a corresponding direction with said frame, as described. 2nd. In combination with an oscillating frame of an excavating and dredging machine, a longitudinally slotted guide-bar pivoted at its lower end to the supporting carriage, and a pin attached to said oscillating frame and arranged to play in the slot in the guide-bar, as shown and described. 3rd. In combination with an oscillating frame of an excavating and dredging machine, a longitudinally slotted guide-bar pivoted at its lower end to the supporting carriage, and having a pin arranged to play in the slot in said guide-bar, which pin is attached to the oscillating frame, and a raising and lowering device attached to the said frame and operating in suitable guides upon the guide-bar in connection with the driving-shaft upon the machine, substantially as set forth and described. 4th. In combination with a bucket-carrier frame for an excavating and dredging machine, having longitudinal supporting beams and transverse girders attached thereto, the arms arranged at right angles to said beams and in connection therewith, and supporting the track-rails in a parallel relation to each other, said arms being arranged at an inclination toward each other from their point of attachment to said beams, as shown and described. 5th. An excavator bucket, provided with ends which are constructed in a plane described from two opposite points of curvature intersecting in one direction or at the point of the bucket, and having suitable sides conforming to said ends, for the purpose specified. 6th. In combination with the bucket-carrier frame of an excavating and dredging machine, provided with oppositely arranged wheels and an endless linked chain upon said wheels, an excavating bucket of the form of meeting curves, as described, pivoted longitudinally to said chain between the centre of curvature and at the gravitating point of the bucket, for the purpose specified. 7th. An excavator bucket, provided with a shaft for the operation of a cleaner therein, and operating mechanism therefor outside the ends of the bucket, and a flange attached to the side of the bucket and extending a suitable distance beyond, and at right angles to the ends of the same, for the purpose specified. 8th. An excavator bucket, having a swinging back pivoted to the ends, and a tripping lever attached and provided with one or more jointed extensions of the same, which are pivoted to said bucket, for the purpose described. 9th. In combination with a rotary supporting shaft located upon a dredging or excavating machine, and provided with a plate rigidly secured thereto, a material conveyor having its pivotal end provided with a movable flanged cap engaging with the plate upon said shaft, for the purpose set forth. 10th. In combination with the sliding carriage frame, of an excavating and dredging machine having depending supports attached to said frame, and a rotary supporting shaft attached to said supports, a plate secured to said shaft, and provided with a movable flanged cap which is adapted to fit over and engage with the plate on said shaft and support the end of a material conveyor, as shown and described. 11th. In combination with an oscillating truss-frame, of an excavating and dredging machine provided with a bucket carrier frame, which is arranged to slide in suitable guides upon said truss frame, the transmitting arms attached respectively to the driving shaft upon the bridge frame and to the driving shaft upon the bucket-carrier frame, and having their opposite ends independently connected together by a suitable shaft, whereby their lateral extension shall be permitted in the elevation and depression of the machine, as shown and described. 12th. In combination with an oscillating truss-frame, of an excavating and dredging machine provided with a bucket-carrier frame, which is arranged to slide in suitable guides upon said truss frame, the transmitting arms attached respectively to the driving shaft upon the bridge frame and to the driving shaft upon the bucket-carrier frame, and having their opposite ends independently connected together by a suitable shaft and pulley attached to said shaft, the operating belts connected with the pulley upon the driving shaft on the bridge-frame of the machine and the driving shaft on the sliding carriage frame, and also with the pulley attached to the shaft on the independent ends of the transmitting arms, as shown and described. 13th. In combination with a rotary platform, in an excavating and dredging machine, which is adapted by suitable frame-work to support the truss and bucket-carrier frames, and the driving shaft conveying power to and operating the said frames, the vertical shaft arranged centrally through, and operating independently of the rotary platform, and provided with suitable bevel gear which meshes with, and operates the driving shaft on the carriage frame and a suitable shaft connected therewith, and also with the engine, whereby the entire operation of the plat-

form simultaneously with the machine may be effected in any direction and in an independent relation to the machine, as specified.

No. 20,529. Car Brake. (*Frein de Wagon.*)

Josiah Harding, Antofagasta, Chili, 7th November, 1884; 5 years.

Claim.—1st. The combination of the pivoted hangers *H* at one end of the car, connected near their lower ends by the transverse shafts *B*, with the elbow lever *C* pivoted on said shaft, and connected by its long arm to the screw staff *E*, and by its short arm to the connecting rod *D*, secured to the hangers at the opposite end of the car, substantially as set forth. 2nd. The combination of the pivoted hangers at one end of the car, connected near their lower ends by a shaft *B*, on which is pivoted the elbow lever *C*, with the rod *D* provided at one end with a series of holes for adjustably connecting it with the short arm of the elbow lever, and connected at its other end to clamps *k* vertically adjustable on the hangers on the other end of the car, substantially as set forth. 3rd. The adjustable clamps *k* on bar *a*, consisting of the plates *i*, carrying screws *k* the plates *j* and the teeth *l* on said plates *i*, *j*, substantially as set forth. 4th. In a car brake for flexible wheel bases, consisting of lever *C* and screw-staff *E* connected to said brakes, as described, the staff *E* suspended from the support *e* by an oval collar *e*, as set forth. 5th. The bar *a* for connecting the pull-rods *D* to the hind brakes, connected to the brakes by vertically adjustable clamps, substantially as described.

No. 20,530. Fire-Escape. (*Sauveteur d'Incendie.*)

Joseph B. Smith, North Buffalo, Penn., U. S., 7th November, 1884; 5 years.

Claim.—1st. In a fire-escape, the combination, with a suitably supported longitudinal travelling screw pulley, of a lowering rope coiled about said screw and having depending portions which are respectively clear, and provided with passenger-receiving devices, substantially as described. 2nd. The combination, with the side pieces *A*, *A*, firmly connected together, and provided with threaded bearings, of the traversing screw-pulley arranged in said bearings, and the endless lowering rope provided with the passenger-receiving devices, and having a portion of its length coiled in the grooves of the screw-pulley, substantially as described. 3rd. In a fire-escape, the traversing screw-pulley arranged to operate a lowering rope, and carrying one or more gongs, substantially as described.

No. 20,531. Shafting and Bearing Therefor. (*Arbre de Couche et Coussinet.*)

Thomas Sutton and George S. Collier, Cheboygan, Mich., U. S., 7th November, 1884; 5 years.

Claim.—1st. The shafting constructed, substantially as herein set forth, in sections *1* and interposed journal-sections *2*, *3*, for the purpose set forth. 2nd. The combination, with the journal-sections *2*, of the bearing-rolls *4* and their housings *5* and springs *6*, substantially as and for the purposes set forth. 3rd. The combination, with the journals *3*, of the anti-friction rolls *4*, *9* and *10* surrounding the said journals, so as to support the same, and provided with springs to yield to sudden shocks or strains and restore the journals to their normal position. 4th. The combination, with the journals *3*, of the anti-friction bearing rolls and their housings guided in vertical and horizontal direction, as described, to yield to strains and shocks and restore the journals to normal position. 5th. The combination, with the shaft sections *1* and journals *2*, of collars *20*, *21* and connecting-bolts *22*, as and for the purposes set forth. 6th. The combination, with the shaft-sections *1*, journals *3* and collars *20*, *21*, of springs *24*, *25*, as and for the purposes set forth. 7th. The combination, with the shafting *1*, *2*, *3*, constructed in sections, as herein described, of bearing rolls *26* for supporting the centres of the main shaft-sections, as herein shown and described.

No. 20,532. Double Embossing Machine. (*Machine à Gouffrer Double.*)

Moore R. Fletcher, John M. Fletcher, and Ira A. Foster, Boston, Mass., U.S., 7th November, 1884; 5 years.

Claim.—1st. A double embossing machine having, in a suitable frame, a pair of intermeshing rollers, each presenting in its surface a succession of detached independent bosses, with corresponding intermediate depressions arranged in longitudinal and transverse series, substantially as and for the purpose set forth. 2nd. In a double embossing machine, a pair of circumferentially-grooved rollers, each formed of a succession of toothed disks arranged upon a shaft, with each tooth opposite a space in the adjacent disk, for the purpose set forth.

No. 20,533. Thill-Coupling. (*Arçon de Limonière.*)

Milton E. Campany and John W. Strong, Muskegon, Mich., U.S., 7th November, 1884; 5 years.

Claim.—In a thill-coupling, the combination, with the coupling-pin *F* provided with the arm *J* at one end, of the block *G* pivoted to the end of the said arm, the hook *H* pivoted to the free end of the block, and the cushion *K* secured to the upper face of the block, substantially as herein shown and described.

No. 20,534. Lock. (*Serrure.*)

Napoléon J. Côté and Jean B. L. Rolland, Jr., Montreal, Que. 7th November, 1884; 5 years.

Claim.—1st. In a lock, the combination, with a direct-acting latch or bolt, a sliding plate forced forward by a spring, and pushed back by knob-spindle, of a central locking-plate normally connecting said bolt and sliding plate, and disconnecting same by action of key, substantially as and for the purpose specified. 2nd. In a lock, the combination of the following elements: the latch or bolt *B* having the pin *b*, the locking plate *G* rotating on said pin, having the slot *g*,

the sliding plate C having the pin *c*, and flanges *c*, *c* 1, the spring D and knob-spindle E having lever F, and suitable front and back plates, arranged and operating substantially in the manner specified. 3rd. The combination of the screwed pin *h*, with bolt B having slot, and the front and back plates, for the purpose described. 4th. The sliding gate R for covering the key-hole, in combination with the front plate, substantially as set forth.

No. 20,535. Butter Worker. (*Batte à Beurre*.)

Wordsworth F. Waters and Samuel H. Waters, Johnson, Vt., U. S., 7th November, 1884; 5 years.

Claim.—1st. In a butter-worker, the combination of the frame A having standards E, F, the removable roller *g*, shafts X and Y, with their respective gear-wheels I and J, and pinion K on the shaft Y, with the reciprocating trough D provided with the rack *g*, substantially as described and for the purpose set forth. 2nd. In a butter-worker, the combination of the frame A, provided with the removable spout L, with the reciprocating trough D, having an outlet *h*, substantially as and for the purpose specified. 3rd. In a butter-worker, the crank-shaft X carrying the roller *g*, and trough D provided with a rack *g*, in combination with the shaft Y, carrying the pinion K and gear-wheels I and J, whereby a reciprocating motion may be given to the trough D, substantially as hereinbefore set forth. 4th. In a butter-worker, the corrugated or ribbed roller G, in combination with the standards E, F, attached to the frame A, the former being so arranged that, by means of a lateral slot *e* and hook *f*, the roller may be removed or held in place, substantially as described.

No. 20,536. Steam Vehicle. (*Voiture à Vapeur*.)

Orson B. Kendall, Toronto, and Isaac H. Culp, Hamilton, Ont., 8th November, 1884; 5 years.

Claim.—In a steam vehicle, the combination of the steam boiler H, with an ordinary steam engine attached to the end of the boiler H, on the preparation G, and fixed on the vehicle in the most appropriate place, the two arms N and the bar M suspended from the crank shaft J, the two ends of the bar M attached to the axle L to work on a swivel, the four chain wheels D, D, and *e*, on their shafts K and L, the clutch C and the slide O, substantially as and for the purpose hereinbefore set forth.

No. 20,537. Apparatus for Operating Dry Earth Closets. (*Appareil de Siège à la Terre Sèche*.)

William Henp, Owensound, Ont., 8th November, 1884; 5 years.

Claim.—The pivoted lever I, provided with a friction roller *a* on one of its arms, to act against the face of the pivoted hopper A, and having its other arm connected to the seat H by the rod K, in combination with a rod D connected at one end to the hopper A, and at its other end to one arm of the bell-crank E, which is pivoted to the frame F and has a weight G attached to its other arm.

No. 20,538. Horse Rake. (*Râteau à Cheval*.)

William S. Wilson, Ayr., Ont., 8th November, 1884; 5 years.

Claim.—1st. In a horse-rake, in which the friction dump is applied by torsion strain exerted on a rod journalled on the toothed bar, the torsion rod A having its inner end journalled in a bracket arranged to suspend it up above the toothed bar B, in combination with a crank D formed upon or fixed to the inner end of the rod A, and having its end arranged to extend downwardly sufficiently far to allow the chain E, which is connected to it, to pass below the toothed bar B, but not sufficiently far to be below the centre upon which the toothed bar B is pivoted. 2nd. In a horse-rake, in which the friction dump is applied by torsion strain exerted on a rod journalled on the toothed bar, the torsion rods A having their inner ends journalled in a bracket arranged to suspend it above the toothed bar B, and a crank D formed upon or attached to the inner end of each rod A, arranged to extend below the toothed bar B, but still above its rolling centre, in combination with an equalizing lever G, pivoted at its centre on the end of the lever I, and connected at its ends to the cranks D by the chains or rods E, substantially as described. 3rd. The lever I, pivoted at its centre on the foot-lever J, and having its bottom end suitably connected to the damping mechanism of the machine, and its upper end connected by the rod L to a lug or projection M formed on the end of the hand-lever N below its pivot point, substantially as and for the purpose specified. 4th. In a horse-rake, in which the friction dump is applied by torsion strain exerted on a rod journalled on the toothed bar, the torsion rods A having their inner ends journalled in a bracket arranged to suspend it above the toothed bar B, and a crank D formed upon or attached to the inner end of each rod A, arranged to extend below the toothed bar B, but still above its rolling centre, in combination with a lever G pivoted at its ends to the cranks D by the chains or rods E, the lever I being pivoted at its centre on the foot-lever J and connected at its upper end by the rod L M, formed on the hand-lever N, below its pivot point *b*.

No. 20,539. Saw Jointer and Set.

(*Fer à Contourner et Etamer les Scies*.)

James K. Bridges, Woodstock, Ill., U. S., 8th November, 1884; 5 years.

Claim.—1st. The combination of the handle *a*, provided with a head *b*, comprehending shoulder *c* and flange *d*, and an adjusting screw *j* with the clamp screws *g* and plate *f*, substantially as set forth. 2nd. The combination of the handle *a*, with a head *b*, consisting of a shoulder *c*, flange *d*, the ledges *o*, the said ledges being separated from the flange *d* and from each other by the spaces *l*, *y*, and an adjusting screw *j*, at the lower end of the handle, with the clamp screws *g*, whereby the clamping plate and file and the tooth-holding plate may be interchangeably used, substantially as set forth. 3rd. The improved tool, herein described, consisting of the handle *a*, formed with a head *b*, comprehending the inclined shoulder *c*, *n*,

flange *d* and ledges *o* above said flange, incline *q* at the end of the handle opposite said head, a adjusting screw *j*, plate *f*, file *e* and clamping screws *g*, substantially as set forth.

No. 20,540. Electric Lamp. (*Lampe Electrique*.)

Thomas L. Kay, Hamilton, Ont., 8th November, 1884; 5 years.

Claim.—1st. In an electric lamp of feed regulating mechanism, consisting of a notch clamp *m* able to catch in a disk *y*, keyed in a spindle *e*, the said spindle carrying a pinion *m* able to mesh into a pinion rack on the carbon rod, the said clamp being attached by a connecting lever *h* and connecting rods *o* and *q* to a pair of coarse and fine wire magnets, and made by a current of electricity to clasp and release alternately the disk *g*, thereby operating the carbon rod to allow it to feed automatically as the carbon points are consumed. 2nd. In an electric lamp, and in combination with the clamp *m* of the spring *u* and bracket *y*, substantially as specified. 3rd. In an electric lamp, and in combination with the clamp *m*, spring *u* and bracket *y*, of the stops *z*, *x*, and *w*, the latter regulated by a thumb screw *v*, substantially as specified. 4th. In an electric lamp, the combination of the coarse magnet armatures *d*, fine wire magnet armatures *d*, connecting lever *h*, connecting rods *o*, *q*, clamp *j*, springs *u*, *r*, spindle *e*, pinion *m* and carbon rod pinion rack *l*, substantially as specified. 5th. In an electric lamp the combination of the spindle *e*, hub *et*, connecting lever *h*, bearings *f* and *ft*, substantially as and for the purpose specified.

No. 20,541. Milk Can. (*Boite à Lait*.)

John McHardy and George Balkwill (assignees of Walter O'Hara), Walkerton, Ont., 10th November, 1884; 5 years.

Claim.—The combination of the cylindrical and dome-shaped cone D K and the ventilating pipe E E thereto attached, the perforated cover F F and the short pipe G thereto attached, and the rubber seal H, all substantially as and for the purposes hereinbefore set forth.

No. 20,542. Bolster Plate.

(*Plaque de Selle de Voiture*.)

Leroy J. Brandow and John Hall, Starkville, N. Y., U. S., 10th November, 1884; 5 years.

Claim.—The combination of the axle A, having a plate B, provided with an upwardly projecting pintle D secured to said axle by means of transverse bolts, having interposed washers F, said plate being also provided with oblong recesses C, and a plate H secured to the under side of the bolster J by means of bolts K, said plate H having jaws *m* to engage the edges of the plate B, said plate H being also provided with a transverse opening L, through which passes the pintle D, the end of which is seated in an opening formed upon the under side of the bolster, substantially as and for the purpose set forth.

No. 20,543. Horse Collar Pad.

(*Collier de Cheval*.)

Aaron Work, Elkhart (assignee of Johannes Wallmer, Middlebury), Ind., U. S., 10th November, 1884; 5 years.

Claim.—The horse-collar pad, consisting of the yoke *a*, having the transverse lateral slots *b*, *b*, between its ends, the elongated recess *c* in its under face, and the pad seats *d*, *d*, secured to the yoke by a joint or hinge at its ends, in combination with the concavo-convex pads *e*, *e*, secured to the pad-seats, as shown, the whole adapted to be applied to a horse-collar, substantially as specified.

No. 20,544. Vehicle Seat. (*Siège de Voiture*.)

Jeremiah P. Johnson, Detroit, Mich., U. S., 11th November, 1884; 5 years.

Claim.—A sheath metal plate, formed with enlarged or raised edges, inserted into a vehicle seat or cradle at right angles to the main joint, in combination with the sides and back of the seat.

No. 20,545. Combined Boiler and Steam Vacuum Pump. (*Pompe de Chauilière et de Vapeur à Vile Combinée*.)

Carroll L. Riker, Brooklyn, N. Y., U. S., 11th November, 1884; 5 years.

Claim.—1st. The method, substantially as described, of exhausting the steam from the working chamber of a steam vacuum-pump, which consists in applying to the steam in the working-chamber the pressure of a column of water contained in a separate water-chamber at a higher level, by means of the open connection of said higher water-chamber with the lower portion of the working-chamber, and providing for the steam subjected to said pressure, an exhaust-vent so soon as it has forced the water out from the working-chamber to a given level, by means of a water-trapped tube connecting the upper part of said chamber with a separate condensing-chamber, which is automatically unseated by the depression of the water therein to said level, substantially in the manner set forth. 2nd. The method, substantially as described, of automatically arresting the inflow of water to the boiler, of a combined boiler and steam vacuum-pump at the moment of exhausting the steam from its working-chamber, which consists in connecting the feed-water pipe with the exhaust pipe through which the steam is withdrawn from the working-chamber when the discharge from the pump is completed, substantially in the manner set forth. 3rd. The method, substantially as described, of exhausting the water from the boiler of a combined boiler and steam vacuum-pump, which consists in producing a vacuum in a tube connected with the lowermost level of the boiler, by extending the open mouth of said tube into the steam-exhaust pipe of the working-chamber of the pump, and allowing steam to escape around the same, substantially in the manner as set forth. 4th. The combination, with the steam-pressure or working chamber of a steam vacuum-pump, and with a separate condensing chamber

communicating freely with the bottom of said working chamber, of a water-sealed or trapped steam-exhaust pipe leading from the one to the other, substantially in the manner and for the purpose herein set forth. 5th. The combination, in a steam-vacuum pump, with its pressure and condensing chambers, of a steam generator located below said chambers and provided with a water feed pipe supplied therefrom, and a steam outlet-pipe opening into the pressure chamber, substantially in the manner and for the purpose herein set forth. 6th. The combination, in an automatic steam water-elevating apparatus, with its steam pressure or working chamber, of a quick-acting steam generator communicating freely with the top of the working chamber, and constructed with a maximum heating and vaporizing surface and a capacity so small as to admit of being completely exhausted at each condensation of the steam in the working chamber, a separate reservoir or water chamber communicating freely with an extending above the bottom of the working chamber, and suitable supply and discharge pipes controlled by check valves opening into the water chamber, substantially in the manner and for the purpose herein set forth. 7th. The combination, with the steam pressure or working chamber in a steam vacuum-pump, a trapped steam-exhaust tube extending therefrom into a condensing chamber, and a quick-acting steam generator of small capacity communicating freely with the upper end of the working chamber, of a feed pipe extending from the lowermost portion of the generator into the steam-exhaust tube and adapted to be itself exhausted by the escape of steam through said tube, substantially in the manner and for the purpose herein set forth. 8th. The combination, with the steam pressure or working chamber in a steam vacuum-pump, its steam generator and a steam supply pipe led through the working chamber and discharging into its upper end, of a concentric tube encircling said steam pipe to form a non-conducting outer lining or covering and prevent condensation in the pipe, substantially in the manner and for the purpose herein set forth. 9th. The combination, with the working and condensing chambers in a steam vacuum-pump and with a trapped exhaust tube leading from the one to the other, of a conical deflecting-plate or cup superimposed over the upper end of said exhaust tube within the condensing chamber, substantially in the manner and for the purpose herein set forth. 10th. The combination, with the condensing or water chamber in a steam vacuum pump, having its water supply and discharge pipes both connected thereto and with the working chamber communicating with the bottom of said condensing chamber, of one or more perforated diaphragms interposed between the level of the supply and discharge pipes and the mouth of the working chamber, and adapted to prevent circulation of the water within the condensing chamber, substantially in the manner and for the purpose herein set forth. 11th. The combination, with the steam-pressure or working-chamber in a steam vacuum-pump, its steam generator and a steam delivery pipe leading from the one to the other of a check-valve in the upper end of said steam pipe adapted to prevent a reflow of steam or water through the pipe, substantially in the manner and for the purpose herein set forth.

No. 20,546. Centrifugal Machine.

(Machine Centrifuge.)

Hugh W. Lafferty, Gloucester, N.J., U.S., 11th November, 1884; 5 years.

Claim.—1st. In a centrifugal draining machine, the combination, with a drum or basket having a perforated shell, of a lining composed of a sheet of coarse wire netting located adjacent to the shell, a sheet of cloth adjacent to said coarse netting, and a sheet of fine wire netting within and adjacent to said sheet of cloth, substantially as set forth. 2nd. In a centrifugal draining machine, the combination of a drum or basket having a perforated shell, a lining fitting within said shell, and split rings driven into position against said lining and serving to retain the same in position, substantially as set forth. 3rd. In a centrifugal draining machine, the combination of a drum or basket having an annular projection or braking shoes on the lower side of its bottom plate, and an outer casing having a facing of soft metal or alloy located below, and concentric with said braking shoe, substantially as set forth. 4th. In a centrifugal draining machine, the combination of an outer casing, a drum or basket secured upon a spindle adapted to rotate within said casing, and a discharge chute fitting freely around said spindle and supported with the capacity of movement about the axis thereof, substantially as set forth. 5th. In a centrifugal draining machine, the combination of an outer casing, a drum or basket secured upon a spindle adapted to rotate within said casing, a discharge chute fitting freely around said spindle and supported within the capacity of movement about the axis thereof, a segmental gear formed upon or secured to said discharge chute, and a pinion meshing with said gear and fixed upon a shaft provided with a crank or hand wheel exterior to the casing, substantially as set forth. 6th. In a centrifugal draining machine, the combination of a drum or basket, and a series of perforated plates fitting radially therein, substantially as set forth. 7th. In a centrifugal draining machine, the combination of a spindle, a drum or basket, and a driving pulley secured thereon, and a pair of guide pulleys adapted to rotate on stems or bearings which are adjustable relatively one to the other and to the axial plane of the spindle, substantially as set forth. 8th. In a centrifugal draining machine, the combination of a spindle carrying a drum or basket and a driving pulley, a pair of guide pulleys, each mounted on a stem which is adjustable axially on a second or intermediate stem, and a stem or support which is adjustable axially in a hanger on the machine, and is provided with two arms at right angles to its axis on which arms the second or intermediate stems are mounted with the capacity of axial adjustment, substantially as set forth.

No. 20,547. Parlor Game Apparatus and Cue. (Appareil et Queue d'appareil de Jeu de Salon.)

Thomas H. Eulass, Mason, Ill., U.S., 11th November, 1884; 5 years.

Claim.—1st. A parlor game apparatus, consisting of a flat board A, curbs D, spring-supports C by which the curbs are secured to the board pockets E, fastened to the corners of the board and spring rails

E, by which the pockets are supported from the ends of the curbs, as shown and described. 2nd. The combined cue and mallet, whose cue proper is hollow at the butt, and contains the shank of a mallet which is connected by a rubber thong or its equivalent, with said cue proper, in the manner explained.

No. 20,548. Pop Safety Valve.

(Soupape Instantanée de Sûreté.)

Frank H. Hills, Newton, Mass., U.S., 11th November, 1884; 5 years.

Claim.—1st. A perforated safety valve provided with an automatic register, which is also perforated and is adapted to partially close the openings in the valve when the latter is seated, and is adapted to be opened by the escaping steam when the valve is raised, as set forth. 2nd. A safety valve having steam passages arranged to be closed by the valve seat, when the valve is seated, and provided with a self-closing register adapted to be opened by the escaping steam when the valve is raised, as set forth. 3rd. In a safety valve, the combination of the valve having orifices *o*, adapted to be covered by the valve seat, the annular rotary register having oblique orifices *o'* adapted to coincide with the orifices *o*, a stop adapted to limit the rotary movements of the ring, and a spring whereby the ring is restored to its normal position after being displaced by the escaping steam, as set forth. 4th. A perforated safety valve having an automatic register as described, and an annular concavity *n* in its lower surfaces, as set forth.

No. 20,549. Pool Ball Rack and Spotter.

(Râtelier et Triangle pour Billes de Poule.)

George Henkel, Springfield, Ohio, U.S., 11th November, 1884; 5 years.

Claim.—1st. A pool-ball rack and triangle connected together and supported above the table, and being so constructed that the balls may be automatically "spotted," substantially as described. 2nd. A pool-ball rack rigidly suspended over a pool table, and provided with a box or receptacle adjustably connected therewith, said box being provided with a triangle and adapted to be lowered upon the table to automatically "spot" the balls, substantially as and for the purpose set forth. 3rd. The combination, with a pool-ball rack, in two or more sections, rigidly suspended over a billiard or pool table, of a box or receptacle adjustably connected to the said rack, and provided with the suspension slide rods to support the said box and guide its movement, and mechanism to raise and lower the said box to automatically "spot" the balls, substantially as described. 4th. A box or receptacle for pool balls provided with a triangle fixed thereto on a line or nearly so with the bottom of the box, said box being provided with a trap door to be opened to allow the balls to roll into the triangle, substantially as described. 5th. The combination, with a pool-ball rack in two or more sections rigidly suspended above a billiard or pool table, of a box or receptacle provided with a triangle adapted to receive the balls as they roll from the rack, and adapted to be lowered upon the table, said box being provided with a trap door and mechanism to automatically operate the said door, substantially as and for the purpose described. 6th. A triangle for pool-ball tables and racks having inclined sides or larger at the top than at the bottom, substantially as described. 7th. A triangle consisting of two or more wire triangles of different internal areas connected together, substantially as and for the purpose described. 8th. The combination, with a box or receptacle adjustably connected to a pool-ball rack suspended above a pool or billiard table, and provided with a triangle and a door or trap having a depending bolt of a catch pivoted to the bottom of said box having a weighted free end adapted to be operated to automatically open the door, the said door being provided with a spring or equivalent which tends to press it outward or open, substantially as and for the purpose described. 9th. The combination, with the pool-ball rack suspended over a pool or billiard table, of the box F, constructed as described, adjustably connected thereto and provided with supporting slide rods which slide rods have bearings in the pool-ball rack and are connected to a counter-balance or weight by means of wires or equivalents extending over pulleys, and mechanism to operate the said counter weight to lower and raise the said box, substantially as described.

No. 20,550. Gag Runner.

(Anneau Mobile de Faussees Rénes.)

Arthur H. Armstrong, Plainville, Ct., U.S., 11th November, 1884; 5 years.

Claim.—1st. In a harness gag-runner, the combination of the cam-shaped shoulder *a*, upon the loop A, with the pin like projection C upon the frame B, substantially as described. 2nd. A gag-runner consisting of the loop A, with its cam-shaped shoulder *a*, and the frame having a pin-like projection C for co-operating with the cam shoulder *a* substantially as described.

No. 20,551. Capstan. (Cabestan.)

Benjamin G. Luther, Mansfield, Mass., U.S., 11th November, 1884; 5 years.

Claim.—In a capstan, the combination of the base A upright spindle B and barrel C, with the retaining shoulder *i*, supporting shoulder *k*, the series of rolls *g, g', g'', g'''*, and the perforated ring *h, h'* which connect the rolls, substantially as described.

No. 20,552. Apparatus for Maintaining Torpedoes, &c., under Water. (Appareil pour Immerger les Torpilles, &c.)

Richard M. Ruck, Chatham, and Edwyn Jones, Wellington, Eng., 12th November 1884; 5 years.

Claim.—1st. The means for maintaining torpedoes, submarine mines, buoys, floating backwaters, floating piers, or other floating bodies, at a constant or nearly constant depth below the surface of

the water, such means consisting in connecting the floating body with a counterpoise and a weighted chain, or like appliance, the said counterpoise being a vessel containing air which is compressed by the water above the counterpoise, and the connections being such that as the floating body ascends the counterpoise descends and vice versa, and such that the counterpoise, as it descends, becomes progressively more and more relieved from the weight, or the downward strain applied by the chain or like appliance, substantially as described.

No. 20,553. Railway Rail Brace.

(*Epaule de Rail de Railroute.*)

Michael R. Perkins, Portsmouth, N. H., U. S., 12th November, 1884; 5 years.

Claim.—The brace C having the heel D, in combination with the block F interposed between the rail and brace, substantially as and for the purpose shown and described.

No. 20,554. Condensing Head for the Exhaust Pipe of Non-Condensing Engines. (*Chapiteau de Condensation pour le Tuyau d'Evacuation des Machines sans Condensateur.*)

William C. Lyman, Chicago, Ill., U. S., 12th November, 1884; 5 years.

Claim.—1st. The combination of the deflector E, sub-deflector E' having outwardly-flared edges, and the shell B, substantially as set forth. 2nd. In an exhaust head, the combination of the shell B and deflectors D' and E, with the auxiliary deflector G, as set forth. 3rd. In an exhaust head, the combination of the shell B and the deflectors E and E', and auxiliary deflector G. 4th. The combination of the shell B, and the upper deflector provided with the sub-deflector *g*, the lower edges of which are slightly flared outwards, with the lower deflector, substantially in the manner set forth. 5th. The combination, in a condensing head for steam exhaust pipes, of the shell B, the upper deflector provided with the sub-deflector *g*, as described, the lower deflector provided with the sub-deflector E', and the auxiliary deflector G. 6th. The combination, in a condenser head for exhaust steam pipes, of the shell B, upper deflector provided with the sub-deflector *g*, lower deflector provided with sub-deflector E', and the auxiliary deflectors G and H. 7th. In an exhaust head, the combination of the upper deflector, the lower deflector E provided with a sub-deflector E', and the shell B, as hereinbefore described. 8th. In an exhaust head, the combination of the shell B, the upper deflector, the lower deflector and the auxiliary deflector H, substantially as specified. 9th. The combination, with a condenser head for steam exhaust pipes, of a combined hand-hole and drip-pipe, the said drip pipe being permanently connected to, and leading from the lowest point in the shell of said hand-hole as hereinbefore set forth. 10th. In a condenser head for steam exhaust pipes, the combination, with a hand-hole, the opening into which from the outside is covered by a suitable cap and is located above the plane of the drip-pipe of said drip-pipe connected to and leading from the shell of the hand-hole, in such position that the products of condensation of said head may be thoroughly drained therefrom. 11th. A hand-hole opening into and preferably aligned with the inclined surface in the bottom of said steam condenser head, and having the upper surface of the shell of said steam condenser head at a very steep dip from the condenser head to the cap of said hand-hole, in combination with a drip-pipe connected to, and leading from said hand-hole at the lowest point thereof. 12th. A hand-hole opening into and preferably aligned with the inclined surface in the bottom of steam condenser heads, having the upper surface of the shell between the cap thereof and the condenser head to which it is connected, inclined at a very steep dip, substantially as set forth.

No. 20,555. Railway Signal.

(*Signal de Railroute.*)

Henry Johnson, Floxton, Eng., 12th November, 1884; 5 years.

Claim.—1st. The combination, with a semaphore arm or other visual signal and a switch or switches, of a rod depending from the said signal, and through which it is held in the "danger" position, a stop-plate arranged below the rod, and preventing the downward movement of the same when the switch or switches is or are in the "danger" position and connections between the switch or switches and plate, so that upon the movement of the switch or switches to a "safety" position, the plate will be withdrawn from beneath the rod, thus enabling the rod and its signal to descend and place the signal in the "safety" position, substantially as described. 2nd. The combination, with two or more semaphore arms or other visual signals and the switch or switches, controlling two or more tracks of rods depending from the signal devices, whereby the signals and rods are held in an elevated or "danger" position, one or more stop plates arranged below said rods, connected with the switch or switches so as to be moved therewith and so constructed that to whichever operative position the switch or switches may be moved the said plate or plates will be withdrawn from below one or the other of the said rods, and a lever or other means for releasing said rods from the devices which hold them elevated, whereupon one rod and signal will fall to the "safety" position while the other rod or rods will be arrested by said stop plate or plates, substantially as described. 3rd. The combination of the post or support A, one or more signals B or C and a rod or rods B' or C', the weighted lever E and one or more stop-plates F, all constructed and adapted for operation, substantially as herein described. 4th. The combination, with a visible signal or signals, and set or sets of points or switches, of the dependent rods 13, 14, lever 16 and sliding plate 15 for operating the said visible signal or signals. 5th. The combination, with a visible signal or signals, and a set or sets of points or switches, of the dependent rods 22, 23 provided with projecting parts 29, 30, respectively double ended lever 27 and sliding plate or plates 21, for operating the said visible signal or signals. 6th. The combination, with a visible signal or signals and

a set or sets of points or switches, of the rotating shaft 36, provided with projecting parts 45, 46, 40 and 39, lever 47 and sliding plate 44, provided with projecting parts 42, 43, for operating the said visible signal or signals. 7th. The combination, with a visible signal or signals, and a set or sets of points or switches, of the dependent rods 51, 52, 53, provided with projections 57, 58, 59 respectively, acted upon by the lever 55, and sliding plates 60, 61, provided with inclined slots 62, 63 respectively, and inclined bar 64, 65 respectively, for operating the said visible signal or signals.

No. 20,556. Method of Stopping Bottles for Aerated Liquids. (*Mode de Bouchage des Bouteilles à Eaux Gazeuses.*)

Henry Cochrane and Joseph M. Day, Dublin, Ireland, 12th November, 1884; 5 years.

Claim.—1st. In closing and opening bottles containing aerated liquids, the combination, formed by the use of a glass, marble or disc impinging against an india rubber ring, arranged in a cap screwed on to the neck of the bottle, and provided with an aperture or slot for the purpose, and in the manner substantially as described, in reference to Figs. 1 to 6 inclusive of the accompanying drawings. 2nd. The method of stopping and opening bottles, containing aerated liquids, consisting in the application of a cap provided with an aperture or slot, in the manner substantially as described and set forth in reference to Figs. 1 to 6 inclusive. 3rd. The method of stopping and opening bottles consisting in the use of a capped tube, inserted in the neck of the bottle, arranged and operating in the manner substantially as specified and illustrated in Figs. 7 and 8 of accompanying drawings.

No. 20,557. Railroad Rail Joint.

(*Joint de Rail de Railroute.*)

Calvin M. Keefer, Newcastle, Penn., U. S., 12th November, 1884; 5 years.

Claim.—In a railroad joint, the combination, with the rails having their webs perforated, of fish-plates having upwardly-curved studs and perforations, the studs of each plate adapted to enter alternately the perforations of the rail webs and opposite plates and lock themselves thereto, substantially as specified.

No. 20,558. Car Wheel. (*Roue de Char*)

Theodore Thurber, Auburn, N. Y., U. S., 12th November, 1884; 5 years.

Claim.—1st. In a car wheel, the tire or rim provided with the internal flange C, in combination with the two sustaining plates converging from the inner toward the outer edges, said plates being both located on the inside of the flange C, and secured thereto by transverse bolts or rivets, substantially as described. 2nd. In combination with the tire or rim having the internal flange C, the hub provided with the surrounding flange and the two dished or concave plates E having their inner edges secured to opposite faces of the hub flange, and their outer edges secured upon one and the same side of the tire. 3rd. In combination with the tire or rim provided with the internal flange, the plates or disks converging from the inner to the outer edge, the intermediate ring between the outer edges of said plates and bolts or rivets, applied substantially as described to connect said plates with the flange of the tire. 4th. In combination with the tire having the internal flange, the two sustaining disks mounted on one and the same side of the flange and bearing firmly against the inside of the tire, and the transverse bolts extending through the plates and the flange, the holes for said rivets being enlarged to leave a space around the rivets, in the manner and for the purpose described. 5th. In combination with the flanged hub, the plates E, E' of dished or concave form at their inner edges to opposite sides of said flange and bevelled at their outer edge, the internally-flanged tire having its inner surface bevelled and seated against the outer edges of the plates, and the bolts or rivets uniting the plates and the flange of the tire, as described. 6th. In combination with the cylindrical connecting bolts H, the sustaining plate E and the flange C upon the tire, both provided with conical or tapering holes to receive the rivets, whereby a space is left around the rivet and a shearing action thereon prevented. 7th. In a car wheel, the combination, with two tire supporting plates E, with a central hub having a circumferential flange F provided with opening L, as and for the purpose described. 8th. In combination with the two plates E, converging toward their outer edges, the tire A provided with the flange C, the tire being seated solidly against the edges of the plates and the flanges seated against the outer face of the outer plate.

No. 20,559. Tobacco Re-Sweater.

(*Eluve pour le Tabac.*)

Bruno Martin, East Saginaw, Mich., U. S., 12th November, 1884; 5 years.

Claim.—1st. In a re-sweating device for tobacco, and in combination with the water tank A surrounding the oil supply tank D, the tank J provided with a float valve receiving water from the tank A and delivering the same to the boiler O, such tank J with its float, at all times regulating the height of water in the boiler and being out of times thereof, substantially as and for the purposes set forth. 2nd. A side thereof, substantially as and for the purposes set forth. 2nd. A side thereof, provided with the removable top I and removable rose m and having through the same, the conical tube P immediately over the burner Q, substantially as specified. 3rd. In a tobacco re-sweating device, the shield R located within the table surrounding the boiler and adapted to direct the flames of the burner against and around such boiler, and the coil of feed pipe surrounding the same and provided with its bottom with an annular water tank fed from the tank A, substantially as and for the purposes described. 4th. In combination with a re-sweating device, its boiler and hydro-carbon vapor burner, the tanks A, D, F and J with their connections to the boiler and burner, arranged and operating, substantially as specified.

No. 20,560. Bottle or Can for Ink, &c.*(Bouteille ou Bidon pour l'Encre, &c.)*

Levi H. Thomas, (assignee of W. A. Auble,) Chicago, Ill., U.S., 12th November, 1884; 5 years.

Claim.—1st. A bottle having a metallic body and having an interior coating of pitch, substantially as described. 2nd. As a new article of manufacture, a bottle consisting of a metallic wooden or paper body bottom, and a wooden top having the neck formed integral therewith, substantially as described. 3rd. A bottle having its body and neck inferiorly coated with pitch, substantially as described. 4th. A bottle having its body and neck inferiorly coated with pitch, in combination with a stopple coated with paraffine, substantially as described. 5th. A bottle having a stopple to fit within the neck, and a cap with discharge orifices to fit over the neck, substantially as described.

No. 20,561. (Staple Driving.) *(Chasse-Crampe.)*

Wesley Young (co-inventor with Michael Neil and Charles M. Wetzel), Dayton, Ohio, U.S., 12th November, 1884; 5 years.

Claim.—1st. In a staple driver, the main stock having the longitudinal plunger-slot and the diagonal staple feeding-slots leading from the top of the stock downwards into the plunger-slot, in combination with the plunger working in the plunger-slot and adapted to operate upon the staples in the staple feeding slots, substantially as described. 2nd. In a staple driver, the main stock having the longitudinal plunger slot and the diagonal staple feeding slots leading from the top of the stock downwardly on opposite sides of the plunger slot, and terminating at the middle of the latter at the discharge end, in combination with the plunger working in the plunger slot and adapted to operate upon the staples in the staple-feeding slots, substantially as described. 3rd. In a staple driver, the combination of the main stock having the longitudinal plunger slot, and the diagonal staple-feeding slots with the plunger, and means for feeding staples into the upper end of the diagonal slots, substantially as described. 4th. In a staple driver, the combination with the stock having plunger and staple slots and the plunger, of a staple feed bar arranged above the entrance to the staple-slots and connected to a hinged support which permits it to be thrown back to expose the entrance to the staple-slots, substantially as described. 5th. The combination, with the feed bar, of the base piece, the keeper bar hinged to the base piece, the catch pivoted to the keeper bar and adapted to swing over and embrace the upper end of the feed bar, and the spring bearing upon said catch, substantially as described. 6th. The combination, with the stock, of the hinged base piece carrying the feed bar and the keeper, and the means for locking the base piece to the stock, substantially as described. 7th. In a staple driver, the combination, with the stock and the plunger operating therein of the laterally projecting arms constituting a bearing for the operator's leg, substantially as described. 8th. The combination, with the stock, of the hinged base, the feed bar keeper and the set screw for impinging upon the feed bar, or upon one of the lower staples thereon, and thus enable the base piece to be swung back without permitting any of the staples on the feed-bar to slide off, substantially as described.

No. 20,562. Belt Fastener. *(Joint de Courron.)*

James A. Roberts, Detroit, Mich., U.S., 12th November, 1884; 5 years.

Claim.—A belt fastener, consisting of a bar B, provided with an enlarged head *a* at one end, and a T-head *c* upon the opposite end, in combination with a washer C, when constructed, arranged and operating substantially in the manner and for the purposes described,

No. 20,563. Harvester Attachment.*(Disposition à une Maisonneuse.)*

Benjamin Burroughs and George Burroughs, Fallowfield, Ont., 12th November, 1884; 5 years.

Claim.—1st. The combination, with the cutter-bar, of a harvester, of a series of curved fingers J, J₁, J₂, hung to trail rearwardly on the ground and arranged spirally to gather, twist and deliver the cut material in a continuous length in the direction of the draft, as set forth. 2nd. The combination, with the cutter bar of a harvester, of the branched curved fingers J, J₁, J₂ and finger K, as and for the purpose set forth. 3rd. In combination, with the cutter bar having fingers J, J₁, J₂, the grain wheel C mounted inwardly of the divider D, for the purpose set forth.

No. 20,564. Lumber Piling Machine.*(Machine à Empiler le Bois.)*

Seth Lee and Robert Weir, Muskegon, Mich., U.S., 12th November, 1884; 5 years.

Claim.—1st. The chains E, E having hooks *e, e*, in combination with the chain wheels D, frame A, wheels G, gearing H, brake-wheel I, box K and table L, substantially as set forth. 2nd. The chains E, E, provided with hooks *e, e*, as described, in combination with the vertical standards B, braces *b*, frame C and ladder N, as specified. 3rd. The frame A, in combination with the vertical standards B, braces *b*, chains E, E and wheels D, as shown and described. 4th. The hooks *e, e*, and braces F, having lugs and pins *f*, in combination with the chain machines for piling lumber, the combination, with a truck or other endless support, of the upright standards or frame-work carrying an endless chain provided with teeth or projections to receive the lumber and gearing, substantially as shown and described, for giving motion to said chains, as set forth.

No. 20,565. Machine for Measuring the Area of Surfaces. *(Machine pour Mesurer l'Etendue des Surfaces.)*

William A. Sawyer, Danversport, Mass., U.S., 12th November, 1884; 5 years.

Claim.—1st. In a machine for measuring the areas of surfaces, in which the area to be measured actuates devices for winding up cords, the combination of a registering device with the cords by means of levers, connected and operating substantially as and for the purposes specified. 2nd. The combination, with a series of wheels having toothed hubs and a series of toothed segments located over these hubs, of supports for these segments having two half-boxes, as described, so that the segments and supports may be readily lifted from their bearings and allow access to the wheels, substantially as and for the purposes set forth. 3rd. The combination, with an index finger and a graduated scale, of a system of levers connected to the hubs of the toothed segments, as described, and a series of wheels having toothed hubs and resting on a roller, and adapted to be raised by the passage of a skin or other article, whose area is to be measured so that their toothed hubs will engage and set in motion the toothed segments, substantially as and for the purposes set forth. 4th. The combination of a graduated scale at its index finger with a system of levers, as described, the toothed segments having their hubs connected to this system of levers, as set forth, the wheels having toothed hubs, and resting on a roller, the pawls acting on the segments and adapted to be disengaged, as described, the weighted arm pivoted to the frame and carrying a racked segment meshing with the pinion of the index finger, and a table for supporting the article whose area is to be measured, all arranged together, substantially as described and for the purposes set forth.

No. 20,566. Wear Plate for Railroad Ties.*(Plaque de Protection pour Traverses de Routes.)*

The Servis Railroad Tie Plate Company, New York (assignee of Davis Servis, Sennett), N.Y., U.S., 12th November, 1884; 5 years.

Claim.—A wear plate for railroad ties, consisting of a body having projecting flanges at its side edges, substantially as described. 2nd. The combination, with a railroad rail and supporting cross tie, of a wear plate consisting of a body having projecting side-flanges, said plate being interposed between the rail and tie, with its flanges entered into the tie longitudinally or parallel with the grain or fibres of the tie, substantially as described.

No. 20,567. Vehicle Top. *(Couverture de Voiture.)*

Thomas B. McCurdy, Lancaster, Texas, U.S., 13th November, 1884; 5 years.

Claim.—1st. A vehicle top, provided with vertical rods, the upper ends of which are under the roof of the top, and with curtains held to slide on the rods, substantially as herein shown and described. 2nd. The combination, with a vehicle top, of upright rods having their upper ends bent under the roof of the top, and also having the upper ends secured to strips held to the under side of the roof, and of curtains held to slide on the rods, substantially as herein shown and described. 3rd. The combination, with a vehicle top, of upright rods and curtains having linings, and of clips held between edges of the linings and curtain, and having eyes on their outer ends, substantially as herein shown and described. 4th. In a vehicle top, the combination, with curtains and linings, of strips held between the side edges of the curtains and linings, and of clips held on the strips and provided with eyes on the outer ends, substantially as herein shown and described. 5th. The combination, with a vehicle-top, of the strips J held longitudinally under the roof at different elevations, the rods F having their upper ends held on the strips J, J, and of curtains held to slide on the rods, substantially as herein shown and described. 6th. In a vehicle top, the combination, with the standards A, of plates D secured on the inner and outer surfaces, the side edges of the plates projecting beyond the side edges of the standard's upright rods held in the grooves formed by the projecting edges of the plates, and of curtains held to slide on the rods, substantially as herein shown and described. 7th. In a vehicle top, the combination, with the curtain L and its lining M, of the strips N held between the side edges of curtain and lining, the clips Q and the clips O having eyes P, which clips O and Q are held on the strips N and between the side edges of the curtain and lining, substantially as herein shown and described. 8th. In a vehicle top, the combination, with the upright rods F, of the curtains M, eyes P projecting from the side edges of the curtain, and of the stiff strip or piece R secured to the bottoms of the curtains, substantially as herein shown and described.

No. 20,568. Car-Coupling. *(Accouplage de Chars.)*

David L. Richards, St. John, N.B., 13th November, 1884; 5 years.

Claim.—1st. The draw-bar, having in rear of its flaring mouth the chamber provided with the inclined bottom, and also having passages for the shackling pin, its link-holder and latch to move in, in combination with the shackling pin provided with such holder and latch, all being substantially and to operate as described. 2nd. The combination of the furcated auxiliary bunter and its spring arranged in the chambered draw-bar, as described, with such bar and with the shackling pin and its link-holder and latch applied, and to operate on the bar, essentially as set forth. 3rd. The combination of the draw-bar, provided with the grooved or chambered projection L, the link receiving chamber and the passages for the shackling pin and its link-holder and latch to work in with such shackling pin, and the link-holder and latch connected therewith, all being substantially as represented.

No. 20,569. Wire Cushion and Pillow.*(Cousin et Oreiller en Fil de Fer.)*

Joseph L. Wells and Henry Weston, Philadelphia, Penn., U.S., 13th November, 1884; 5 years.

Claim.—1st. A pillow, or cushion, composed of braided, plaited or woven wire having introverted ends, and means for connecting such ends to each other, substantially as shown and described. 2nd. A pillow, or cushion, composed of braided wire having introverted ends, a connection for said ends, and means for adjusting the same, sub-

stantially as set forth. 3rd. The tubular braided, plaited or woven section A, having introverted ends secured to rings B, B, which are connected to each other by a rod C, substantially as shown and described.

No. 20,570. Combined Lock and Latch.

(*Serrure et Loquet Combinés.*)

Theodore Friedrich, Ottawa, Ont., 13th November, 1884; 5 years.

Claim.—1st. A combined lock and latch, consisting of a shell or case, a bolt arranged within said case and provided with locking devices, substantially as shown and described, a spindle, having a finger adapted to engage with the bolt, and a knob loosely mounted upon said spindle and provided with means whereby the knob may be made fast to the spindle. 2nd. In combination with the sliding bolt C, the spindle J, the loose knob K, having shank J and the cylinder L, blocks M, N, and spring *r* arranged within said shank and adapted to lock the knob to the spindle. 3rd. In combination with a sliding bolt C, the spindle I having notched head J, knob shank J mounted loosely upon said spindle and provided with recess *m*, cylinder L, with slot *t*, *r*, *2*, blocks M having finger P, block N provided with stud S and cap or plate O, all substantially as shown. 4th. In a lock, the combination of a sliding bolt C, a shell provided with an opening *d* and a dog F and tumbler G arranged inside of the bolt, substantially as shown and described. 5th. In a lock, the combination of a sliding bolt, a spindle carrying a finger to retract the bolt, and a knob mounted and free to turn upon and independently of the spindle, or remain stationary, and provided with a key-hole, whereby a key may be inserted to turn the spindle.

No. 20,571. Apple Paring Machine.

(*Machine à Peler les Pommes.*)

Joshua L. Wilcox, Flint, Mich., U.S., 13th November, 1884; 5 years.

Claim.—1st. In a paring, slicing and coring machine, of the described construction, the combination of the metal strip B, having a perforated curved portion D, sleeve C, pin or stud P and coil spring E, with the segmental strips I attached to the base-plate, substantially as described and for the purposes set forth. 2nd. In a paring, slicing and coring machine, of the description described, the combination of the base-plate A having central vertical posts B, provided with the stationary pin K, cross C adapted to be rotated upon the centre post B, double racks L, L, movably secured upon the cross C, with the stationary pinion K in their centre, and means by which the cross C is rotated, constructed and combined substantially as and for the purpose shown and set forth. 3rd. In a paring, slicing and coring machine, the combination of the base plate A provided with a series of teeth or cogs J and having a vertical post or spindle B in its centre, cross C cogged or toothed metal, hoop or circle D, constructed as described, forks H provided with a pinion I on each fork, shaft pinion K, double racks L, L, and aperture pinion G provided with the means for rotating it, and adapted to engage the cogged circle D, all constructed and combined to operate substantially as and for the purpose described.

No. 20,572. Match-Dipping Apparatus.

(*Appareil pour Souffrer les Allumettes.*)

Ezra B. Eddy, George H. Millen and Edward Mousseau, Hull Que., 13th November, 1884; 5 years.

Claim.—1st. In a match-dipping machine, substantially as shown herein described, the combination of the endless belts or aprons 11, 12 arranged to travel horizontally one above the other flatwise in close proximity for a portion of their length in guides 25, 26, to hold inter-vening the splints fed thereto from a hopper for dipping them, in the manner set forth. 2nd. In combination with the furnace block, the roof 7 to cover the ends of the splints, and having an opening to permit the belts 11, 12 to be raised out of influence of heat from the furnace, as set forth. 3rd. The combination, with the phosphorizing pan D, of shaft 8, bevel gear, wheels 8r, 9r and inclined spindles 9, provided with bevel edged wheels 10 to adjust the splints uniformly endwise simultaneously with transferring, the phosphorizing compound to the ends of the splints, whereby the splints may be subsequently cut by a rotary knife to make two matches of equal length, as set forth. 4th. In feed hoppers for match-dipping machines, substantially as described, the movable side 2 operated reciprocally by the revolving trip 3 and spring 4 to shake the splints compactly together, as set forth. 5th. In a match dipping apparatus, substantially as herein set forth, and in combination with the belts 11, 12, the clamp frames 27, set screw 28 and guides 25, 26 to cant guide and regulate the closeness of the belts to carry the splints, as described. 6th. In combination with the furnace block B, the sulphur pan C having internal pipes 30 to connect with a steam boiler for maintaining the contents of the pan at a high temperature without discolorization, as set forth.

No. 20,573. Press Roller for Saw Mills.

(*Cylindre de Chariot pour Scieries.*)

Alexander L. Wright and Allston Cushing, (assignes of Robert C. Killam,) Moncton, N.B., 13th November, 1884; 5 years

Claim.—1st. The combination of the vertical rollers E, and the rotating bed D, substantially as and for the purpose hereinbefore set forth. 2nd. The combination of the plate A, pivoted upon the saw bed B, and the stop G, substantially as and for the purpose hereinbefore set forth.

No. 20,574. Cartridge. (*Cartouche.*)

The American Electric Arms and Ammunition Company, New York, (assignee of Samuel Russell, Brooklyn,) N.Y., U.S., 13th November, 1884; 5 years.

Claim.—1st. An electric cartridge consisting of the combination of the cartridge shell having a metallic base, a conductor extending

from the centre of the base toward the front of the shell and insulated from the base, another conductor in electrical connection with the base and also extending forward, and an incandescing conductor extending from the forward end of one of said conductors to the forward end of the other, substantially as set forth. 2nd. An electric cartridge, consisting of the combination of the shell A having a metallic base, a center conducting-pin D enclosed in an insulating sheath E, a conductor *d* outside of said sheath in electrical connection with said base, and an incandescing conductor I, substantially as set forth. 3rd. The combination of shell D, having a metallic base neck *e* formed on said base, central conducting-pin D, insulating sheath E enclosing said pin and held in said neck, conductor *i* in electrical connection with said metallic base, and incandescing conductor I in connection with pin D and conductor *d*, substantially as set forth.

No. 20,575. Electric Gun. (*Fusil Electrique.*)

The American Electric Arms and Ammunition Company, New York (assignee of Samuel Russell, Brooklyn,) N.Y., U.S., 13th November, 1884; 5 years.

Claim.—1st. In a gun for firing electric cartridges, the combination of a battery, the breech-block in electrical connection with one pole thereof, a normal break in such connection, a movable part upon the exterior of the gun adapted to close said break, a firing pin insulated from said breech and in electrical connection with the other pole of the battery, and the trigger adapted when pulled to protrude the firing pin into electrical connection with the cartridge, whereby when the gun is set to safety both holes of the battery are disconnected from the cartridge, substantially as set forth. 2nd. In a breech-loading gun for firing electric cartridges, the combination of a battery, a firing-pin in electrical connection with one pole thereof, the trigger adapted when pulled to protrude the firing-pin until it makes electrical contact with the cartridge, the breech block insulated from said pin and in electrical connection with the other pole of the battery, a circuit-break in said latter connection, a slide adapted to open or close said break, the unlocking lever for opening the breech, and mechanical connection between said lever and said slide, substantially as described, whereby the said slide must be moved and the said break opened before the barrels can be broken down, so that when the gun is first loaded neither terminal of the cartridges is in electrical connection with the battery, as set forth. 3rd. In a gun for firing electric cartridges, the combination, substantially as set forth, with the breech-block adapted to make contact with one electric terminal on the cartridge, of a firing-pin insulated from said breech-block, a battery with its opposite poles connected respectively to said breech-block and firing pin, a trigger adapted when pulled to protrude said firing-pin and make electrical contact between its end and the other electric terminal of the cartridge in order to explode the latter, a retracting-spring adapted to press back said firing-pin and trigger, and a mechanical safety-lock, substantially as described, adapted to prevent protrusion of said firing pin until it is withdrawn. 4th. In a gun for firing electric cartridges, the combination of breech-block B, firing-pin D battery C, with its opposite poles connected respectively to said breech-block and firing-pin, trigger T having arms M, N, safety slide P having arm Q adapted to lock the trigger in cocking-lever I bolt II adapted when retracted to shift slide P to the locked position, and circuit-breaking spring *r* arranged to be operated by said slide, substantially as set forth. 5th. In an electric gun, the combination of the breech-block adapted to make electrical contact with the base of the cartridge, a conical plug K of insulating material fitted in a conical hole through said breech, with its smaller end toward the barrel of the gun, a fastening device taking against a shoulder on the larger end of said plug and secured to the breech, a firing pin D working in a pole through said plug and a spring for retracting said pin interposed between a head or shoulder thereon and the rear of said plug, substantially as set forth.

No. 20,576. Child's Suspended and Adjustable Chair and Bed. (*Hamac-Chaise d'Enfant.*)

J. Frank Shaw and Henry C. Van Norman, (assignees of William H. Howell,) Westfield, N.Y., U.S., 13th November, 1884; 5 years.

Claim.—1st. In a suspended chair and bed, the combination, with the seat bottom A, curves as shown at *e*, at the rear end sides A₁, A₁, and back B, of the roller *d* pivoted in the sides A₁ and having the lower edge of the back set into a longitudinal groove formed therein, whereby a smooth round pivot is provided a part of which is always below the upper surface of the bottom thereby preventing pinching or chafing. 2nd. In a suspended chair or bed, the combination, with the bottom A and sides A₁, A₁ provided with the covering pieces K₁ of the ball *a* made of a single piece of wire, as described, bent over the top edges of the sides A₁, A₁ in notches *e*, *e* and passed down through the covering pieces K and secured beneath the seat bottom, as set forth. 3rd. In combination with the seat A₁, and sides A₁, A₁, the notches plates *w*, *w* thereon and the side irons *n*, *n* pivoted thereto, rigidly attached to rod *s* and moving with it, each having a protonection *y*, *y* to set into the notched plates, the other ends of side irons *n*, *n* pivoted to an extension *m*, all substantially as and for the purpose specified. 4th. The combination, with the seat A, provided with the pins *t*, sides A₁ and extension *m*, of the side irons *n*, *n* pivoted to the seat and to the extensions, and provided with the notches *p* about their mid-length, adapted to rest over the pins *t*, whereby the side irons are supported at this point and held firmly against longitudinal movement over the pins, as set forth. 5th. In combination with the extension *m* and seat A, the side irons *n*, *n* pivoted to the extension and held in any desired position by the rod *s*, notched plates *w*, *w* and a thumb nut *u* on rod *s*, all substantially as specified. 6th. In combination with the bottom A, of the chair or bed, the springs D, D, of C, or S-form and the bail *a* and adjustable strap C, substantially as and for the purpose specified. 7th. In combination with the bottom A, of the pivoted angling iron *z* having holes or tee-h therein, and the swinging extension *m* *n* having a projecting pin *z* to engage said iron *z*, all substantially as specified.

No. 20,577. Scythe Adjuster and Fastener.

(Manche de Faux.)

David W. Marston, West Lebanon, M. Van Buren Harriott and Henry M. Day, Lebanon, N. H., U. S., 13th November, 1884; 5 years.

Claim.—1st. The combination of a scythe, provided with a round tang, a snath having a flat under surface at its outer end, an adjustable swing-plate pivoted on said flat surface near the end of the snath and extending rearward and provided with a seat for said tang, and means for drawing the tang into said seat and securing it thereto, whereby the dip of the scythe to the ground and its angle to the snath may be independently adjusted, substantially as set forth. 2nd. The combination, with a scythe-snath, of a swing-plate provided on its under side with a transverse concave groove, a scythe having a round tang and means for fastening the tang in said groove whereby the dip of the blade to the ground may be adjusted and the scythe securely fastened, as set forth. 3rd. A scythe-snath, in combination with a swing-plate pivoted on the lower side of the snath end, and provided with a transverse concave groove near the outer end, and a curved slot near the inner end, a scythe having a round tang and means for fastening the tang in said groove and the plate upon the snath, whereby the dip of the scythe and its angle with the snath may be independently adjusted and the scythe firmly fastened, as set forth. 4th. The combination of the snath S, with the swing-plate P, provided with lips *l*, *l'* and the groove *G*, the scythe B having a round tang T, the loop-bolt M and the flat-headed bolt M', as set forth. 5th. The snath S, combined with the swing-plate P having the groove *G* and slot *s*, a scythe B provided with a round tang T having a pin *p* and the bolts M, M', as set forth. 6th. In combination with the snath S, the swing-plate P beveled at *m* and provided with the lips *l*, *l'*, groove *G* and slots *l*, *l'*, the scythe correspondingly beveled at *m*, *m'*, as set forth.

No. 20,578. Window Sash Support and Fastener. (Arrête-Croisée.)

William B. Knight, Moncton, N.B., 13th November, 1884; 5 years.

Claim.—The combination of knot C, the eccentric cam B having a socket to receive the boss C on plate A, the whole combined and arranged as shown, substantially as and for the purposes hereinbefore set forth.

No. 20,579. Anti-Friction Journal Box.

(Collet de Tourillon.)

Eliza C. Ridout (assignee of Alexander W. Hall.) New York, N.H., U.S., 13th November, 1884; 5 years.

Claim.—1st. In an anti-friction bearing, the combination, with the shaft or axle and a journal box having an interior concave cylindrical surface and caps fitted one into each end of said box, each consisting of a disc having formed on the interior thereof a cylindrical bearing and cylindrical sleeve mounted on the shaft or axle to move therewith within said box, of a series of longer rollers supporting said sleeve and shaft or axle by rolling between the exterior surface of said sleeve and the interior surface of said box, and two series of shorter rollers one series at each end of the said longer rollers retaining the same in place by rolling between them and the exterior surfaces of the cylindrical bearings of said caps, substantially as and for the purpose herein described. 2nd. The combination, with the shaft or axle and the journal box having the interior concave cylindrical surface and caps, fitted one into each end of said box, each having formed on its interior two concentric cylinders, and a cylindrical sleeve mounted on said shaft or axle to move therewith, and a series of longer rollers supporting said sleeve and shaft or axle within said box and kept in place lengthwise by the end of the outer one of said cylinders, and two series of shorter rollers running in a groove in the exterior of the inner one of said cylinders, and serving as bearings for the longer rollers, substantially as herein described. 3rd. The combination, with the shaft or axle and the journal box having the interior cylindrical surface and caps, fitted one into each end of said box, each having formed on its interior a cylinder, the exterior of which is grooved and a cylindrical sleeve mounted in said shaft or axle to move therewith, of a series of longer journaled rollers supporting said sleeve or axle in said box, and two series of shorter rollers running in the groove in the exterior of said cylinder and serving as bearings for the journals of longer rollers, substantially as herein described. 4th. The combination of the box D, the shaft or axle, the sleeve B, the caps having the internal cylindrical projection *b*, *c*, the former of which has a groove *b**1*, *b**1'*, the journaled longer rollers C, C and the shorter rollers applied within the grooves *b**1*, *b**1'*, and between the journals of the longer rollers, all substantially as and for the purpose described.

No. 20,580. Friction Gear. (Embrayage à Friction.)

James H. Potman, Deseronto, Ont., 15th November, 1884; 5 years.

Claim.—1st. The sleeve C, having a larger internal diameter than the line shaft A, and journaled in independent bearings Br, concentric upon the shaft A, and having mounted upon it a pulley D, and a friction clutch E, adapted to engage a corresponding clutch keyed or fettered upon the shaft and adjacent to the former. 2nd. The combination of the shaft A, carrying one of a pair of conical friction clutches, and having mounted upon it centrally, a sleeve C having a larger diameter than said shaft, being journaled in independent bearings and carrying a pulley D, the mate of the friction clutch mounted upon the shaft A, said clutches adapted to engage one another by a sliding movement of the said sleeve of the clutch upon the shaft A. 3rd. A sleeve C, mounted concentrically upon a driving shaft of smaller diameter than the internal diameter of said sleeve, and mounted in independent bearings Br, said sleeve provided at one end with a friction clutch adapted to engage its mate mounted adjacently upon said driving shaft, all substantially as described and for the purpose described and set forth.

No. 20,581. Car Door Lock.

(Serrure de Porte de Wagon.)

Joseph H. Fisher, Deerfield, Ill., U.S., 15th November, 1884; 5 years.

Claim.—The gravity catch B, provided with the notch *a* and catch *b*, and pivoted as specified, in combination with the bolt J, which is formed in one piece with the loop FV, for locking the bolt in the door and locking it when out of the door, as specified and shown and for the purposes set forth.

No. 20,582. Fire Kindler. (Allumoir.)

Louis A. Jacques, Montreal, Que., 15th November, 1884; 5 years.

Claim.—A fire kindler, composed of a mixture of crude turpentine, pine tar and saw-dust, the whole compounded as described and in the proportions and for the purpose set forth.

No. 20,583. Steam Engine Cut-Off Valve.

(Soupape de Déclente pour Machines à Vapeur.)

William Adamson, Walkerton, Ont., 15th November, 1884; 5 years.

Claim.—The combination of the working faces of the valve and valve seat, and the steam ports A, A, A, D, D, and exhaust cavity B C C, substantially as and for the purpose hereinbefore set forth.

No. 20,584. Clay Crushing Roller.

(Rouleau pour Ecraser l'Argile.)

James W. Penfield, Willoughby, Ohio, U. S., 15th November, 1884; 5 years.

Claim.—1st. In a machine for crushing clay, one or more rollers provided with a continuous spiral groove, *1b*, corrugation, projection or depression running from end to end around the face of the roller, substantially as set forth. 2nd. Rollers for crushing clay, provided each with a continuous spiral corrugation, extending from end to end of each roller, and made respectively right and left-handed on the two rollers, substantially as and for the purpose set forth. 3rd. Rollers for crushing clay, provided each with spiral corrugations that have a sloping side and an abrupt side about perpendicular to the axis of the roller, and so arranged that the abrupt sides of the corrugations on the two rollers will face each other, substantially as set forth.

No. 20,585. Shingling Bracket.

(Tasseau en Bois.)

George W. Adams, Boston, Mass., U.S., 15th November, 1884; 5 years.

Claim.—1st. In a shingling bracket, substantially such as described, the plate E provided with a V-shaped hole *y*, in combination with the body A, substantially as and for the purpose set forth. 2nd. In a shingling bracket, substantially such as described, the body A provided with the notches *h*, *z* and plate E, in combination with means for supporting the staging plank, and means for preventing the bracket from slipping downwardly on the roof when in use, substantially as specified. 3rd. In a shingling bracket, substantially such as described, the bar D provided with the standard C, link D and claw G, in combination with the body A having the plate E and notches *h*, *z*, substantially as set forth. 4th. The improved shingling bracket herein described, the same consisting of the body A, provided with the spur *l*, notches *z*, *h*, and plate E having the holes *y*, and the bar B provided with the standard C, link D and claw G having the points *a*, all constructed, combined and arranged to operate substantially as specified.

No. 20,586. Open Hearth Steel Melting Furnace. (Fourneau à Poitrine Ouverte pour Fondre l'Acier.)

Charles M. Ryder, New York, N.Y., U. S., 15th November, 1884; 5 years.

Claim.—1st. In an open hearth steel-melting furnace, the combination, with a structure forming the side walls and top thereof, and a hearth located under said structure, of fixed bearings adapted to have one side of the hearth detachably fulcrumed to them, and means to raise and lower the unsupported side of the hearth, substantially as set forth. 2nd. In an open hearth steel-melting furnace, the combination, with a structure forming the side walls and top thereof, and a hearth located under the said structure, of fixed bearings adapted to have one side of the hearth detachably fulcrumed to them, and the described hydraulic piston impinging on the under face of the unsupported side of the hearth and arranged to raise and lower the same, substantially as set forth. 3rd. In an open hearth steel melting furnace, the combination, with a structure forming the side walls and top thereof, and a hearth located under said structure, of fixed bearings arranged to have one side of the hearth detachably fulcrumed to them, an inclined trackway located under the furnace and extending beyond the casting side thereof, and means to lower the hearth upon and to elevate it above the trackway and to operate it thereon, substantially as set forth. 4th. In an open hearth steel-melting furnace, the combination, with the side walls and top thereof, of a hearth having one side supported and the other free to be raised and lowered, means to operate the unsupported side of the hearth, and a ladle mounted on bearings attached to the hearth, substantially as set forth. 5th. The combination, with an open hearth steel-melting furnace provided with a hearth having one side supported and the other free to be raised and lowered, of means to operate the unsupported side of the hearth, a forked-shaped bearing attached thereto and a ladle removably mounted in said bearing, substantially as set forth. 6th. In an open hearth steel-melting furnace, the combination, with a structure forming the side walls and top thereof, and a hearth located under the said structure and having one side fulcrumed in fixed bearings, of means for raising and lowering the unsupported side of the hearth, a ladle to receive the metal running from the hearth when lowered, and means to lift the said ladle for

returning its contents to the hearth, substantially as set forth. 7th. In an open hearth steel-melting furnace, a hearth adapted to be depressed and displaced laterally with respect to the walls and top of the furnace, substantially as set forth. 8th. In an open hearth steel-melting furnace, the combination, with a hearth adapted to be depressed and displaced laterally with respect to the walls and top of the furnace, of an inclined trackway located under and extending beyond the casting side of the hearth, and means for operating the hearth on the said trackway, substantially as set forth. 9th. The combination, with an open hearth steel-melting furnace having a removable hearth, of an inclined trackway located under and extending beyond the casting side of the hearth, and means to lower the hearth upon and to elevate it above the trackway and to operate it thereon, substantially as set forth. 10th. In an open hearth steel-melting furnace, the combination with a hearth adapted to be depressed and displaced laterally with respect to the walls and top of the furnace, of an inclined trackway located under and extending beyond the casting side of the hearth, and means to apply hydrostatic pressure to operate the hearth upon the trackway, substantially as set forth.

No. 20,587. Method of Attaching Buttons to Fabrics. (*Mode de Poser les Boutons sur les Etoffes.*)

George W. Prentice, Providence, R. I., U. S., 15th November, 1884; 5 years.

Claim.—1st. That improvement in the art of attaching buttons to fabric, which consists in passing the prong, or prongs, of the fastening through the fabric, and forcing the said prong, or prongs, into the solid button, substantially in the manner as herein set forth. 2nd. A solid button formed of leather, pulp, or other suitable substance, said button formed without openings and adapted to be secured to fabric by means of a pronged fastener, in the manner herein specified. 3rd. A solid button formed without openings, in combination with a metallic fastening, the prong, or prongs, of which are roughened or serrated, said fastening adapted to be forced through the fabric into the button to attach the same, substantially as described.

No. 20,588. Yoke for Draft Animals.

(*Joug pour Bêtes de Traits*)

Edwin L. Johnson, Shutesbury, Mass., U. S., 15th November, 1884; 5 years.

Claim.—1st. The combination, with the hames adjustably united by suitable bars, substantially as described, of the V-shaped truss bars C, C, the bifurcated and elevated bars H, a suitable yoke and beam connections, as and for the purpose set forth. 2nd. The combination, with hame uprights A, A, of the bars B, B, truss bars C, C, bifurcated and elevated bars H, yokes F, F, and the beam I, all arranged as and for the purpose set forth.

No. 20,589. Treadle. (*Marche.*)

Hugh McDonald, Plattsburg, N. Y., U. S., 15th November, 1884; 5 years.

Claim.—1st. A treadle, consisting of a foot-plate suspended, or carried clear of its fulcrum, in combination with a crank rod, substantially as and for the purpose specified. 2nd. The swinging, or undulating treadle, herein described, consisting of the foot-plate B, arms, or levers C, C carrying bearings for said treadle, in combination with main shaft *a* and crank-rod D, substantially as set forth. 3rd. The combination, with the treadle-plate B, arms, or levers C, C, and main shaft *a*, of the fixed bearing *c* and adjustable bearing *c*, substantially as and for the purpose specified.

No. 20,590. Railway Signal. (*Signal de Railroute.*)

Joseph H. Bacon and Allonzo Ellison, St. Thomas, Ont., 17th November, 1884; 5 years.

Claim.—1st. The combination of a case supporting two stationary lights of different colours, a sliding opaque shade or shield to obscure one of said lights when it discloses the other, and the connecting of the same by the rod *T*, or the suitable attachments, with the semaphore arm, substantially as and for the purpose hereinbefore set forth. 2nd. The combination, with a case supporting two stationary lights of different colours, of a sliding opaque shade to obscure one of said lights when it discloses the other, said shade having perforations *c, c, c, c*, to admit air for the purpose of combination, substantially as and for the purpose hereinbefore set forth.

No. 20,591. Composition of Matters for Extracting Wool from Delaines, &c. (*Composition de Matières pour Extraire la Laine des Mousselines, &c.*)

Thomas R. Moore and Charles R. Dade, Weston, Ont., 17th November, 1884; 5 years.

Claim.—The herein-described composition of matter to be used for extracting wool from delaines or other rags of a similar nature, preparatory to their being carded, consisting of water, oil of vitrol, salt silicate of soda and marble dust, mingled as shown and in the proportions specified.

No. 20,592. Governor. (*Gouverneur.*)

The Gardner Governor Company (assignee of Robert W. Gardner), Quincy, Ill., U. S., 17th November, 1884; 5 years.

Claim.—1st. The rolling weights, the spring H, or equivalent means for urging the weights inward and preventing their vertical displacement and the sleeve with its curvilinear arms, combined substantially as and for the purpose set forth. 2nd. The rolling weight, the springs H, or equivalent means, for urging the weights inward and prevent-

ing their vertical displacement, and the sleeve with its variably-curved arms, combined substantially as and for the purpose set forth. 3rd. The rolling weights, the spring H, or equivalent means, for urging the weights inward and preventing their vertical displacement, and the integrally-formed sleeve and arms of malleable iron, combined substantially as and for the purpose set forth. 4th. The rolling weights, the springs H, or equivalent means for urging the weights inward and preventing their vertical displacement, the sleeve with its arms and the adjustable spider-spring, or its equivalent, arranged to resist the vertical movement of the sleeve, combined substantially as and for the purpose set forth. 5th. The shaft Q, the levers X and P and the bent spring Z, combined substantially as and for the purpose set forth.

No. 20,593. Governor. (*Gouverneur.*)

The Gardner Governor Company (assignee of Robert W. Gardner and John W. Gardner), Quincy, Ill., U. S., 17th November, 1884; 5 years.

Claim.—1st. In a governor, the combination of the governor balls, the springs for urging the balls inward and determining their arc of travel, the links I attached to the balls and having a length less than the radius corresponding to the arc of ball travel and having their lower pivots free to rise and fall, and a reciprocating body connected to said pivots and adapted to transmit their rising and falling motion to a regulator, substantially as set forth. 2nd. In a governor, the combination of the governor balls, the pivoted links and the arc controlling springs J, having a decrease of area at their upper ends, substantially as and for the purpose specified. 3rd. In a governor, the combination of the housing A, the governor-stem G, the levers K and M, the spiral spring P and hand-screw Q, combined substantially as and for the purpose specified.

No. 20,594. Brick Machine. (*Machine à Briquer.*)

Alexander Peel, Montreal, Que., 18th November, 1884; 5 years.

Claim.—1st. In a brick-making machine, the combination, with the opening A in the framing and post B, cut away at *p*, of the casting C, as and for the purposes described. 2nd. The combination, with the reciprocating carriage of a brick machine, of the shaft E, carrying cams F and operated by lever Et, all as and for the purposes described.

No. 20,595. Machine for Cutting and Binding Grain. (*Moissonneuse-Lieuse.*)

Charles McLeod, Chatham, Ont., 20th November, 1884; 5 years.

Claim.—1st. The combination of cross brace C and projection of bracket B, for the purpose hereinbefore set forth. 2nd. The notch H in knife bracket E, and notch G in shoe F, for the purpose specified.

No. 20,596. Manufacture of Textile and other Fabrics. (*Fabrication des Tissus Textiles et Autres.*)

William Jackson, London, Eng., 20th November, 1884; 5 years.

Claim.—The buoyant fabrics and garments formed by weaving, or interposing cork with, or between, worsted cotton, hemp, silk, or other textile material, substantially as and for the purposes set forth.

No. 20,597. Buckle. (*Boucle.*)

John J. Simmons, Flushing, N. Y., U. S., 20th November, 1884; 5 years.

Claim.—1st. A buckle composed of a front bar *b*, a rear bar *b*₁, an intermediate cross bar *t*, a side bar *a* connected to the bars *b* and *t* only, a side bar *a*₁ connected to the three bars *b*, *b*₁ and *t* and a tongue *c*, the whole constructed as described. 2nd. A buckle composed of a front bar *b* having projections *p*, *p*₁, a rear bar *b*₁, an intermediate cross bar *t*, a side bar *a* connected to the bars *b*, *b*₁ and *t*, and a tongue *c*, the whole constructed as shown and described. 3rd. A buckle composed of a front bar *b*, a side bar *b*₁, an intermediate cross bar *t*, a side bar *a* connected to the bars *b* and *t* only, a side bar *a*₁ connected to the three bars *b*, *b*₁ and *t*, and a tongue *c*, and provided with a thumb-rest *r* on the side bar *a*₁, the whole constructed as shown and described.

No. 20,598. Double Embossed Fabrics.

(*Tissu Doublement Gaufré.*)

Moore R. Fletcher, John M. Fletcher and Ira A. Foster, Boston, Mass., U. S., 20th November, 1884; 5 years.

Claim.—As a new article of manufacture, a double embossed fabric formed with independent hollow bosses extending above and below the lane of intermediate filled, shirred or wrinkled material, substantially as set forth.

No. 20,599. Submarine Plough.

(*Charrue Sousmarine.*)

Alexis W. Von Schmidt, San Francisco, Cal., U. S., 20th November, 1884; 5 years.

Claim.—1st. The combination, with the ring *a* of a plow of the kind specified, of cutting knife, substantially as and for the purpose set forth. 2nd. The combination, with the ring *a* carrying ploughs, of the knives arranged in front of said ploughs and extending upwardly and laterally from the ring *a*, substantially as described. 3rd. The combination, with the ring *a* carrying the ploughs cutting blades, three of such being secured to the ring in front of each plow and projecting one upwardly, one downwardly and one laterally, substantially as described.

No. 20,600. Hay Elevator Track.*(Voie de Monte-Foin.)*

The Ney Manufacturing Company, (assignee of Jacob Ney,) Canton, Ohio, U.S., 20th November, 1884; 5 years.

Claim.—1st. A track for hay elevator composed of two parallel pieces A, each constructed with horizontal and vertical flanges, with the vertical flanges united together, substantially as described. 2nd. A track for hay elevators composed of two parallel pieces A, each constructed with variental and vertical flanges splicing-blocks B, and spacing ferules C through which the rivets, or bolts *c* pass, substantially as described. 3rd. In a hay elevator, the combination of the parallel pieces A, each having horizontal and vertical flanges the suspending hooks D passing between the vertical flanges and having T-shaped ends on which the parallel pieces are supported and devices for spacing and holding the said pieces in proper parallel position, substantially as described. 4th. The combination in a hay elevator of two parallel pieces A, each having horizontal and vertical flanges with the suspending hooks D passing between the vertical flanges and having T-shaped lower ends upon which the parallel pieces are supported, substantially as described. 5th. The combination, with the metallic track of a hay elevator of the V-shaped fastening E clamping the end of the track between its arms and united, or bolted to said track and the hook F engaging said U-shaped fastening, substantially as described. 6th. The combination, in a hay elevator, of parallel pieces A, with the joints alternating the splicing blocks B to one side of which the ends of the pieces A are secured, said suspending hooks D passing between the parallel pieces, substantially as described.

No. 20,601. Combined and Handy Tool for Skaters.*(Outil à Combinaison pour les Patineurs.)*

Albert H. McQuilkin, Toronto, Ont., 20th November, 1884; 5 years.

Claim.—A shank D having at one end a box-wrench A and at its other a closed wrench B and having extending at right angles to it the projections C and E arranged substantially as and for the purpose specified.

No. 20,602. Process for Treating Certain Kinds of Cotton.*(Procédé de Traitement de Certaines espèces de Coton.)*

William H. Martin, Portland, Me., U.S., 20th November, 1884; 5 years.

Claim.—The process of treating and improving the cottons or their equivalents, as herein described, which consists in taking, substantially equal quantities of sea island comber pickings and card waste, then subjecting the comber to the action of meshing toothed rolls, a rapidly revolving drum having teeth and an air blast, then subjecting the pickings to a similar operation, then combining the comber and pickings thus treated with the requisite quantity of clean card waste mixing the same together and then submitting the compound to the action of a rapidly-revolving enclosed drum having coarse teeth on its periphery and to an air blast at the same time, substantially as herein set forth.

No. 20,603. Traction Wheel.*(Roue de Traction.)*

David M. Osborne, Auburn, N. Y., U.S., 20th November, 1884; 5 years.

Claim.—1st. The improved wheel, consisting of the hub having flanges or projections thereon, the rim composed of metallic sections joined end to end and lapped one upon another, and the spokes having their ends secured firmly to the hub and the rim sections respectively in substantially the manner described and shown, whereby they are adapted to tie the hub and the rim together. 2nd. In a wheel, the combination of metallic rim sections joined to end and lapped one upon another, and spokes passed through the overlapping ends of the sections, whereby the spokes are caused to unite the sections one with the other. 3rd. The combination, with the metallic rim section, substantially such as described, of a second section provided with a flange or lip overlying the first section on the inner side, a spoke passed through the overlapping ends of the two sections, and two nuts, or their described equivalents, applied to the spokes and confining the rim sections between them, substantially as described and shown. 4th. In a wheel, a rim composed of metallic sections united end to end, each section formed with inwardly extending flanges B and with spoke opening *b*. 5th. The improved rim section for a driving wheel, constructed in one piece of cast metal, with the spoke openings, the side flanges and the external lips. 6th. In a driving wheel, the combination of a central hub, the spokes extending outward therefrom, and a rim composed of sections united to each other by means of the spokes. 7th. In combination with the sectional rim and the spokes uniting said sections, the central hub having the flanges to receive the spokes and the gear wheel C cast in-bush therewith. 8th. In a wheel, the combination of the central hub, a rim composed of sections joined end to end, and a series of spokes connecting the hub and rim, and applied, substantially as described, to tie the rim sections inward, as distinguished from spokes which are seated against the inside of the rim to hold the same outward.

No. 20,604. Carpet Fastener.*(Clou à Tapis.)*

Mathilda F. S. rathy, London, Ont., 20th November, 1884; 5 years.

Claim.—As an improved article of manufacture, a carpet-fastener composed of a stem A, pointed at one end and screw-threaded at the other, a disk B threaded, driven, or shrunk on the stem and a cap or head C screwing thereon, as set forth for the purpose described.

No. 20,605. Mode of Hoisting, Securing and Discharging Anchors.*(Mode de Bosser les Ancres.)*

Rufus P. Trefry, Bridgewater, N.S., 20th November, 1884; 5 years.

Claim.—1st. The metallic plate, or shell A formed to fit the rail, as described, provided with the groove, as described, for receiving and retaining, or holding an anchor-fluke and allowing and aiding in its discharge from such plate, all substantially as described. 2nd. The plate, or shell A, provided with said groove, bevelled or hollowed to prevent the anchor fluke from forcing ahead or falling, or working inboard, all substantially as described and shown. 3rd. The plate A, provided with the rounded outside surface *lmfd*, as represented in Fig. 2, to facilitate the raising of the anchor over the rail and the depositing to the fluke thereof in the said groove, all substantially as described. 4th. The plate A, provided with said groove, formed as described, and said rounded surface, as described, serving to protect the rail from damage or injury from said anchor during its passage upon or from said rail, or while resting upon it.

No. 20,606. Nail Plate Feeder.*(Alimentateur de Clouterie.)*

George Stacy, Montreal, Que., 20th November, 1884; 5 years.

Claim.—1st. The combination, with any gear spindle of a nail-cutting machine, of a rock shaft operated by such spindle, and operating rock spindle carried under plate holder and carrying arms from which reverse rotary motion is imparted to the plate holder, by means of a continuous strap passing round same, all substantially as set forth and for the purposes described. 2nd. The combination, with the plate-holder M, of a double cam collar mounted thereon and resting in the socket G, secured adjustably as to height to the turned-up end piece N pivoted to the bracket N, all substantially as and for the purposes set forth.

No. 20,607. Manufacture of Lacing Boots.*(Fabrication des Bottines à Lacer.)*

Guillaume Boivin, Montréal, Que., 21st November, 1884; 5 years.

Résumé.—1o. L'art de deviser un morceau coté ou peau de cuir, ou autre matériel, en empeignes pour les chaussures, de telle façon que ces empeignes s'ajustent exactement l'une à côté de l'autre, le contour d'une empeigne étant en contact interrompu avec quelque partie des contours des empeignes voisines, de manière qu'il n'y ait rien à tailler ou à retrancher entre elles, tel que représenté et décrit. 2o. L'art de tracer et tailler les empeignes de chaussures dans un morceau, coté ou peau de cuir, ou une pièce d'étoffe, de façon en un seul coup de l'instrument tranchant suffise pour séparer le petit bout d'une empeigne avec la partie supérieure d'une autre, le bord inférieur de l'une du bord inférieur d'une autre, le bord de derrière ou du talon de l'une du bord de l'autre, tel que représenté et décrit. 3o. Dans une chaussure ouverte sur le devant, les trous ou oeillets à lacer *h* formés dans l'empeigne A pour les fins d-dessus indiquées. 4o. Une chaussure ayant les coins inférieurs *f* de ses bords à lacer *c*, tirés vers le petit bout de la chaussure, de façon à revenir sur l'empeigne A, et maintenus en position en tirant le lacet par les dits coins *f*, et le faisant ensuite passer par les oeillets *h* dans l'empeigne A, tel que représenté et décrit et pour les fins indiquées.

No. 20,608. Sewing Machine.*(Machine à Coudre.)*

Benjamin F. Landis, St. Joseph, Mo., U.S., 21st November, 1884; 5 years.

Claim.—1st. The combination, with an upper and a lower feeder, and means for clamping them intermittently upon the work, of a curving blade fixed in the path of the stitches, substantially as described, whereby a channel will be cut for the stitches to bury in. 2nd. The combination, with the feed foot C having trunnions C₃ on its sides, of the head A₁ having a vertical slot for the body of feeder C, and vertical side slots for the trunnions C₃ to reciprocate in, and means, substantially as described, for reciprocating said feed foot both vertically and horizontally, as shown and described, whereby the foot may swing upon its trunnions in said slots and give the same amount of feed at any height to which it may be raised. 3rd. The combination, with the vertically slotted head A₁, and the feed foot C having trunnions C₃ to engage said slots, of the yoke A₁₁ engaging said feed foot, the springs *b₁* and *b₁₁* secured at one end to the head A₁ and at the other end to said yoke *a₁₁*, substantially as shown and described. 4th. The combination, with the feed foot C having trunnions C₃, the slotted head A₁, the yoke *a₁₁*, the spring *b₁*, *b₁₁*, of the rock shaft G having arms F, M, the connecting rod P, the slide bar L, the stud and block C₁, the roller and adjustable block C₂, the wheel Y having the cam Y₁ and the shaft N, as and for the purpose specified. 5th. The combination, with the feed foot C having trunnions C₃, the slotted head A₁ and the means described for depressing and horizontally reciprocating said feed foot, of the lever K connecting rod U₁, the rod P, provided with yoke P₁ and the cam O on shaft N, as shown and described. 6th. The combination, with the feed foot C, the head A₁, the lever K and the means described for operating said feed foot and said lever, of the rod U₁ connecting said feed foot and said lever, and the block T and set screw U, substantially as described, whereby the feed foot may be adjusted to any given height and then go through all its movements to their full extent, for the purpose set forth. 7th. The combination, with the base piece A₂ and the lower feeder D, of the sleeve X provided with both horizontal and vertical pivots at X₁₁, the pivot D₁ and the plate X₁, the wheel Y on the shaft N, the roller Z₁, the cam Z, spring X₁₁ and set screw *b*, as shown and described. 8th. The combination, with a sewing machine having a needle and an arm for reciprocating the same, of a plate having a hole for the needle to play through as a guide, and provided with a shank fitted to slide in a guide-way and guides therefor provided with transverse slots and binding screws, substantially as described. 9th. The combination, with a sewing machine having a needle carrying arm pivoted to the fixed frame thereof and means for vibrating the said arm, of a take-up lever pivoted to the said frame, the arm having a knob and the lever having a stud to engage each other, and a spring connecting the lever with the arm, substantially as described. 10th. The combination, with the arm C having the knob *c*, and carrying a needle B pivoted to the frame A at *c*, and

means, substantially as described, for vibrating the said arm, of the lever H pivoted to the frame at *b*, the thread guide O thereon, the spring I connecting the arm C and lever H and the adjustable lug J, as and for the purpose described. 11th. As an article of manufacture, a bobbin consisting of a spindle, a spool thereon and a continuous thread wound partly on the spool and partly on the spindle, substantially as described. 12th. The combination, with a shuttle having a bobbin chamber within it and bearings at each end thereof to receive a spindle, and a thread delivery at one side of the shuttle near its centre longitudinally, of a spindle fitted to the said bearings and a spool fitted loosely on the spindle, the said spool being about one-half the length of the shuttle chamber, substantially as described, whereby the spool may reciprocate longitudinally upon the spindle to permit the thread to be drawn directly from any point on the length of the spool to the thread delivery in the shuttle, as shown and described. 13th. The combination, with a shuttle having a central thread delivery and spindle bearings, of a spindle constructed to rotate in said bearings and two spools upon said spindle, each shorter than one-half the length of the spindle and free to reciprocate longitudinally thereon. 14th. The combination, with the stitch-forming devices of a sewing machine, a combustion chamber and an air passage leading therefrom to the shuttle race, of a water chamber interposed between the combustion chamber and the shuttle race, substantially as described. 15th. The combination, with the stitch-forming devices of a sewing machine, a combustion chamber, an air passage leading therefrom to the sewing machine shuttle race, and a water chamber interposed between the combustion chamber and shuttle race, of a hot air chamber communicating with the said air passage between the water chamber and the shuttle race, substantially as described. 16th. The combination, with the stitch-forming device of a sewing machine, and on open bottom combustion chamber, of a water chamber covering the top thereof, a hot air chamber above the water chamber, a flue connecting the combustion chamber with the air chamber, and an air passage arranged to connect said chamber with the shuttle race of the sewing machine. 17th. The combination, with the stitch-forming device, of a sewing machine, a combustion chamber and a water chamber covering it, of an air chamber on top of a portion of the water chamber, a flue connecting said air chamber with the combustion chamber, a wax chamber on top of the remaining portion of the water chamber beside the air chamber, and means for delivering wax from said chamber to the sewing machine, substantially as and for the purposes specified.

No. 20,609. File Coupon. (*Coupon de Liasse.*)

Narcisse O. Côté, Ottawa, Ont., 21st November, 1884; 5 years.

Claim.—The combination, in a file itinerary containing the file number of columns of date, receipt and despatch, coupled with coupons containing corresponding number, receipt, despatch and date lines, the whole combined and arranged substantially as shown and described for the purposes set forth.

No. 20,610. Ice Rubber. (*Clague à Glace.*)

Edward S. Hunn, Kalamazoo, Mich., U.S., 21st November, 1884; 5 years.

Claim.—A rubber foot-wear provided, in the elastic sole thereof, with spurs having their pointed ends extending to the lower surface only, and their headed ends countersunk and covered by the cemented inner sole, whereby the spurs are adapted to be forced down into the ice by the pressure of the foot upon the sole, substantially as set forth.

No. 20,611. Sediment Collector for Steam Boilers. (*Réceptacle à Sédiments pour Chaudières à Vapeur.*)

David Hanna, Ogdensburg, N.Y., U.S., 21st November, 1884; 5 years.

Claim.—1st. The process of separating the impurities from the feed-water for steam-boilers, which consists in injecting the water into the steam-space of the boiler in the form of fine spray, vaporizing the spray before it reaches the water in the boiler, separating the impurities from the spray while being vaporized, collecting the impurities as they are separated from the spray and conducting them outside of the boiler, substantially as described. 2nd. In a sediment collector for steam boilers, the combination, with a sediment collecting basin arranged within said boiler, of the nozzle B having an upper and under conical plate, the latter provided with graduated openings connected with the supply pipe of the boiler, and with or without blow-off cock *b*, substantially as and for the purpose set forth. 3rd. In a sediment collector for steam boilers, the combination with a spraying nozzle or other feeding device, discharging into the steam space thereof, of the funnel or basin C having the blow-off pipe *C* and valve or cock *b*, substantially as and for the purpose set forth. 4th. The combination, in a steam boiler, the nozzle B consisting of an upper conical imperforated plate *A*, and an under conical plate *A*, provided with perforations increasing in size from the centre towards its periphery having feed-water pipe *a*, and discharging into the steam-space, with the pan or collector C and blow-off pipe *C* substantially as and for the purpose herein shown and specified.

No. 20,612. Smoke Consumer.

(*Foyer Fumivore.*)

Edward E. Hedley, New York, N.Y., U.S., 21st November, 1884; 5 years.

Claim.—1st. In a smoke-consuming device, a tube for the admission of air, a steam jet located therein, the interior of the tube made wide for a short distance beyond the end of the steam jet and then reduced in size, the construction being such that the issuing steam may encompass a large volume of air in the wide portion of the tube, the same being thereafter accelerated in the reduced section, substantially as described. 2nd. In a smoke-consuming device, an air tube provided with an interior steam jet, and an expanding chamber located at the extremity of the tube, and provided with a slot for discharging its contents in a sheet over the fuel, substantially as

described. 3rd. In a smoke-consuming device, an air tube containing a steam jet, said air tube projecting in front of the steam jet forming at this point a combining and accelerating tube, and an expanding chamber located at the extremity of the tube, and having one or more opening through which its contents are discharged over the fuel, substantially as described. 4th. In a smoke consumer, an air tube, an interior steam jet and an expanding chamber adjacent to the interior of the furnace, said chamber provided with one or more slits at different levels whereby the contents are discharged in the higher and lower strata over the fuel, substantially as described. 5th. In a smoke-consuming device, a short tube adapted to project through the water leg of a boiler, a removable chamber C located upon the interior of the boiler and provided with a slit through which the contents may be discharged over the fuel, said tube provided upon its interior with a steam jet and means for supporting the same in place, substantially as described. 6th. In a smoke consumer, a combining and accelerating tube C provided with an interior steam jet, the steam jet formed with a shoulder *d* and an inverted conical nozzle, or mouth, substantially as described. 7th. In a smoke-consuming device, the combination with the following elements: a steam jet provided with a shoulder *d* and an inverted conical nozzle, an embracing air tube made wide for some distance in front of the steam jet *a*, combining and accelerating section *c* and a discharge slot, or orifice, whereby steam and air forced through the tube is discharged over the fuel, substantially as described. 8th. A smoke consumer consisting of an air tube, an interior steam jet and a steam super-heating chamber through which the steam passes before emerging from the jet, substantially as described. 9th. In a smoke consumer, in which air is discharged into the products of combustion above the fuel, an air retort through which the air passes on its way to the furnace said retort located within the breeching or uptake and adapted to be heated by the products of combustion as they pass from the boiler, substantially as described. 10th. In a smoke consumer, the combination of an air tube, an air retort located in the breeching, or uptake and suitably connected with the air tube whereby the air is first highly heated, a steam located within said air tube and a steam super-heater from which steam is supplied to the steam jet, substantially as described.

No. 20,613. Car - Coupling.

(*Accouplage de Wagons.*)

Thomas Souster, (assignee of George W. Hoover), Keithsburg, Ill., U.S., 21st November, 1884; 5 years.

Claim.—1st. The combination, with the draw-head, of a vertically-moving plate above the same, a slide projecting downward from the plate into an aperture in the draw-head, a coupling-pin held on the said plate, and a bar held on the said plate and projecting downward from the said plate, substantially as herein shown and described. 2nd. The combination, with a draw-head, of a plate above the same, means for raising the plate, a slide projecting from the plate into an aperture in the draw-head, a bar projecting from the said plate into an aperture in the draw-head, and a coupling-pin held in the said plate and projecting downward, substantially as herein shown and described. 3rd. The combination, with the draw-head A, of the plate B, the coupling-pin D, the bars G, and the slide J, provided with vertical slots *h*, the latch K provided with a tongue L, and of the pin K on which the latch K is pivoted, substantially as herein shown and described. 4th. The combination, with the draw-head A, of the plate B, slide J for guiding it to move vertically, a coupling-pin held in the said plate, and the latch K pivoted in the draw-head and provided with an inwardly-projecting tongue L, substantially as herein shown and described.

No. 20,614. Nailing Machine for Packing Cases. (*Machine à Clouer les Caissons d'Emballage.*)

George Lines and Alfred Bridgman, London, Eng., 21st November, 1884; 5 years.

Claim.—1st. In box-nailing machines in which the nails are driven in a horizontal direction into the wood, the employment of horizontally-moving pushers or drivers *b* to force the nails into the wood, substantially as shown and described. 2nd. Feeding the nails to the nail guides *c* by means of a horizontal cylinder *d*, having holes, or sockets *d*, and sliding perforated bars *d* acted upon at one end by a fixed cam *e* and at the other by a lever *g*, which is operated by a sliding cam *g*, in combination with funnels *f* and tubes *f*, substantially as herein shown and described. 3rd. In combination with a nail-feeding and guiding device, the guard plate *h*, operated substantially as herein shown and described and for the purpose stated. 4th. Fixing the nail-pushers, or drivers *b* on each side of the centre one, at an angle thereto and operating the same, substantially as herein shown and described and for the purpose stated. 5th. The nail guide plate *c*, in combination with screws *e* and *e*, for the purpose of adjusting the same in height and angle, substantially as herein shown and described and for the purpose stated. 6th. The combination of dogs, or fences *h*, *h*, with the front edge of nail guide plate *c* and guide plate *h* for ensuring the correct adjustment of the work, substantially as herein shown and described. 7th. The nail guide plate *c* formed with a large number of guide grooves therein, in combination with a similar number of pushers, or drivers *b*, and with a smaller number of feeding holes, or sockets *d*, guide tubes *f* and funnels *f* to facilitate adjustment of the number and arrangement of nails to be driven, substantially as herein shown and described. 8th. The general arrangement and combination of parts for securing correct adjustment of the work for feeding, guiding and driving the nails, and for adjustment of the nail guide plate, substantially as herein shown and described.

No. 20,615. Bark Breaking and Grinding Mill. (*Machine à Concasser et Broyer l'Ecorce.*)

James T. Phillips and Willard Curtiss, Grand Rapids, Mich., U.S., 21st November, 1884; 5 years.

Claim.—1st. In a bark-reducing machine, in combination with rolls B, B₁ having transverse ribs for breaking the bark into strips, a finger bar and toothed roll arranged to receive these strips as they pass from the rolls B, B₁, whereby they are split into pieces, and a disintegrating mechanism arranged beneath the rolls and the splitting mechanism, and gearing for driving the mechanism, all substantially as described. 2nd. In a mill for reducing bark and other material, a grinding roll and apron, combined with grooved rolls J, J₁, one adjustable towards the other and geared to run at unequal speeds, substantially as described. 3rd. The combination of transversely ribbed rolls adapted to break the bark, a finger bar, a toothed roll operating in connection with said finger bar, a grooved roll H, an apron having grooved surfaces and rolls J, J₁, one fixed and the other movable, and geared to run at unequal speed, all substantially as described.

No. 20,616. Spring Frame for Beds. &c.

(*Sommier Elastique.*)

Benjamin Taylor, Morrillton, Ark., U. S., 25th November, 1884; 5 years.

Claim.—1st. A spring frame, formed of slats resting on cross bars, supported by springs resting on other cross bars resting on longitudinal bars suspended by springs from longitudinal rails having their ends united by cross bars, substantially as herein shown and described. 2nd. In a spring frame, the combination, with the rails B and cross bars A, of the bars E suspended by springs from the rails B, and of cross bars and slats supported by the bars E, substantially as herein shown and described. 3rd. In a spring frame, the combination with the rails B, and cross bars E suspended from the rails B by springs, the cross bars F, the U-shaped springs G secured on the edges of the bars F, the bars J and the slats K, substantially as herein shown and described. 4th. In a spring frame, the combination with the rails B and cross bars A, of the bars E, the springs C, the bars F, the springs G, the bars J, the upright wire frames M on the bars F, and of the studs N passed through the wire frames M into the ends of the bars J, substantially as herein shown and described.

No. 20,617. Method of Casting Car Wheels.

(*Méthode de Coulage des Roues de Chars.*)

William Wilmington, Toledo, Ohio, U. S., 25th November, 1884; 5 years.

Claim.—The method of casting car wheels, which consists in placing in the current of molten chill, hardening cast-iron flowing from a pouring ladle (or the receiving basin of the mold), a quantity of ferro-manganese, or its equivalent, as described, and allowing the same to be melted by the inherent heat contained in the molten metal, whereby the particles of ferro-manganese intermingling with the molten iron in the basin are melted, and are carried thence into the mold through openings of the inflow of metal, causing a larger portion of the ferro-manganese to be disseminated in the iron forming the hub and inner plate portions of the car-wheel than elsewhere, all substantially as described and for the purpose set forth.

No. 20,618. Drag Saw. (*Scie Trainante.*)

Marvin O. Smith, New Buffalo, Mich., U. S., 25th November, 1884; 5 years.

Claim.—1st. In a drag-saw, a pointed holding spike provided with a conical enlargement or nut, substantially as and for the purpose set forth. 2nd. In a drag-saw, the combination, with the saw blade, of a spring actuated arm bearing upon the back of the saw to press it down to its work, substantially as shown and described. 3rd. In a drag-saw, the combination, with the saw-blade, et a hollow slide containing a lubricant, and provided with guide flanges and means, substantially as described, for pressing it down upon the back of the saw, substantially as shown and described. 4th. In a drag-saw, the combination with the saw and its operating lever, of an arm pivoted upon the main frame, and provided with a slide upon its outer end bearing upon the saw, and, at its inner end, a coiled spring, and means for regulating the tension of the same, substantially as and for the purpose set forth. 5th. The slide E, cast hollow in two parts, having the flanges e and e₁, one of the latter being chilled and formed with holes e₂, substantially as and for the purpose set forth. 6th. The saw C₁, in combination with the lubricating slide E, arm E, its pivot a, the coiled spring G₁, ratchet wheel H and pawl A, all constructed and arranged to operate substantially as and for the purpose set forth. 7th. In a drag-saw, an operating lever formed in two parts hinged together, and provided with means for adjusting and securing them at any desired angle with each other, substantially as and for the purpose set forth. 8th. In a drag-saw, the pivoted lever B, in combination with the hinged section B₁, plates b₁ having slots b₁, and the thumb nuts b₂, substantially as and for the purpose set forth.

No. 20,619. Combined Fire-Proof Elevator and Ventilating Shaft. (*Puits de Ventilation et de Monte-Charge à l'Épreuve du Feu.*)

Charles C. Gilman, Eldora, Iowa, U. S., 26th November, 1884; 5 years.

Claim.—1st. The combination, in a building, of an elevator shaft having fire-proof walls and closed at the top, and a surrounding or contiguous fire-proof air flue opening at the top through the roof of the building into the open air, the wall or walls between the said shaft and flue being provided with an opening e, all as and for the purpose described. 2nd. The combination, in a building, of a fire-proof elevator shaft A, closed at the top, and a surrounding or contiguous fire-proof ventilating flue B, opening at the top through the roof of the building into the open air, with entrance passages through their walls for communicating between the elevator shaft and the exterior of the ventilating flue, which entrances are enclosed with fire-proof material at the top and bottom and at the sides, whereby all communication between the said passages and the air flue is cut

off, as and for the purpose described. 3rd. The combination, in a building, of the fire-proof elevator shaft A, closed at the top, and a surrounding or contiguous fire-proof ventilating flue B, opening at the top through the roof of the building into the open air, the outer walls of the said flue being provided with opening e, all as and for the purpose described.

No. 20,620. Medical Compound and Process for Manufacturing the Same (*Composition Médicinale et Procédé pour la Préparer.*)

Ernest W. R. Schroter, Hamburg, Germany, 25th November, 1884; 5 years.

Claim.—1st. A new medical compound, produced by treating an oil which contains sulphur, in natural chemical combination with, the equal and up to the three-fold quantity of concentrated sulphuric acid. 2nd. The derivatives of the above compound, which are produced by neutralizing it with natrine, potash, ammoni, or any other base. 3rd. The process of manufacturing such compounds, substantially as set forth.

No. 20,621. Anti-Friction Bearing.

(*Collet à Anti-Friction.*)

Patrick Brownley, St. John, N.B., 25th November, 1884; 5 years.

Claim.—1st. An anti-friction bush box, or bearing, provided with a series of revolving rollers, supported between plates or discs, said discs being adapted to revolve in independent bearings, substantially as shown and described. 2nd. An anti-friction box, or bearing, provided with a series of revolving rollers, supported between plates, provided with bearing recesses so arranged that the rollers shall not touch each other, and connected loosely by rivets, rods, or bars in such manner that the said plates also revolve in independent bearings, substantially as shown and described. 3rd. In an anti-friction box, or bushing, the combination, with the casing A, revolving plates B, C, the former adapted to work in a bearing recess in the casing and the latter against the end thereof, and a series of rollers F, arranged in position to support a shaft, or ships, blocks, carriage wheels, or other suitable purposes substantially as described. 4th. In an anti-friction bush, box, or bearing, the combination, with a fixed case, or frame, of a pair of connected revolving discs, or plates, adapted to work in independent bearings, and a series of anti-friction rollers working in recesses in said plates, substantially as described. 5th. In an anti-friction bush, box, or bearing, adapted to keep the rollers in position and equally apart, by means of the recesses and projections on the end of plates B and C, being adapted to work in suitable bearings, substantially as described. 6th. A casing, provided with a recess in one of its ends, and its other end having a non-recessed bearing, in combination with revolving discs, secured to each other and having anti-friction rollers interposed between said discs, substantially as described. 7th. The combination, with discs having raised projections from their faces, in which is formed recesses for journal bearings for anti-friction rollers, the said discs being arranged face to face and suitably secured to each other by tie-rods, substantially as set forth. 8th. The combination, in a device for lessening friction in journal bearings, of the plates, or discs, provided with oil jackets beyond the bearings, of the anti-friction rollers which are between said discs, substantially as shown and described. 9th. The combination, in an anti-friction journal-bearing box, of the bearing discs and rollers, the said discs having projecting bearings and recesses therein, the walls of said recesses being cut away so as to permit the ready removal of the rollers when the nest is detached from the box, substantially as set forth.

No. 20,622. Process and Apparatus for Separating Gold and other Metals from their Ores by Means of Mercury.

(*Procédé et Appareil pour Séparer l'Or et autres Métaux de leurs Minerais au Moyen du Mercure.*)

Abel H. Bliss Chicago, Ill., U. S., 25th November, 1884; 10 years.

Claim.—1st. The process, herein described, of separating metals from their ores, which consists in introducing the ore in a triturated condition into a body of mercury below the surface of the same, and then successively stopping and releasing it once, or oftener, in its upward progress through the mercury, substantially as described. 2nd. In an apparatus for separating metals from their ores, the combination of the following elements: a vessel A for containing mercury, means for charging the ore in a triturated condition into the mercury below the surface of the same, a hollow body C within the vessel A having a diameter less than that of the vessel, whereby a space exists between the two, and containing one or more compartments and opening at or near its base into the annular chamber, and mechanism for opening and closing the tops of the compartments, substantially as described. 3rd. In an apparatus for separating metals from their ores, the combination, with a vessel for containing mercury, and with means for charging the ore in a triturated condition into the said vessel near its base, of mechanism for alternately stopping and releasing the ore in its progress upward through the mercury, all substantially as described. 4th. In an apparatus for separating metals from their ores, the combination, with a vessel for containing mercury, and with means for charging the ore in a triturated condition into the said vessel near its base, of mechanism for alternately stopping and releasing the ore in its upward progress through the mercury, and mechanism for creating a downward current in that portion of the mercury through which the ore rises, all substantially as described. 5th. In an apparatus for separating metals from their ores, the combination, with a vessel A for containing mercury, of the rotary stand-pipe B having a hopper at its upper end, one or more openings near its lower end, and means for revolving it, a hollow body C within the vessel of smaller diameter than the vessel, whereby an annular space exists between the two, and opening at or near its

base into the said annular space, and containing one or more sets of compartments intercommunicating in vertical series, and mechanism operated automatically by the rotation of the stand-pipe for opening and closing communication between the compartments in vertical series consecutively, substantially as described. 6th. In an apparatus for separating metals from their ores, the combination of the following elements: a vessel for containing mercury, a rotary stand-pipe supported within the said vessel and having one, or more discharge openings near its lower end, and a hopper at its top, means for permitting the said stand-pipe to be revolved, a hollow body C of smaller diameter than the vessel, and standing around the stand-pipe within the vessel, and opening at or near its base into the space surrounding it, said body being formed in sections superposed one upon another and divided by partitions into compartments having openings in their tops, sliding plates *t* in contact with the tops of the compartments, and provided with openings to register with those in the said tops, and mechanism for sliding the said plates back and forth through the revolution of the stand-pipe comprising cams *o* upon the stand-pipe, and spring mechanism acting in opposition to the cams, substantially as described.

No. 20,623. Self-Acting Fire-Alarm.

(*Tocsin Automatique.*)

Sanford A. Cornell and William E. Cowan, Rapid City, Man., 25th November, 1884; 5 years.

Claim.—In a self-acting fire-alarm, the combination of an inflammable cord, a weight suspended by the cord, and a lever, substantially as and for the purpose hereinbefore set forth.

No. 20,624. Ventilator for Tents.

(*Ventilateur pour Tentés.*)

Patrick Lewis, Quebec, Que., 25th November, 1884; 5 years.

Claim.—1st. The combination of the canvass flap, or shutter A, and the cord F, substantially as and for the purpose hereinbefore set forth. 2nd. The combination of the canvass gussets E, and overlapping pieces C and the hemmed border *c*, substantially as and for the purpose hereinbefore set forth.

No. 20,625. Gauge Cock. (*Robinet d'Épreuve.*)

William E. Granger, Springfield, Mass., U. S., 25th November, 1884; 5 years.

Claim.—1st. In a gauge-cock, the body *a* having a valve-seat at one end, the screw-stem *n* having the socket *x* in its end, and the valve *e* having a spindle provided with the squared end *r* to enter said socket in the stem *n*, combined and operating substantially as set forth. 2nd. The combination, with body *a* having the part *d* adapted to be screw-threaded, of yoke *e* which screws on said body, and valve *e* having spindle *ex*, the valve having its seat in the body *a* inside the yoke, and being loosely retained between the seat and the yoke, substantially as described. 3rd. The combination, with the body *a*, of the valve *e* having the fluted spindle *ex* provided with the squared end *r*, and the stem *n* having the socket *x* in its end, substantially as set forth.

No. 20,626. Carding Engine Cylinder.

(*Cylindre de Carde en Fin.*)

George Ashworth and Elijah Ashworth, Manchester, Eng., 25th November, 1884; 5 years.

Claim.—1st. As applied to each end of a carding engine cylinder, a disc or ring, in one or more pieces or segments of a diameter greater than that of the carding surface, secured to the vertical end of the cylinder, and fitting close to the card clothing, substantially as set forth. 2nd. As applied to each end of a carding engine cylinder, a disk or ring *c* secured to the end of the cylinder by means of screws *d*, or removable fastenings, and projecting beyond the wires of the card clothing, and the handles, or appliances, for securing to the disc or ring, and for holding the latter clear of the cylinder and in an eccentric position, substantially as and for the purpose set forth. 3rd. The disc, or ring, *c*, secured to the end of a carding engine cylinder, the screw holders *f, g*, for attachment to the disc, and the brackets *h, h*, for sustaining the disc in an eccentric position with relation to the cylinder during the grinding of the carding surface of the latter, substantially as set forth.

No. 20,627. Lifting Jack. (*Cric.*)

Ira Rose, Salinas, Cal., 25th November, 1884; 5 years.

Claim.—In a lifting-jack: the slotted permanent standard A having teeth *a* on its outer edges, the sliding lifting standard C fitted within the slot of standard A, and the guide disks, or plates *e*, secured to sliding standard C and holding it in place, in combination with the vibrating lever D, pivoted to said sliding standard, and the weighted pawls E, pivoted to the lever D and engaging on each side or edge of the standard A, with its teeth *a*, substantially as herein described.

No. 20,628. Cash Carrier. (*Contise à Monnaie.*)

George H. Spring, Le Mars, Iowa, U. S., 25th November, 1884; 5 years.

Claim.—1st. The cash-car, made with roof faces converging to the top and having two supporting pulleys incorporated therein, with a slot extending in lateral direction inwardly and upwardly to the bottoms of the pulleys throughout the full length of the car, said car having a receptacle for cash, as set forth. 2nd. The cash-car made in two adjustable sections, having a matched sliding connection, the lower section being recessed on its upper side to form a receptacle, and the upper section being provided with means for suspending it upon a track wire, substantially as described. 3rd. The cash-car, made of three pieces of wood, the lower drawer section, an upper section having a lateral inclined slot and pulleys above it, and a top, or crown section, adapted to close in the pulleys and form a bearing

for the journals of the same, substantially as shown and described. 4th. The cash-car, having suspending pulleys, and a lateral upwardly inclined slot to the bottom edges of the pulleys, the portion of material above the slot being extended as eaves beyond the sides of the car, to facilitate placing the same on the wire, as and for the purpose described. 5th. The cash-car, composed of two rectilinearly-sliding sections, in combination with a fastening device for holding them closed, and a spring interposed between opposite bearings of the two sections, to start the opening or separation of the two sections, as shown and described. 6th. A cash-car, made of two rectilinearly-sliding sections, with means for holding the same closed, as set forth. 7th. A cash-car, made of two sliding sections, one of which has a downwardly-projecting looped arm, and the other a registering slot to receive said arm for the purpose of balancing the car, and also forming an attachment for carrying bundles, in connection with a screw eye fastened in the opposite end of the car, as shown and described. 8th. A cash-car, composed of two sliding sections, and stops for limiting the movement of the sections over each other, as described. 9th. A cash-car, having an elongated rectangular slot in its bottom, with a tapering mouth faced with metal to co-operate with a lifting rod, as described, and facilitate its entrance into said slot, as set forth. 10th. A cash-car, having tapered roof-faces and supporting pulleys, with a slot entering the car laterally and extending upwardly to the pulleys, the pendent angular portion of the car, above the slot, being faced with metal, as and for the purpose described. 11th. The combination, with a track wire and a cash-carrier running thereon, of a set of wedge-shaped projecting detainers located upon a single wire and graduated in degree of projection to stop the carrier at intermediate points, as set forth. 12th. The combination of the track wire, the inclined wire above it having wedge-shaped detainers, and the cash-car having adjustable screw bearings for contact with said detainers, as set forth. 13th. The receiving-posts C, having general terminal detaining wires projecting upwardly and outwardly from the posts toward the incoming cars, in combination with the cars having a projection adapted to strike the terminal detainers, as and for the purpose described. 14th. The combination, with a horizontal wire and a car suspended therefrom, of the posts A, B, rod E, sliding bar F, a weighted cord for holding the same back, and a lever with cords and pulley for projecting said sliding bar against the car to give it momentum on the track wire, as described. 15th. The combination, with the horizontal track wire, the suspended car, and means for projecting the car, as described, of an adjustable stop mechanism for regulating the stroke of the projecting mechanism, and the extent of throw of the car, as set forth.

No. 20,629. Means for Rendering Buildings Fire-Proof. (*Moyens de Rendre les Bâtiments Réfractaires.*)

George F. Wright and William C. Dewey, Palmer, Mass., U. S., 25th November, 1884; 5 years.

Claim.—1st. A hollow cast-iron water holding column, closed at its bottom, and perforated at or near its upper end, substantially in the manner and for the purposes described. 2nd. A hollow supporting column, closed at its lower end, and provided with perforations at or near its upper end, in combination with a deflecting hood applied to the column over said perforations, substantially as described. 3rd. The combination of a hollow supporting column, closed at its lower end, and perforated at or near its upper end, with a system of pipes connecting said column or columns, with a water supply, all substantially as and for the purposes set forth. 4th. A hollow supporting column, or a series of such columns, constructed substantially as set forth, having it or their perforations sealed with a fragile or fusible substance which will yield, or melt, when subjected to heat, all substantially as and for the purposes set forth.

No. 20,630. Air-Pump. (*Pompe à Air.*)

Lewis S. Hoyt and Charles A. Shaw, Boston, Mass., U. S., 26th November, 1884; 5 years.

Claim.—1st. The tank A provided with the valve G, the tank B provided with the valve H, the pipe C provided with the stop-cock *m*, the pipe D provided with the stop-cock *r*, and the pipe E provided with the stop-cocks *j, d*, and outlet or nipple *g*, combined and arranged to operate substantially as set forth. 2nd. The combination, in a hydraulic air compressor, of two connected air-tight tanks, one above the other, the connected structure being reversible endwise, a valve pipe extending from, at, or near, the bottom of the upper tank to near the bottom of the lower tank, a valve pipe extending from, at, or near, the top of the lower tank to near the top of the upper tank, air inlet valves at the outer ends of said tanks, and air-discharge cocks, or pipes, at, or near, the inner adjacent ends of said tanks, substantially as described. 3rd. The combination, in a hydraulic air compressor, of two connected air-tight tanks, one above the other, the connected structure being reversible endwise, a valve pipe extending from, at, or near, the bottom of the upper tank to near the bottom of the lower tank, a valve pipe extending from, at, or near, the top of the lower tank to near the top of the upper tank, inlet valves at the outer ends of said tanks, and a pipe connecting said tanks, provided with two cocks and an intermediate discharge nipple. 4th. The combination, in a hydraulic air compressor, of two connected air-tight tanks, one above the other, the connected structure being reversible endwise, a valve pipe extending from, at, or near, the bottom of the upper tank to near the bottom of the lower tank, a valve pipe extending from, at, or near, the top of the lower tank to near the top of the upper tank, air inlet valves at the outer ends of said tanks, and a pipe connecting said tanks, provided with two cocks and an intermediate discharge nipple. 5th. The combination of a suitable support, connected tanks, one above the other, pivoted to said support, and an indicator attached to said support for indicating the height of the water in the connected tanks, substantially as described. 6th. The indicator, herein described, consisting of a sliding rod *n*, which is provided with a double inclined head T, inclined projection W and spring V, in combination with the finger *e* and plates *b, j*. 7th. The combination, in a hydraulic air compressor, of two connected air-tight tanks, one above the other, the connected structure being re-

versible endwise, a valved pipe extending from, at, or near the bottom of the upper tank to near the bottom of the lower tank, a valved pipe extending from, at, or near the top of the lower tank to near the top of the upper tank, inlet valves at the outer ends of said tanks, a pipe connecting said tanks provided with two cocks, and an intermediate discharge nipple and a flexible pipe connected to said nipple.

No. 20,631. Envelope. (*Enveloppe.*)

Knot H. Pedrick, Lynn, and Charles D. Palmer, Lowell, Mass., U.S., 26th November, 1884; 5 years.

Claim.—As an improved article of manufacture, an envelope consisting of the front A and back B united at their ends, and provided with the upwardly projecting flaps *m, d*, both of said flaps being curved or rounded from end to end, and both provided with a series of perforations *l*, and the flap *m* provided with a coating of mucilage or cement on its inner face, all substantially as and for the purpose set forth.

No. 20,632. Mechanism for Setting Spring Buttons. (*Machine à Poser les Boutons à Ressort.*)

The American Spring Button Company, Portland, Me. (assignee of Ira J. Saunders, Union City, Mich.), U.S., 26th November, 1884; 5 years.

Claim.—1st. In an apparatus for setting spring buttons, a receiver provided with a groove for the reception of the head of the button, and a prong directing and steadying device to rest against the sides of the prongs of the buttons, while they are being clinched at the side of the material, combined with the anvil and arms, or supports, for the said anvil and receiver, substantially as described. 2nd. In a machine for setting buttons, a receiver provided with a recess for the reception of the head of the button, combined with a saddle placed in line with the recess in the said receiver, and receiving upon it the button to be set, the saddle resting in the eye of the button while its prongs are being clinched, substantially as described. 3rd. In a machine for setting buttons, a receiver provided with a recess for the reception of the head of a button, a saddle to receive upon it the button to be set, and a movable or sliding prong steadying and directing device, combined with an anvil and with arms or supports for the said anvil receiver, and steadying and directing device, to operate substantially as described.

No. 20,633. Machine for Elevating Lumber for Piling. (*Machine à Monter le Bois à Empiler.*)

Henry Atkinson, (assignee of Robert Ritchie and Joseph Morency,) Etchemin, Que., 26th November, 1884; 5 years.

Claim.—1st. A lumber elevating machine consisting of an upright frame, supporting in it a horizontally revolving elevator frame, provided with endless chains and hooks arranged to run over sprocket wheels operated by hand crank and gears, substantially as shown and described. 2nd. In a lumber elevating machine, the elevator frame D provided with the spindles *c*, sprocket wheels *d*, endless chains *e*, and hook brackets *f* having the hooks *i*, as herein shown and described. 3rd. In a lumber elevating machine, the elevator frame D pivoted centrally at its upper and lower ends in suitable bearings, provided with endless chains and gears for driving the same, and with the resting hooks *g*, having the rollers *h*, as herein described shown. 4th. In a lumber elevating machine, having the upright elevator frame D, the roller *l* journaled in bearings attached to the posts *B*, the lock *m* and the stop *n* arranged to hold the elevator frame, substantially as herein described. 5th. The herein-described lumber elevating machine, having the base A, posts *B* and revolving elevator frame D mounted on the wheels *a*, substantially as shown and for the purpose hereinbefore set forth.

No. 20,634. Hoop Skirt and Bustle.

(*Jupon à Panier et Tournure.*)

Simon M. Blun, (assignee of Moritz Rosenstock), New York, N. Y., U.S., 26th November, 1884; 5 years.

Claim.—1st. As a new article of manufacture, a hoop skirt or bustle made with one continuous wire bent back and forth around the contour of the skirt, or bustle, and secured to the textile stay pieces, in the manner herein described. 2nd. The continuous wire *B* formed into the contour of a skirt or bustle by binding it in two angles *b, b* at suitable distances apart, to form the spaces between the hoops, and at points overlapped by the front stay pieces *A1*, and between the said angles *b, b*, bending the wire around the building form, so as to give the proper contour to the skirt or bustle, as described. 3rd. The continuous wire *B* having its central portions formed with the contour of a skirt, or bustle, and its end sections *b1* placed parallel with the front edges of the stay pieces *A1*, and secured thereto, so as to give the requisite vertical rigidity to the garment without any second wire or stay.

No. 20,635. Fence. (*Clôture.*)

Frederick W. Dunn and Henry H. Dunn, East Zorra, Ont., 26th November, 1884; 5 years.

Claim.—The uprights A mortised at one end to the bed-piece B, and at their other ends secured together by the wire link E, in combination with a wire brace D, the ends of which are securely fastened to the ends of the bed-piece B, and in passing through the uprights A receive the ends of the rails, substantially as and for the purpose specified.

No. 20,636. Grain Reel. (*Râteau de Moissonneuse.*)

Gustavus A. Paddock, Beaver Dam, Wis., U.S., 27th November, 1884; 5 years.

Claim.—1st. The combination, with the radial arms of a grain reel, and with beater arms pivoted to said radial arms, of a cam engaging said beater arms and adapted to give an oscillatory motion to the beaters, substantially as described. 2nd. In a reel for harvesting machines, the combination, with beater arms pivoted to the rotary or driving part of said reel, and provided with bearing pins, of means for holding the said pins in constant engagement with a cam which is adapted to vary the motion of said beater arms, substantially as and for the purposes set forth. 3rd. In a grain reel, the combination, with beater arms pivoted to the radial arms of said reel, of a cam plate having a cam groove engaging bearing pins upon said beater arms, and adapted to give an oscillating motion to the beaters, substantially as described. 4th. The combination of the radial arms D1, beater arms E, pivoted to said radial arms, and a groove in cam plate F1, engaging bearing pins upon the beater arms and adapted to give an oscillatory motion to said arms, substantially as and for the purposes described. 5th. The combination, with the rotary driving shaft of a grain reel, of beater arms pivoted to radial arms upon said shaft and provided with pins rigidly secured to them at points distant from their pivots, of a cam directly engaging said pins, and adapted to give an oscillatory movement to said arms during the rotation of the reel, substantially as and for the purposes set forth. 6th. The combination of the reel shaft having radial arms D1, beater arms E pivoted to said arms and consisting of obliquely placed strips E1, E2, the strips E1 extending inwardly from the pivotal points of the beater arms to form arms E3 and bearing pins *e3* carried by said arms, substantially as described. 7th. The combination of the bearing box *x* for the reel shaft having an annular flange *c*, the cam plate F1 provided with a collar *f* adapted to embrace the flange, and an adjusting lever G, substantially as described. 8th. In a harvester the combination of a reel standard, a vertically movable support carried by said standard and provided with bearings for the reel shaft, means for adjusting said support vertically and holding it in its adjusted position, and a spring attached to the standard and acting against said reel support to counteract the weight of the reel, substantially as described. 9th. The combination with the standard A, the reel-supporting lever A2 and devices for adjustably holding the same, of a spring L attached to the standard A and arranged to press against the lever A2 so as to counteract the weight of the reel, substantially as described.

No. 20,637. Process for Purifying Molten Iron or Steel. (*Procédé pour Purifier le Fer ou l'Acier Fondu.*)

James E. Atwood, Brooklyn, N. Y., U. S., 28th November, 1884; 5 years.

Claim.—The process of purifying molten iron or steel, consisting in uniting quicksilver and lead, and then combining said amalgam with iron or steel by infusing the amalgam into either molten pig, cast scrap or wrought iron or steel, or combination thereof, substantially as described.

No. 20,638. Carriage Spring.

(*Ressort de Voiture.*)

James J. Fetzer, Columbiana, Ohio, U. S., 23th November, 1884; 5 years.

Claim.—1st. The combination of the springs A, B, provided with stops *g, i*, and coupling C, D having stops *h, j*, arranged and operating substantially as described and for the purpose set forth. 2nd. The combination of the springs A, B, provided with stops *g, i*, couplings C, D having stops *h, j* and side bars *f*, arranged and operating substantially as described and for the purpose set forth.

No. 20,639. Marking Metallic Plates, &c.

(*Marquer les Plaques Métalliques, &c.*)

Maximilian Schweizer, Bridgeport, Ct., U.S., 23th November, 1884; 5 years.

Claim.—1st. The mode of marking metal plates, consisting in coating the same with a varnish, and in then removing the latter to correspond with the desired design, by pressing a fabric with a die upon the varnished face, removing the fabric with the adhering coating, and then etching the surface thus exposed, as set forth. 2nd. The mode of preparing a plate for etching, consisting in applying a resisting coating to the plate, and then applying a die to the coating, and removing the die with a corresponding part of the coating, substantially as described. 3rd. The combination, in a machine for preparing plates for etching, of an anvil or rest, a movable die-holder and die, and supports holding between the die and rest a fabric, substantially as described, adapted to carry with it so much of the varnish as corresponds to the face of the die, as set forth. 4th. The combination of the movable die-holder, strip supporter and anvil, having a semi-spherical face fitting a corresponding socket, substantially as described.

No. 20,640. Gas Engine. (*Machine à Gaz.*)

Cyrus W. Baldwin, Chicago, Ill., U. S., 28th November, 1884; 5 years.

Claim.—1st. Supplying a gas engine, prior to each explosion, with an explosive charge in which the proportions of gas and air are accurately measured by means of measuring devices, substantially as specified, operated by the engine, and adjustable to vary the proportions of the gases, substantially as set forth. 2nd. The combination, with the cylinder A and piston B of a gas engine, of an air inlet port *d*, gas inlet port *g* and pump E, and adjustable operating appliances constructed to measure off and introduce into the cylinder prior to each explosion, the requisite amount of gas to form with the air an explosive charge, as specified. 3rd. The combination, with a gas engine cylinder, of a pump E for measuring the gas charge, provided with a plunger *D* constructed to carry the igniting flame, substantially as specified. 4th. The improvement in supplying the explosive charge to gas engines, consisting in introducing air into

the working cylinder, making a separate non-explosive mixture of air and gas, then introducing the same in the cylinder in such regulated volume as will, with the air in the cylinder, constitute an explosive charge, and then exploding the same in contact with the piston while in a compressed state, substantially in the manner set forth. 5th. The combination, with a gas engine, of means, substantially as described, to measure off and introduce automatically regulated proportions of gas and air into the cylinder, and devices whereby the charge is compressed and exploded after its introduction, substantially as set forth. 6th. The combination, with a gas engine, of a measuring device E, and means for supplying it with gas, or gas and air in regulated proportions, a cylinder A and means for supplying it with air after the operation of each explosive charge, and connections, substantially as described, whereby the measured charge of gas, or air and gas, is forced into the air in the cylinder to form the explosive charge, substantially as set forth. 7th. The combination, in a gas engine, of a measuring device E, and means, substantially as described, for supplying the same with a regulated non-explosive mixture of air and gas, a power cylinder A and port connections and adjusting appliances, whereby to supply said cylinder with air and with the gas mixture in proportion to constitute an explosive charge, and an igniter for exploding the charge in contact with the piston, substantially as set forth. 8th. The combination, with a gas engine, of a device E, whereby a measured charge of gas and air is introduced into the working cylinder to form an explosive mixture with air therein, a valve *d* regulating the flow of gas to said device, and a governor D operated by the engine and operating said valve, substantially as set forth. 9th. The combination, with the gas, or gas and air, measuring device E of a gas engine, of a governor D and regulating valve *d* constructed to insure at all times a flow of gas to the said device, substantially as set forth. 10th. The combination, with the cylinder A of a gas engine, and means for supplying an air charge thereto and compressing it therein, of a device E for measuring a charge of mixed air and gas and forcing it into the main cylinder as, or after, the air is compressed, substantially as set forth. 11th. The combination of an explosion cylinder A, a piston and means for supplying the cylinder with air after each explosion, a pump E communicating with the cylinder, air and gas pipes communicating with said pump, and means for regulating the flow of air and gas thereto, whereby a regulated charge of air and gas measured by the pump is forced thereby into the working cylinder, substantially as set forth. 12th. The combination of the working cylinder having an exhaust port near the forward end, and air inlet port at the rear, means for opening the ports to displace the spent gases by a current of air carried through the cylinder after each explosion, and a measuring device E, whereby gas or regulated mixture of gas and air is combined with the air thus introduced, and means for igniting the charge after the compression thereof, substantially as set forth. 13th. The combination, with the cylinder having an exhaust port N near the forward end, and an air chamber communicating with the forward end of the cylinder, of a piston B constructed to maintain closed the communication between the exhaust port and space in front of the piston, and to open the communication with the space behind the piston, substantially as set forth. 14th. The combination of the cylinder A, exhaust port N, piston B and arm L, substantially as set forth. 15th. The combination, with the cylinder of a gas engine, of air and gas ports J, *et*, and means for imparting a whirling motion to the gases to mix the same, substantially as set forth. 16th. The combination, of the cylinder air inlet and gas inlet ports J, *et*, arranged so that one current is caused to flow past the port through which the opposite current enters, substantially as specified. 17th. The combination of the cylinder, means for mixing the gases therein, and an igniter *k*, *k*, whereby the charge is exploded after said mixture is effected, substantially as specified. 18th. The combination, with the cylinder of a gas engine, of an electrical igniter with its electrodes *k*, *k* extending inward to effect the initial ignition beyond the inner walls of the cylinder, substantially as set forth. 19th. The combination of the cylinder and plug F carrying the electrodes, and secured detachably in an opening in the cylinder, substantially as specified. 20th. The combination of the cylinder, and plug F carrying the electrodes made adjustable and detachable, as set forth. 21st. The combination of the cylinder and electrical igniter having its electrodes *k*, *k* near the centre of the cylinder, an electric generator L, and appliances operated by the engine for making and breaking the electric current within the cylinder, substantially as described. 22nd. The combination of the electric igniter *k*, *k*, generator L, circuit-breaker and adjustable appliances, whereby the current may be automatically established or broken at any desired point of the stroke, substantially as set forth. 23rd. The combination, in a gas engine, of the electric igniter generator L, and circuit-breaking mechanism set to effect the ignition when the piston is at or near the end of its stroke, substantially as set forth.

No. 20,641. Excavator. (*Excavateur*)

Cyrus Howard, Pittsburgh, Penn., U.S., 28th November, 1884; 5 years.

Claim.—1st. The combination, with an excavator truck body, of two sets of wheels and an axle for each set, a king-bolt connecting each axle with the truck, and means, substantially as described, for rigidly fixing either axle from turning under the truck, as and for the purpose specified. 2nd. The combination, with the truck mounted on wheels, of a frame hung transversely thereto by means of bails and chains attached to said frame, and to the side beams of the truck pulleys or drums journaled in said frame at each side of the truck chains, or belts, on the said drums and scoops hung to the chains, as shown and described. 3rd. The combination, with two chain pulleys, a frame and a truck for carrying the chains in two directions at once, of scoops sharp at their front edges and slanted back therefrom at their sides, substantially as described, whereby their sides are adapted to fit the land side of the furrows in a direction resulting from the aforesaid two motions. 4th. The combination, with the chains F, the pulleys G and G₁, the scoops E and the cross bars *b* pivoting the forward ends of the scoops to the chains, of the rope P, attached to the back of each scoop, near the front and rear ends thereof, substantially as shown and described.

No. 20,642. Composition for Charging Fire-Extinguishing Grenades. (*Composition pour Charger les Grenades Extincteurs d'Incendie.*)

Joseph B. Coghill, Toronto, Ont., 23th November, 1884; 5 years.

Claim.—1st. A composition for charging fire-extinguishing grenades consisting of nitrate of potash, chloride of sodium and marble dust diluted with carbonated water, as set forth. 2nd. The process of charging fire-extinguishing grenades consisting in, first, inserting into the grenade a composition of nitrate of potash, chloride of sodium and marble dust, then filling the grenade with carbonated water, then allowing the independent, or free gas to escape, and finally corking and sealing the neck of the grenade, as set forth.

No. 20,643. Device for Suspending Machinery and Obtaining Rotating Centres. (*Appareil pour Suspendre les Machines et Obtenir les Centres Rotatoires.*)

Joseph D. Huntington, Chicago, Ill., U.S., 23th November, 1884; 5 years.

Claim.—1st. The combination, with a frame on which a rotary shaft has its bearings, of suspending rods connecting the same from above for centering the rotating parts, substantially as specified. 2nd. The combination, with a frame on which a rotating shaft has its bearings, of suspending rods B connecting the frame from above, and a connection for the frame from below, substantially in the manner and for the purposes set forth. 3rd. The combination, with a frame on which a rotating shaft has its bearings, of suspending rods, or wires, connecting said frame from above, a connection for the frame from below, whereby the frame is suspended between the floor and ceiling, and rubber, or spring, cushions located at or near the points of connection to the frame, substantially as and for the purposes specified. 4th. The combination of a frame on which rotating wheels, or parts, have bearings, and elastic and conforming supports connecting said frame to the suspending devices, with suitable suspending devices substantially as and for the purpose set forth. 5th. The combination of a frame C and connecting lugs, or brackets, with the suspending rods B, substantially as specified. 6th. The combination of the frame C and bar H, with the plate I, substantially as described. 7th. The combination of the frame C and brackets *f*, with the rods B, bar H, and plate I, substantially as set forth. 8th. The combination of the plate I, springs *a* and bolt *d*, with the plate J, substantially as specified. 9th. The combination of the plate I having the recess *f* and enlarged opening *c*, with the spring *a* and bolt *d*, substantially as described. 10th. The combination of the frame C and brackets, or yokes *f*, with the springs *a*, bolts *g* and rods B, substantially as specified. 11th. The combination and arrangement of the frame C, shaft E and pulleys F, with the rods B, single supplanting-bar H and yielding plate I, substantially as described.

No. 20,644. Composition Pad for Copying. (*Mateias en Composition pour Copier.*)

Henry S. Myers, New York, N. Y., U.S., 28th November, 1884; 5 years.

Claim.—A copying-pad consisting of a compound of soap, glucose and glycerine, in the proportions indicated, adapted to receive a transfer of ink, or color, from an original, to be unaffected by the acids, or alkalis, in the ink, or colors, and to be easily washed without staining, substantially as set forth. 2nd. A copying-pad, consisting of a compound of soap, glucose and glycerine, substantially as set forth.

No. 20,645. Anchor. (*Ancre.*)

Thomas S. Calpin, St. John, N.F.L., 28th November, 1884; 5 years.

Claim.—The construction of anchors having a V-shaped shank *a*, shackle *b*, for receiving the cable ring *c*, jaws *d*, *d*, pins *e*, *e*, pivoting flukes *g*, *g* and fishing ring *i*, substantially as described.

No. 20,646. Drain Tile. (*Tuile de Drainage.*)

John Dunn and David J. Mallard, Keppell, Ont., 28th November, 1884; 5 years.

Claim.—1st. A wooden tile having a series of holes *a* made in it, substantially as and for the purposes specified. 2nd. A wooden tile having a groove *b* cut in its end, substantially as and for the purpose specified. 3rd. A wooden tile having a pointed end B to fit into an inversely-shaped hole made in the next tile, and grooves *b* cut in its end, substantially as and for the purpose specified. 4th. Wooden tiles A, having pointed ends B, in combination with a perforated collar C having an inwardly-projecting flange *d*, substantially as and for the purpose specified.

No. 20,647. Treatment of Ores Containing Precious Metals. (*Traitement des minerais Contenant des Métaux Précieux.*)

C. Robeson Squire, New York, N.Y., and George Merrill, Raritan, N.J., U.S., 28th November, 1884; 15 years.

Claim.—1st. The within-described process of preparing ores for amalgamation, which consists in subjecting the ores to a solution of salt cake, or a solution of Nitre cake, either separately or together. 2nd. The within-described process of desulphurizing ores, which consists in subjecting the ores to a solution of salt cake, or a solution of Nitre cake, either separately or together, substantially as set forth.

No. 20,648. Knife for Bread Cutters. (*Couteau pour Tranche-Pain.*)

Samuel Mirfield and James McCrea, Campbellford, Ont., 28th November, 1884; 5 years.

Claim.—A bread-cutting knife having a point *c*, two exterior cutting edges *B*, *B*₁ diverging therefrom, and a flat rearward portion for attachment of the knife, as shown and described.

No. 20,649. Water Gate for Mills, Canals, &c. (*Porte d'Ecluse pour Moulins, Canaux, &c.*)

Joseph S. Redline, Derris, Pa., U.S., 23th November, 1884; 5 years.

Claim.—1st. The combination, with a forebay, or water-way having a discharge aperture in its bottom, of a gate adapted to close said opening, substantially as described, and movable longitudinally to and from same, and having its upper end projected to or above the normal water-level, as and for the purposes specified. 2nd. The combination, with the forebay having a discharge-opening through its bottom, and the guides mounted in the forebay on opposite sides of the opening, of the gate adapted to shut the water off from the opening, and held, and movable vertically on the guides, said gate being provided with a longitudinal air-passage, substantially as set forth. 3rd. The combination of the forebay having a discharge-opening, the hollow gate made rectangular in cross section and open at both ends, and the guides mounted in the forebay and filling the internal corners of the hollow gate, substantially as set forth. 4th. The combination, with the forebay, or water-way having a discharge-opening through its bottom, of a gate adapted to shut the water off from the discharge-opening, and movable vertically to and from the same, the said gate having its upper end projected above the normal water-level and being provided with a longitudinal air-passage, substantially as set forth.

No. 20,650. Means of Lubricating Axles.

(*Moyens de Graisser les Essieux.*)

Henry E. Vosburgh, Gananoque, Ont., 23th November, 1884; 5 years.

Claim.—An axle provided with the alternate cavities *A*, *A*, substantially as described and shown for the purposes set forth.

No. 20,651. Car-Coupling. (*Accouplage de Chars.*)

William H. Adams and James D. Felthousen, Albany, N.Y., U.S., 23th November, 1884; 5 years.

Claim.—1st. A car-coupling, constructed substantially as herein shown and described, and consisting of the coupling head *A* having flaring mouth, and slots *C*, *K* in its upper and lower sides, and the hook *D* having slot *E* in its rear end, and angular forward end, two link-seats *L*, *M* in its throat, and a projection *N* on its lower side, as set forth. 2nd. In a car-coupling, the combination, with the coupling-head having slots *C*, *K* with bevelled forward ends in its upper and lower sides, and the link *B*, of the hook *D* working in said slots *C*, *K* and having angular forward end, and provided with projection *N* on its lower side, and with two link seats *L*, *M* in its throat, substantially as herein shown and described, whereby the coupling will sustain the draft-strain securely, and will be self-coupling, as set forth. 3rd. In a car-coupling, the coupling hook *D*, made substantially as herein shown and described, with a slot *E* in its rear end, an angular forward end, and two link-seats *L*, *M* in its throat, to adapt it to be inserted in the coupling-head, and to support the link while the cars are being run together, as set forth. 4th. In a car-coupling, the combination, with the lower part of the coupling-head *A* having slot *K*, of the hook *D* having projections *N* on its lower side, substantially as herein shown and described, whereby the said hook will be kept from being pushed too far back by the entering link, and the said hook will be kept in place while moving up and down, as set forth.

No. 20,652. Attachment for Logging Sleds.

(*Disposition aux Traineaux à Billots.*)

John Donalds, Stillwater, Minn., U.S., 23th November, 1884; 5 years.

Claim.—As an improvement in logging sleds, the combination of a bolster, provided at either end with a longitudinal recess *A*, and inclined recess *E* opening into the recess *A*, with the pivoted arm *B* having segmental rack *B*, pawl *D* having handle *F* and projection *D*₁ on its inner side, and spiral spring *E* fitting within the recess *E*, and adapted to hold the pawl *D* in operative position, all constructed and arranged to operate, substantially in the manner and for the purpose shown and described.

No. 20,653. Farm Fence. (*Clôture de Ferme.*)

Charles T. Spilsbury, Haliburton, Ont., 23th November, 1884; 5 years.

Claim.—1st. A post and rail fence, in which the ends of the rails *B* are secured by bolts *C*, inserted in posts *A* and ends of the rails, as set forth. 2nd. The combination of the perforated posts *A*, intervening rails *B* and bolts *C*, in alignment with each tier of rails and entering their respective ends, as set forth.

No. 20,654. Level. (*Niveau.*)

Richard I. Frambes, Bakersville, N.J., U.S., 23th November, 1884; 5 years.

Claim.—The combination, with the oblong block *A* containing the pendulum *C* within the cavity *B*, and the spring brake *D* adapted to impinge against said pendulum, of the rod *D*₁ extending through a longitudinal opening *m* in said block, and adapted to be man pulated from the end thereof to operate the said brake, substantially as described.

No. 20,655. Door Lock. (*Serrure de Porte.*)

Ulric Caron, St. Thomas de Pierreville, Que., 23th November, 1884; 5 years.

Claim.—1st. In a door lock, the locking bolt having the wards *a* and *b*, and the recesses *c* and *d*, as shown and for the pur-

pose set forth. 2nd. In a door lock, the holding bolt *B* having the projection *e*, spring *f*, opening *g*, taper key *A*, and wheel *h* journaled in the end of the bolt *B*, for the purpose described. 3rd. The holding bolt *C*, operated by the lever *D* and spring *l*, and having a friction wheel journaled in its end, as shown and for the purpose specified. 4th. A key, constructed to suit the herein-described lock, having a fixed wing *E*, and a movable wing *F*, hollow stem *g*, inside stem *H*, arm *J* and half circle *k*, as shown and described. 5th. In door lock knob, the movable spline *o* operated by the lever *p* fulcrumed in the knob, or handle, so as to be moved thereby into, or out of, a recess formed in the shank *I*, substantially as shown and for the purpose herein set forth.

No. 20,656. Cooking Stove. (*Poêle de Cuisine.*)

John Laxton, Toronto, Ont., 29th November, 1884; 5 years.

Claim.—1st. In an ordinary coal, or wood, cooking-stove, a perforated gas pipe bent around within the oven with its ends extending outside of the stove, in combination with two air-inlet valves *E*, one being fitted to each end of the pipe *D*, and both connecting with the pipe leading from the gas-meter or main. 2nd. In combination with an ordinary coal, or wood, cooking-stove, hollow perforated rings, and the separate independent hangers *H* for removably supporting said rings within the pot-holes of the stove, and a gas-supply pipe connecting said rings with a main, or meter, substantially as described. 3rd. In combination with a fire-pot of an ordinary cooking-stove, a portion of which consists of a water-front, a perforated pipe beneath the same and connected to a suitable gas-supply, whereby the said front is adapted to heat water either from a fire located within the pot or from the gas-burner beneath the same, substantially as described.

No. 20,657. Anti-Friction Step Bearing.

(*Bourdonnière à Anti-Friction.*)

George L. Brownell, Worcester, Mass., U. S., 29th November, 1884; 5 years.

Claim.—1st. The combination, with a rotating shaft having an attached flange with a bevelled surface, and a stationary flange with an opposing bevelled surface forming a track for a series of conical rollers, of a series of conical rollers rolling between the bevelled surfaces and receiving any longitudinal strain upon the shaft, said rollers being held in a ring, or frame, rotating about the shaft and capable of lateral motion in a plane at right angles to its axis of rotation, so said roller carrying frame, or ring may move eccentrically to the rotating shaft, as and for the purposes hereinbefore described. 2nd. The anti-friction step bearing, consisting of three conical rollers rolling on a bevelled way, or track, and equi-distant and radial studs held in a ring, or frame, free to assume a position eccentric to its axis of rotation, so the pressure of the superincumbent load on the conical rollers may adjust the paths of the rollers relatively to their size, as set forth and described. 3rd. In an anti-friction bearing, the combination, with an annular ring having internal radial arms, of a series of conical rollers, with their inner and closed ends bearing against the ends of the radial arms, so they will receive the outward pressure caused by the load resting upon the rollers, as set forth and described. 4th. The combination, with an annular ring *I* and radial studs *J*, *J*, of conical rollers *K*, *K*, *K*, having their inner ends closed, and bearing against the ends of the radial studs *J*, *J*, and washers *L*, as set forth and described.

No. 20,658. Brake Shoe. (*Sabot de Frein.*)

John J. Lappin, Toronto, Ont., 29th November, 1884; 5 years.

Claim.—A brake shoe *A*, with chilled portions *B* on each side in the face of the shoe, each chilled portion *B* being opposite to an unchilled portion *C*, the soft iron being on each side and around the inner edge of the chilled portion, thereby providing a continuous wavy rib of soft metal running along the middle of the shoe, and thereby strengthening the shoe, substantially as shown and described as a new manufacture.

No. 20,559. Wrench. (*Clé à Erou.*)

Dwight M. DeSilva, Corning, N. Y., U. S., 29th November, 1884; 5 years.

Claim.—1st. In a wrench, the combination, with the head-block *d*, and the pivoted spring-pressed jaws *a*, *b*, having curved arms *e*, of the handle *f* pivoted between the jaws, and provided with cams *h* arranged to act upon the arms, as set forth. 2nd. In a wrench, the combination, with the head-block *d*, and the pivoted spring-pressed jaws *a*, *b*, provided with arms *e*, the jaw *b* having a hook *l*, of the handle *f* pivoted between the said jaws, and provided with cams *h* and shoulder *m*, as set forth. 3rd. In a wrench, a serrated jaw formed with a bevelled face, as set forth. 4th. In a wrench, the combination, with the head-block *d*, and the handle *f* having cams *h*, of the pivoted jaws *a*, *b*, having arms *e*, and the adjusting screw *n* passing through the curved arm of one jaw and resting against one of the cams of the handle, as set forth. 5th. In a wrench having gripping jaws *a*, *b*, the jaw *a* having a bevelled and serrated gripping face *p* to form an angle edge to grip the object required to be turned, as set forth.

No. 20,660. Device for Converting Motion.

(*Appareil pour Convertir le Mouvement.*)

George W. Richardson and Victor Henry, Plano, Ill., U.S., 23th November, 1884; 5 years.

Claim.—1st. The combination, with the wheel, of a reciprocating arm moving concentrically therewith, and having a slot formed through it adjacent to the periphery of said wheel, the outer wall of said slot being so curved that the space between it and the wheel is made smaller, or contracted, in width at its rear end, as described, and a friction-roller placed within the said space, and suitably supported, whereby it may be alternately clamped in and released from the contracted portion thereof in the direct and reverse movement of

the arm, substantially as and for the purpose set forth. 2nd. The combination, with the wheel, of a reciprocating arm moving concentrically therewith, and having a slot formed through it adjacent to the periphery of the wheel, the outer wall of said slot being cut in such a manner that the space between it and the wheel is narrower at its opposite ends than at its intermediate, or middle portion, a clamping roller placed within said space, and means whereby this roller may be held in either end thereof, substantially as and for the purpose set forth. 3rd. The combination, with a wheel, of a reciprocating arm extending across the face of, and swinging concentrically therewith, and provided with slots adjacent to the periphery of the said wheel and diametrically opposite each other, the outer walls of said slots being so formed that the distance between them and the wheel is narrowest at the rear portion thereof, a friction clamping roller placed in the said space, and means whereby the latter is held in the contracted part of the space, substantially as and for the purpose set forth. 4th. The combination of the wheel, the reciprocating arm swinging concentrically with said wheel and provided with a slot adjacent to the periphery thereof, the outer wall of said slot being so curved that the space between it and the wheel is contracted, or narrowed, at its opposite end, the clamping roller placed within the said space, the carrier-space having the clamping roller held in one end, and its opposite end adapted to be engaged by the spring-bars having one end affixed to the reciprocating arm, and the other ends bent, the one to have an outward and the other an inward tension, and arranged in position to engage the carrier-frame and operate the same, substantially as set forth. 5th. The combination, with an inner wheel mounted rigidly on a driving shaft, of an outer, or traction, wheel inclosing said inner wheel, a contracted space between said wheels which is widest in the middle part and narrowed at both ends, a carrier-frame loosely inserted in said space and adapted to have a slight longitudinal movement therein, a clamping roller placed loosely in said carrier-frame, and means for moving said roller from a central position into either of the contracted ends of said space, substantially as and for the purpose set forth.

No. 20,661. Connection for Lead or other like Pipes. (*Raccordement pour Tuyaux Plomb ou autres Tuyaux semblables.*)

Frank George, London, Eng., 29th November, 1884; 10 years.

Claim.—1st. A lining, or sleeve piece for fixing to pipes as a means of connection, by expanding the pipe end thereto, the said lining, or sleeve, piece being formed with double inclines on its interior, that is to say, being of smaller diameter at its central part and expanding to a larger diameter at its outer ends, substantially as hereinbefore described. 2nd. A lining, or sleeve piece for fixing to pipes, as a means of connection, by expanding the stop end thereto, the said lining, or sleeve piece, being formed with hollow grooves or recesses in its interior, into which the end of the pipe to be connected can be expanded, substantially as hereinbefore described. 3rd. As a means of connection for pipes, the hereinbefore-described lining, or sleeve piece, formed with double inclines and with hollow grooves, or recesses, in its interior, into which the end of the pipe to be connected can be expanded, substantially as hereinbefore described. 4th. A coupling, or connection for pipes, consisting of a lining, or sleeve piece on each pipe, these linings, or sleeve pieces, being formed, as hereinbefore described and claimed by either of the preceding claiming clauses, and connected together, substantially as hereinbefore described and illustrated by Figs. 1 and 2 of the accompanying drawings. 5th. Connections for joining lengths of lead pipes, or the like, to other lengths of lead pipes, or the like, or to gas meters, or other apparatus to which the pipes are to be connected, the said connections consisting of a lining having double inclines, or grooves, or recesses in the interior, or both the said inclines and the said grooves, or recesses, and a played, or widened out end into which the pipe end is upset, or splayed out, in combination with a conical, or nipple piece on an opposed lining, or other part, to which the pipe is to be joined, substantially as hereinbefore described. 6th. Connections for joining lengths of lead pipes, or the like, to other lengths of lead pipes, or the like, or to gas meters, or other apparatus to which the pipes are to be connected, the said connections consisting of lining having double inclines, or grooves, or recesses in its interior, or both, the said inclines and the said grooves, or recesses, and a played, or widened out end into which the pipe end is upset, or splayed out, in combination with a conical, or nipple, piece on an opposed lining, or other part, to which the pipe is to be joined, the exterior of the said conical, or nipple piece, being milled, roughened, or toothed, on its outside to bite into the metal of the opposed splayed-out pipe end, substantially as hereinbefore described.

No. 20,662. Steam Heater. (*Calorifère à Vapeur.*)

The J. F. Pease Furnace, Company (assignee of John F. Pease), Syracuse, N.Y., U.S., 29th November, 1884; 5 years.

Claim.—The combination of the fire-box A, boiler B, provided with the inclined bottom *d* and with the steam-pipe *a*, the return water-pipe *c* extended into the fire-box and tapping the inclined bottom of the boiler at or near the centre thereof, and the auxiliary pipe *d* tapping the lowest point of the aforesaid inclined bottom, and communicating with the water induction pipe outside of the case C, substantially in the manner described and shown.

No. 20,663. Electric Burglar Alarm.

(*Alarme-Voleur Electrique.*)

Henry C. Roome, Jersey, N.J. U.S., 29th November, 1884; 5 years.

Claim.—1st. The combination, in an electric burglar alarm, comprising an internal circuit and an external circuit, of a mechanism at a guarded structure, whereby a number of different resistances may be successively introduced into the external circuit, by means of increasing at the office, the electric current passing through the circuits, a mechanism at the office, whereby, on the increasing of the electric current, a number of corresponding resistances will be introduced into the internal circuit, and means located at the office serving to give an alarm there in case the external circuit is tam-

pered with in an attempt to gain access to the guarded structure, substantially as specified. 2nd. The combination, in an electric burglar alarm, comprising an internal circuit and an external circuit, of a mechanism at a guarded structure, and a mechanism at the office, whereby correspondingly different resistances may be successively introduced into the internal and external circuits at the office by increasing the electric current passing through the circuits, a galvanometer, or differential, relay magnet located at the office and serving to give an alarm there in case the equilibrium of the resistances in the internal and external circuits is disturbed by an attempt to gain access to the guarded structure, and a compound key located at the office, whereby the galvanometer, or differential, relay magnet for causing the sounding of an alarm may be cut out of the circuits, and the electric current passing through the circuits may be subsequently increased to operate the mechanism, whereby the resistances in the circuits are changed, substantially as specified. 3rd. The combination, in an electric burglar alarm, comprising internal circuits at the office, and external circuits extending to and through guarded structures, of galvanometers, or differential relay magnets located at the office and connected with the external circuits for the purpose of giving alarms, a mechanism in the office for successively introducing different resistances into one of the internal circuits, a similar mechanism in each of the external circuits for successively introducing different resistances into the said circuits, a system of switches and connections at the office, so arranged that any one of the galvanometers or differential relay magnets for giving alarms may be switched out of the circuit in which it is ordinarily operative, and into a system of circuits comprising a supplemental battery, the mechanism for introducing different resistances in the internal circuit is rendered capable of being used at the office in connection with any one of the mechanisms, whereby different resistances are introduced into the external circuits, substantially as specified. 4th. The combination, in an electric burglar alarm, comprising internal circuits at the office, and external circuits extending to and through guarded structures, of galvanometers, or differential relay magnets located at the office, and connected with the external circuits, for the purpose of giving alarms, a mechanism arranged in one of the internal circuits, and comprising a train of wheels, and a controlling electro-magnet, whereby different resistances may be introduced into this internal circuit, a number of rheostats arranged in the other internal circuits, and comprising coils of different resistances, a mechanism arranged in each of the external circuits, and comprising a train of wheels operating under control of an electro-magnet, for introducing different resistances into the said external circuits, and a system of switches and connections at the office, whereby the internal circuit at the office, which is provided with the train of wheels, and resistances may be temporarily connected with any of the external circuits, and subsequently replaced by one of the internal circuits, which are provided with rheostats, substantially as and for the purpose described. 5th. A switch, consisting of a rocking, or rotary, block of insulating material, provided with metal plates, and a number of metal springs or spring fingers impinging against the said block and its plates, substantially as specified. 6th. The combination, in an electric burglar alarm, comprising an internal circuit and an external circuit, of a mechanism at a guarded structure, whereby a number of different resistances may be successively introduced into the external circuit, by increasing at the office the electric current passing through the circuits, a mechanism at the office, whereby on the increasing of the electric current a number of corresponding resistances will be introduced into the internal circuit, a galvanometer, or differential, relay magnet located at the office and serving to give an alarm there in case the external circuit is tampered with in an attempt to gain access to the guarded structure, a mechanism in the external circuit, which, if short-circuited in an attempt to gain access to a guarded structure, will be maintained short circuited, an electro-magnet having a polarized armature connections, and two batteries adapted to send electric currents in different directions over the circuit, whereby the said short circuiting mechanism may be shunted out of the circuit by a watchman at the office so as to be rendered temporarily inoperative, substantially as specified. 7th. The combination, in an electric burglar alarm of an external circuit, a galvanometer, or analogous device, a battery for supplying an electric current to the said circuit, and an electro-magnetic mechanism for giving an alarm in the event of anything happening to the said battery. 8th. The combination, with the local alarming circuit of an alarm apparatus, of two electric batteries, a circuit comprising the local alarming circuit aforesaid, and connecting the positive poles of the said batteries together and their negative poles together, a conductor common to both batteries, a pervidual interrupter for the common conductor, an electric alarming device, to which the said common conductor, leads, electro-magnets arranged one in a portion of the circuit, between the alarming device and the one battery, and the other between the alarming device and the other battery, and branch connections, whereby the said electro magnet may shunt out the alarming device, when both batteries are operative, and the common conductor is closed, substantially as specified.

No. 20,664. Grain Drill. (*Semoir en Ligne.*)

Andrew Runstetter and The Farmer's Friend Manufacturing Company, (assignees of James A. Marlay, administrator of the estate of Michael Runstetter), Dayton, Ohio, U.S., 29th November, 1884; 15 years.

Claim.—1st. In a grain drill, a lifting lever oscillating upon a driving axle, in combination with link and crank devices connecting said lever to the oscillating bar journalled upon the main frame to which the drag bars are connected, in such a manner that the hoses may be raised or lowered by the oscillation of the lifting, as herein set forth. 2nd. In a grain drill, having a lifting lever oscillating upon a driving axle, and adapted to raise and lower the hoses by link and crank in connection to the oscillating bar, journalled on the main frame, in combination with ratchet and pawl devices for locking the lifting lever to the axle, as set forth. 3rd. In combination with a lifting lever L, oscillating upon a driving axle, and the means for locking it thereto, an automatic trippranged upon the main frame and adapted to automatically disengage the locking devices as the lever is moved forward with the axle, as set forth. 4th. In combination with

the lifting lever L, oscillating upon the main axle, and having locking devices for connecting the lever to the axle, a bolt-lock attached to the free end of the lifting lever, whereby it may be locked into any desired position for holding the hoses in or out of the ground, as set forth. 5th. In combination with the lifting lever L, journalled upon the driving axle and lock devices R, Q, the secondary lock-lever N adapted to hold the lock-rod p from engagement with the segment P, as set forth. 6th. In a grain drill, the combination of the automatic shifting devices, operated by the power of the team, by a driving gear keyed to the driving axle, a lifting lever journalled upon the said axle, with clutch devices for locking the said lever to said axle, whereby the power of the team may be employed to shift and raise the hoses, as set forth. 7th. In a grain drill, a lifting lever oscillating upon the driving axle, with locking devices for connecting the movements of the lever with the movements of the axle attached to said lever, and under control of the operator, whereby the hoses may be raised either by the draft of the team or by the operator himself moving said lever disconnected from the movements of the axle, as set forth. 8th. In combination with standard f, the sockets g provided with the forked arm g', adapted to engage over the pin e of the drag bar, so as to hold it in proper relative position thereon, as set forth.

No. 20,665. Roller Mill. (*Moulin à Cylindres.*)

John E. Wilson, Galt, Ont., 29th November, 1884; 5 years.

Claim.—1st. In a roller-mill, a pair of bearing-boxes A arranged to support what is known as a "fixed roll," and each having a stem B fitting into a pocket formed in the frame C, in combination with the set-screws D arranged to vertically adjust the roll, substantially as and for the purpose specified. 2nd. In a roller-mill, a pair of bearing boxes E arranged to support what is known as a "loose roll," and each pivoted at a to the frame of the machine, and each provided with an arm F, in combination with the springs H and spindle G, arranged and operating substantially as and for the purpose specified. 3rd. In a roller-mill, the pivoted bearing boxes E, each having an arm F resting on a spring H, in combination with the eccentrics J arranged to operate substantially as and for the purpose specified. 4th. In a roller-mill, the pivoted lever M operated by the eccentric N, in combination with the horizontal spindles G, and arms F of the bearing boxes E, substantially as and for the purpose specified. 5th. In a roller-mill, having two or more pairs of rolls driven by an endless belt, a pulley O journalled in a bracket P, which is carried in guides Q, formed in the frame of the machine between the pairs of rolls, in combination with the spindle R arranged to adjust the pulley O, substantially as and for the purpose specified.

No. 20,666. Oil Burner. (*Bec de Lampe.*)

James C. Morrison, West Ham, and Robert Smith, Brouley, Eng., 29th November, 1884; 5 years.

Claim.—1st. The employment of inclined division plates, such as C, C, within the air spaces between the wick cases, or holders, of oil burners formed of two or more flat wick cases, or holder, so curved that the tops of the wick cases, or holders, are of a circular shape, whilst there is a conical opening between the lower portions of the side edges of each wick case, or holder, substantially as hereinbefore set forth and described, and illustrated in the accompanying drawings. 2nd. In burners formed of two, or more, wick cases, or holders, constructed from flat wick cases, or holders, the upper ends of which are circular in shape, whilst between the lower portions of the side edges of each wick case, or holder, is a conical opening, the arrangement of inclined division plates, such as C, C, together with division plates, such as D, D, fixed in a more or less upright position, substantially as hereinbefore set forth and described, and illustrated in the accompanying drawings. 3rd. The combination of parts forming our improved burners, constructed substantially as herein described and illustrated in the drawings annexed.

No. 20,667. Coating Iron &c., with Lead.

(*Recouvrement en Plomb du Fer, &c.*)

John Makin, Glossop, Eng., 29th November, 1884; 5 years.

Claim.—1st. Coating iron and steel, or other metal with lead, by first drilling, punching, or otherwise forming holes, or perforations, through the metal to be coated, then placing such perforated plates in a suitable mould and running in the molten lead, so as to coat one, on both sides, as may be required, and at the same time fill in the perforations, so that the lead is firmly united to the iron, steel, or other metal by the plugs of lead, which fill the perforations, and thus the necessity for bolts, rivets, or other extraneous means of fastening is dispensed with. 2nd. Sheets, or plates of perforated iron and steel, or other metal, coated on one, or both sides with molten lead, filling the said perforations, substantially in the manner and for the purposes hereinbefore described.

No. 20,668. Microphotoscope. (*Microphotoscope.*)

Robert G. Mason, Hambleton House, Isle of Man, 29th November 1884; 5 years.

Claim.—A new optical instrument (which I call a microphotoscope) formed by the combination of fixed, or detachable microphotographs, with the frames of spectacles, or eye-glasses, substantially in the manner and for the purpose hereinbefore set forth, and illustrated by the drawings annexed.

No. 20,669. Alarm Apparatus for Automatic Fire Extinguishers. (*Tocsin pour Extincteurs d'Incendie Automatiques.*)

Charles C. Worthington, Irvington, N.Y., U.S., 29th November, 1884; 5 years.

Claim.—1st. The combination, with an automatic fire extinguisher, or sprinkler, of an electrical circuit, which is connected with an alarm mechanism, and provided with a circuit-closing apparatus, and

a movable part, as 17 or 25, connected to said circuit closing apparatus, and arranged to be acted upon and moved by the water set in motion by the opening of the valve of the sprinkler, all substantially as described. 2nd. The combination, with an automatic fire extinguisher, or sprinkler, of an electrical circuit connected with an alarm mechanism, and provided with a circuit closing, or opening, mechanism mounted upon a lever, as 21, and means by which the moving force of the water set in motion by the displacement of the valve of the sprinkler will actuate said lever, so as to make operative said circuit and give an alarm, substantially as described. 3rd. The combination, with the water supply pipe 23, of an electric circuit for operating an alarm mechanism, a gate, as 25, located in said pipe, and a lever, as 21, connected to said gate, and so arranged that the flow of water through said pipe will actuate said lever to make operative said circuit and give an alarm, substantially as described.

No. 20,670. Device for Elevating and Securing Piano Stools, &c. (*Appareil pour Elever et Assujétir les Bancs de Pianos, &c.*)

William A. C. Matthis, Montreal, Que., 29th November, 1884; 5 years.

Claim.—1st. A spindle B, having annular grooves a, and attached to the seat A, or its equivalent, and fitting into a chamber formed in the stand C, in combination with the spring D placed below the spindle B, and the spring bolt E arranged to fit into the groove x, a, substantially as and for the purpose specified. 2nd. A spindle B, having a series of annular grooves a cut in it, in combination with the bolt E actuated by the spring f and pivoted lever H I, substantially as and for the purpose specified.

No. 20,671. Well Drilling Machine.

(*Machine à Percer les Puits.*)

Thomas J. Hathaway, Walker, Mo., U. S., 29th November, 1884; 5 years.

Claim.—1st. The combination, with a waggon-bed frame, having the rollers a₃, of a stationary toothed rim a, a turn table c pivoted in said rim, a tower e arranged on said table, and a device d to which horses may be hitched, as shown and described. 2nd. The combination, with the tower e, of the drill rope f, the pulley g, the journalled beam h, the uprights i, the frame j, the reciprocating gate k arranged in guides l, the rod m, the drum p, having crank-pin o fitted loosely on drive shaft q and provided with internally toothed flange s, and the hub u carrying spring pawl t, whereby the drill may be operated, as described. 3rd. The drill rope f extended from the rope-beam h, over the vertically-reciprocating pulley g, connected to, and operated by the crank-shaft q, and being connected thereto by an escapement device enabling the drill to fall when the crank-pin has passed the upper centre, substantially as described. 4th. The combination, in a well-drilling machine, of the drill-rope f, beam h, pulley g, sliding gate k, connecting-rod m and the driving crank-shaft q, substantially as described. 5th. The drill rope beam h geared with the driving-shaft q by the ratchet-faced wheel v, pawl w, collar x and the intermediate gears z, a₁ and b₁, the ratchet and pawl being arranged to disconnect when the shaft q turns forward to work the drill, and to connect and raise the drill when the driving-shaft is turned backward, substantially as described. 6th. The combination of the stop-latch f₁, lever g₁ and stop-latch h₁, with the toothed wheel b₁ on the rope-beam h, substantially as described. 7th. The combination of the shifting sand-pump derrick m₁ and p₁, with the drill-rope tower e and the sand-pump rope h₁, substantially as described. 8th. The improvement in well-drills, consisting of the drill made in two parts r₁, each having a radial bit w₁ and a circumferential bit v₁, said parts being placed side by side and secured in the drill stock together, substantially as described. 9th. The drill consisting of two parts r₁, each having a taper shank e₁, forming together a dovetail shape, and being secured in the dovetail notch v₁ of the stock z₁ by the band a₂, substantially as described.

No. 20,672. Show Stand. (*Montre de Magasin.*)

Calvin G. Udell, Indianapolis, Ind., U. S., 29th November, 1884; 5 years.

Claim.—1st. The show stand, herein described, composed of base B, standard S, ring r, socket s, k, and suitable braces connected therewith, substantially as described. 2nd. The base B, standard S, in parts united by a central socket, the rings r and r₁ having openings and hooks connected therewith, all combined substantially as described. 3rd. The base B, standard S in two parts united by central socket s, k, ring r having upper and lower braces connecting it above to the socket and below to the standard ring r, all combined substantially as described. 4th. The ring r₁ composed of sections adapted to overlap each other, and the caps secured by rivets, substantially as described. 5th. The socket s, k, provided with spurs s, p, and having opening to receive the braces s, b, and slots to receive the T-ends of braces b, in combination with such braces, substantially as described. 6th. The base B of wood, made in two or more parts, and the joints connected by inside and outside plates p, all combined substantially as described. 7th. The base B, made in two or more parts, the joints secured by plates p, the base connected to the standard by braces b₁, in combination with such braces, a standard and one or more rings for supporting braces, for exhibition, mounted on such standard, all combined substantially as described.

No. 20,673. Filter and Filtering Machine.

(*Filtre et Machine à Filtrer.*)

James A. Crocker, Boston, Mass., U.S., 29th November, 1884; 5 years.

Claim.—1st. As an improvement in filtering machines, a casing A provided with a gear I, and two supports G having bearings f, f, for the hubs of the casing, in combination with a pinion K, and a support having a bearing for the shaft of the pinion, as and for the purpose set forth. 2nd. The supports G having bearings f, f, and stops e, e, in combination with a casing A, having hollow hubs B, B, and inlet and outlet pipe connections D, E, substantially as described. 3rd. In combination, the casing A provided with a gear I, the pinion K

and two supports G, G, having bearings *f, f*, for the hubs of the casing, one of said supports also having a bearing *u* for the shaft of the pinion, as set forth. 4th. The support G having a bearing *f* for the hub of the casing A, a bearing *u* for the shaft of the pinion K, and a stop *e* for preventing the revolution of an inlet, or outlet, pipe connection D or E, the two bearings *f, u*, and the stop *e* being formed integral with the support and with each other, as specified. 5th. In combination with a filtering machine, a single shell, or casing A, provided with inlet and outlet passages *a, a*, which increase in area in cross section in opposite directions from their centres to their outside, substantially as described. 6th. A casing A, with its inlet and outlet passages *a, a*, and strainers located in the same plane with, or outside of the plane, of the outlet ends of said passages, in combination with covers provided with ribs resting on the outer surfaces of the strainers, as specified. 7th. An auxiliary support *s* for the strainer-frames *n*, extending from the inside of one to the inside of the other, and located within the filtering material, substantially as described. 8th. The worm gear T, in combination with the casing A, provided with a circular gear I, as and for the purposes set forth.

No. 20,674. Hot Water Furnace.

(*Calorifere à Eau.*)

Ernest Chanteloup, Montreal, Que., 29th November, 1884; 5 years.

Claim.—In a hot water furnace, the combination, with the boiler and fire chamber, of a super-heating chamber, an annular smoke chamber connected by tubes to said fire chamber, and a vertical coal reservoir, substantially as and for the purpose set forth.

No. 20,675. Striking Bag for Exercising.

(*Blanc de Bozeur.*)

Albert R. Rumsey, Cleveland, Ohio, U.S., 29th November, 1884; 5 years.

Claim.—1st. An exercising device consisting essentially of an inner rubber bag, an outer bag, or covering, preferably made of canvas and a suspending cord secured to the outer bag, substantially as set forth. 2nd. The combination, with an inner elastic bag and an outer bag, or covering, preferably made of canvas, of an inelastic cord for suspending the bag, and an elastic cord secured to the outer bag and adapted to operate, as set forth.

No. 20,676. Manufacture of Artificial Stone and Treatment of the Exterior Surfaces of the Same. (*Fabrication de la Pierre Artificielle et Traitement de la Surface de cette Pierre.*)

James L. Rowland, Troy, N.Y., U.S., 29th November, 1884; 5 years.

Claim.—1st. An artificial stone, designated herein by the name calcareous slate, consisting of powdered or ground state mixed with a calcined calcareous base, the whole being set with water, substantially as described. 2nd. The method herein described of forming artificial stone, which consists in setting a calcined calcareous base with which ground or powdered slate has been mixed, in the proportions specified, with water, substantially as described. 3rd. An artificial stone consisting of ground or powdered slate and a calcined calcareous base intermixed with pulverised limestone, marble or sand, or other equivalent material, or sand in its natural state, the whole being set with water, substantially as described. 4th. As an improvement of artificial stone, compounds composed of sand, or other equivalent material, mixed with calcined calcareous matter, as hydrate of lime or quicklime, or an hydraulic lime or cement, the introduction therein of ground or powdered slate, substantially as herein set forth. 5th. The herein described composition for the manufacture of artificial stone, which consists of ground or powdered slate mixed with a calcined calcareous base, substantially as described. 6th. The herein-described process of improving the surfaces of artificial stone, which consists of applying a solution of chloride of lime, or of hydrate of lime to such surface, substantially in the manner specified.

No. 20,677. Wood-Turning Lathe.

(*Tour à Tourner le Bois.*)

Nicholas Geisen, Hanover Center, Ind., U.S., 29th November, 1884; 5 years.

Claim.—In a machine for turning irregular forms, the combination with the angular levers *a, a*, crossed and pivoted together near their longitudinal centres, of the weights *b, b* attached to the lower ends of said levers, for the purposes of automatically retaining the upper ends of the same in a clamping position, the springs *d, d* having one end connected to the lower part of the levers, and the opposite ends to the frame work, for the purpose of assisting in holding the levers in the required position, the angle-bracket *a* forming the pivotal bearing for said levers and the cross-bar *a*, supporting said bracket, all combined, arranged and operating, substantially as set forth.

No. 20,678. Feed Water Heater and Purifier. (*Réchauffeur et Nettoyeur de l'Eau d'alimentation.*)

Fordyce Storar, Springfield, Ill., U.S., 29th November, 1884; 5 years.

Claim.—1st. The combination, with an upper and lower chamber, of a cylinder, or barrel, connecting the chambers tubes secured in the cylinder, and means for forcing water and steam through the chambers, cylinder and tubes into the boiler, substantially as set forth. 2nd. The combination, with an upper and lower chamber, of a cylinder connecting the chambers, tubes secured in the cylinder, means for forcing water and steam through the chambers cylinder and tubes into the boiler, and means for purifying the water in its passage to the boiler, substantially as set forth. 3rd. The combina-

tion of an upper and lower chamber, tubes secured in the lower end of the cylinder and terminating in the upper chamber, a feed water pipe leading into the tubes, feed steam-pipes connecting the chambers with the boiler, and a water-education pipe leading into the boiler, substantially as set forth. 4th. The combination, with an upper and lower chamber, of a cylinder connecting the chambers, tubes secured in a box located in the lower end of the cylinder, said tubes terminating in the upper chambers, a feed-water pipe secured in the lower side of said box and holding the latter in position, induction steam-pipes leading from the boiler into the chambers, and an education water-pipe leading from the lower chamber into the boiler, substantially as set forth. 5th. The combination, with an upper and lower chamber, of a cylinder connecting the chambers, tubes located in the cylinder and terminating in the upper chamber, a feed-water pipe leading into the tubes, a side chamber connected by a pipe to the lower chamber and provided with a filter, and means for forcing water and steam through the chambers and tubes, and through the filter into the boiler, substantially as set forth. 6th. The combination, with an upper and lower chamber, of a cylinder connecting the chambers, tubes located in the cylinder, a feed-water pipe leading into the tubes, a side chamber connected with the lower chamber and provided with a filter, steam-pipes leading from the boiler into the upper and side chambers, and a water-pipe leading from the side chamber into the boiler, substantially as set forth. 7th. The combination, with an upper and lower chamber connected by a barrel or cylinder, of tubes located in the cylinder, the upper ends terminating in the upper chamber and having their edges bent down, and their lower ends secured in a box located in the lower end of the cylinder, a feed-water pipe secured to the box and holding the latter in place, a side chamber connected to the lower chamber and provided with a removable filter, steam-pipes leading from the boiler into the upper and side chambers, and a water-pipe leading from the side chamber into the boiler, substantially as set forth. 8th. The combination, with the chambers B and C, and the cylinder A provided with a gauge Z, of tubes G, box F, pipe E, side chamber L provided with a filter K, steam-pipes U, V and water-pipe Y, all of the above parts combined and adapted to operate substantially as set forth. 9th. The combination, with a steam-boiler, of a feed-water heater adjustably attached to said boiler, substantially as set forth.

No. 20,679. Skate. (*Patin.*)

Samuel W. Alward, Boston, Mass., U.S., 29th November, 1884; 5 years.

Claim.—1st. In a roller skate, the box, or slide P and cushion, or spring R, in combination with the rocking bolster L, and means for forcing said spring, or cushion, against said bolster, substantially as described. 2nd. In a roller skate, the combination of the following instrumentalities, to wit: a pair of arms, or brackets, projecting downwardly from the body of the skate, a bolster journalled to rock in said arms, an axle mounted in said bolster, a pair of rollers or trucks, mounted on said axle, a spring, or elastic cushion, a slide, or box, a wedge and a screw, said screw being adapted to actuate the wedge and increase the tension of said spring, substantially as set forth. 3rd. In a roller skate, a sliding box in which the bolster cushion, or spring, is encased, or partially encased, in combination with means for increasing, or regulating, the tension of said spring, substantially as described. 4th. In a roller skate, the axles M, trucks N, bolsters L, bolts K, springs R, boxes P, wedges Q, screws T, brackets H, J and body A, combined and arranged to operate, substantially as set forth. 5th. In a roller skate, the spring or cushion R having its upper portion rounded and provided with the groove G, in combination with the slide, or box P provided with the flange J, substantially as and for the purpose specified. 6th. In a roller skate, the box, or slide P, provided with the flanges *o*, in combination with the brackets H, J, and a spring, or elastic cushion, adapted to press on an axle bolster journalled in said brackets, substantially as set forth. 7th. In a roller skate, the wedge Q provided with the flange *k*, in combination with the box, or slide P, provided with the groove *p*, substantially as described. 8th. In a roller skate, a rubber spring, or elastic cushion, disposed on the axle bolster and having its upper portion rounded, said spring being encased, or partially encased, in a sliding box, in combination with means for preventing said spring from turning in the box as the bolster rocks, and means for regulating its tension, substantially as set forth. 9th. In a roller skate, the body A, brackets H, J and flanges *a, b* cast integral, or formed in one piece, substantially as described. 10th. In a roller skate, the heel plate B, provided with the slotted flanges *c* and attached to the flange *a* by the screw *d*, substantially as set forth. 11th. In a roller skate, the toe-plate C provided with the slotted flanges *f*, and attached to the flange *b* by the screw *t*, substantially as described. 12th. In a roller skate, the clamps D provided with the screw-bolt E, in combination with the heel plate B provided with the slotted flanges *c*, and attached to the flange *a* by the screw *d*, substantially as set forth. 13th. In a roller skate, the clamps D provided with the slotted flanges in combination with the toe-plate C, provided with the slotted flanges *f*, and attached to the flanges *f*, and attached to the flange *b* by the screw *t*, substantially as described. 14th. The improved roller skate, herein described, the same consisting of the rollers N, axles M, bolsters L, bolts K, springs or cushions R, slides or boxes P, wedge-piece screws T, brackets H, J, body A, flanges *a, b*, toe-piece E, heel-piece B, clamps D and screws *t, d*, constructed, combined and arranged to operate, substantially as described. 15th. The skate roller N, provided with the box W, and nut O, substantially as and for the purpose set forth. 16th. In a roller skate, the elastic cushion, or spring R, box or slide P, wedge Q and screw T, in combination with the bolster D, substantially as and for the purpose specified.

No. 20,680. Reshipping Packing Box.

(*Boite d'Emballage Brisée.*)

Wilson M. Baker, Urbana, Ohio, U.S., 29th November, 1884; 5 years.

Claim.—1st. A reshipping packing box, consisting of four side sections and two removable caps adapted to hold, or close the box when filled, and hold the box sections when the box is taken apart for re-

shipment, substantially as and for the purpose set forth. 2nd. A reshipping packing box provided with folding sections, two removable caps and means for holding the box in its set up and knocked down position, substantially as and for the purpose set forth. 3rd. A reshipping packing box consisting of detachable sides and ends and top and bottom caps, the box being held in position by detachable strips, which engage with rings or hooks on the caps, substantially as and for the purpose set forth. 4th. In a reshipping packing box, the combination, with the sides and ends and removable caps, of the swinging pivoted rods Q, substantially as and for the purpose set forth. 5th. A reshipping packing box, consisting of top and bottom caps and detachable sides and ends provided with cleats, as described, and side fastening strips, one end of each strip engaging with a bolt let into the edge of the top cap, the opposite end of said strip engaging with a

ring or loop secured to the bottom cap, as and for the purpose set forth. 6th. A box with detachable ends and sides having cleats, as described, and provided with sliding rods I having bent ends, one end of said rods being adapted to turn over the cleats on the ends of the box, as and for the purpose set forth. 7th. A packing box having detachable sides and ends, and provided with cleats, as described, said cleats being secured to the sides and ends so as to leave a space between them, and provided with a hook o and eye p which engage with each other in the space between the cleats, substantially as set forth. 8th. A reshipping packing box, consisting of top and bottom caps and detachable sides and ends, one of said caps having a bolt and means in connection with the other cap for engaging the hook, and a nut by means of which the caps are tightened or loosened, substantially as and for the purpose set forth.

*CERTIFICATES OF THE PAYMENT OF FEES FOR FURTHER TERMS HAVE BEEN ATTACHED TO
THE FOLLOWING PATENTS.*

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| <p>292. The Sheffield Velocipede Car Co., (assignee) 2nd and 3rd 5 years of No. 10,806, from the 11th day of January, 1885. Improvements on Hand Cars. 3rd November, 1884.</p> | <p>298. S. P. TALLMAN, 2nd 5 years of No. 10,760, from the 24th day of December, 1884. Improvements on, or applicable to Railway car brakes and braking mechanism. 15th November, 1884.</p> |
| <p>293. J. ROURK, 2nd 5 years of No. 10,625, from the 8th day of November, 1884. Improvements in the method of working Switches and Signals at a distance. 8th November, 1884.</p> | <p>299. T. HUNTER, 2nd 5 years of No. 11,675, from the 22nd day of November, 1884. Improvements in bakers' ovens. 18th November, 1884.</p> |
| <p>294. A. WARNER, 2nd 5 years of No. 10,656, from the 17th day of November, 1884. Improvements on the Preparation of boned pork, hams and shoulders, 10th November, 1884.</p> | <p>300. The Guelph Carriage Goods Co., (assignee) 2nd 5 years of No. 10,710, from the 29th day of November, 1884. Improvements in the process and apparatus for cooling oil used in the tempering of steel. 18th November, 1884.</p> |
| <p>295. O. S. GORTON, 2nd 5 years of No. 10,673, from the 21st day of November, 1884. Improvements on Vehicle Springs. 11th November, 1884.</p> | <p>301. J. D. BRUNTON and F. H. J. FRIER, 2nd 5 years of No. 10,684, from the 21st day of November, 1884. Improvements on machinery or apparatus for cutting rock and dressing, shaping, planing and turning stone. 19th November, 1884.</p> |
| <p>296. W. KING, (assignee) 3rd 5 years of No. 4682, from the 27th day of April, 1885. Improvements on boilers for heating water or raising steam. 11th November, 1884.</p> | <p>302. F. BRAMER, 2nd 5 years of No. 10,689, from the 22nd day of November, 1884. Improvements on mowers. 22nd November, 1884.</p> |
| <p>297. The Bell Telephone Co., (assignee) 2nd 5 years of No. 10,705, from the 27th day of November, 1884. Improvements on an electric speaking telephone. 15th November, 1884.</p> | <p>303. D. HANNA, 2nd and 3rd 5 years of No. 20,611, from the 9th day of August, 1887. Improvements on Sediment collectors for steam boilers. 26th November, 1884.</p> |



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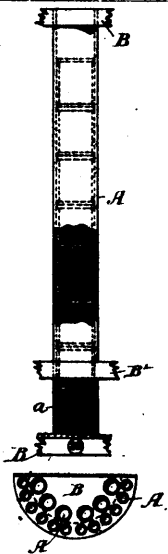
CANADIAN PATENT OFFICE RECORD

ILLUSTRATIONS.

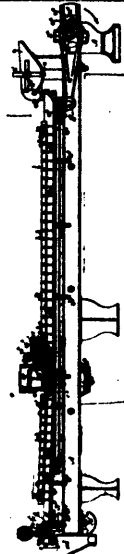
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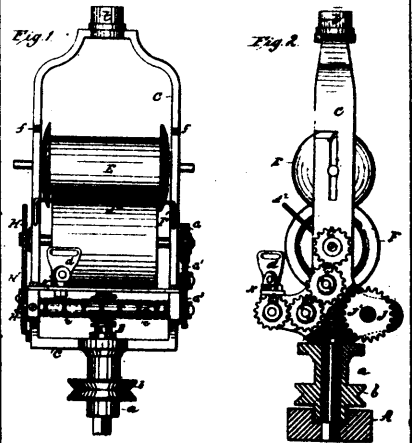
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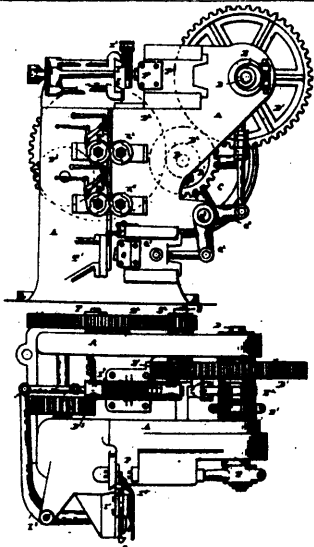
20457 Murphy's Spool Holder.



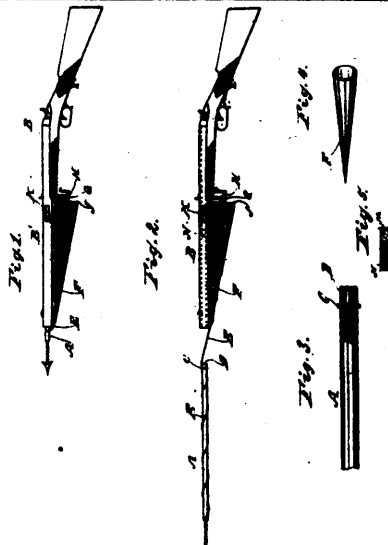
20458 Tobey & Thayer's Mechanism and Process for Concentrating Ore.



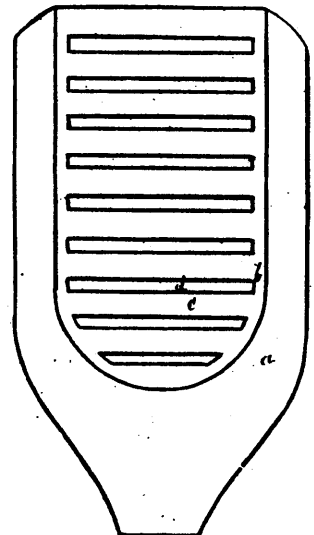
20459 Hanna & Earnshaw's Spinning Machine



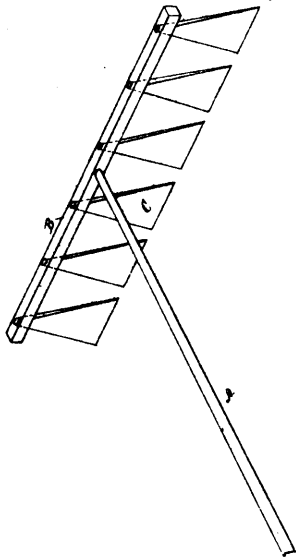
20460 Coleman's Nail Machine.



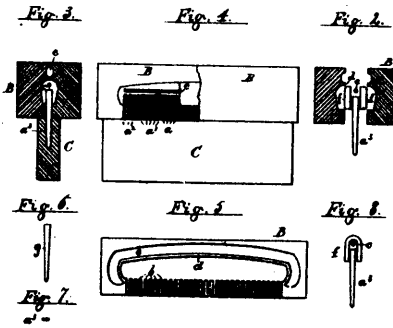
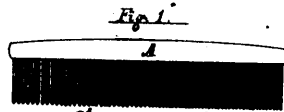
20461 Williams' Line-Throwing Gun.



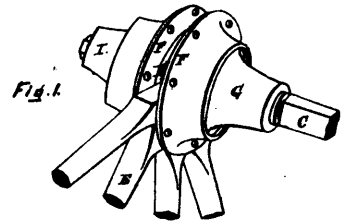
20462 Desjardins' Fire Shovel.



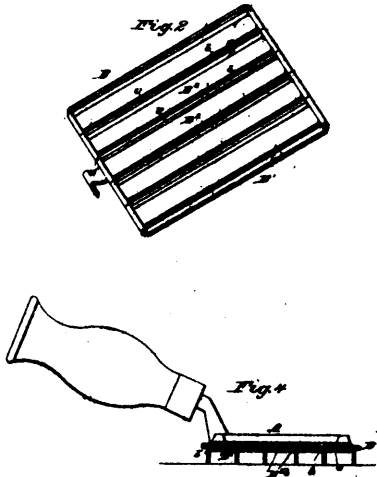
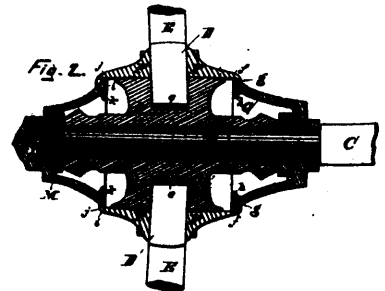
20463 Macpherson's Curd Mills.



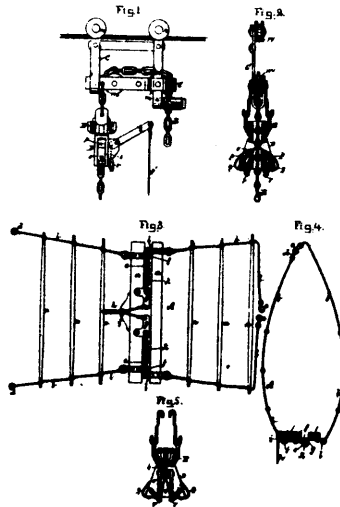
20464 Crabb's Comb.



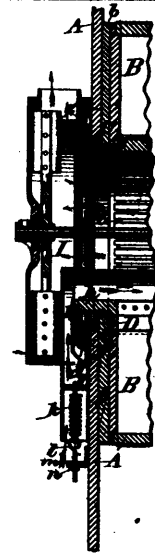
20465 Elliott's Vehicle Hubs.



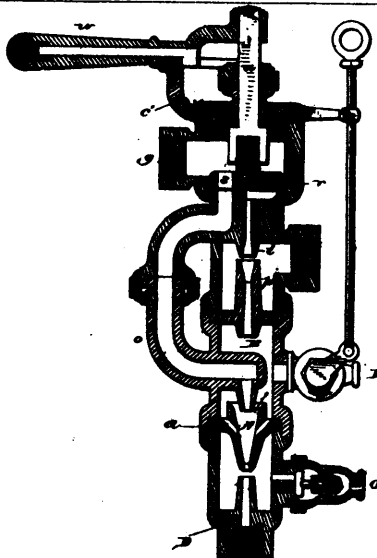
20466 Cox's Carry Comb.



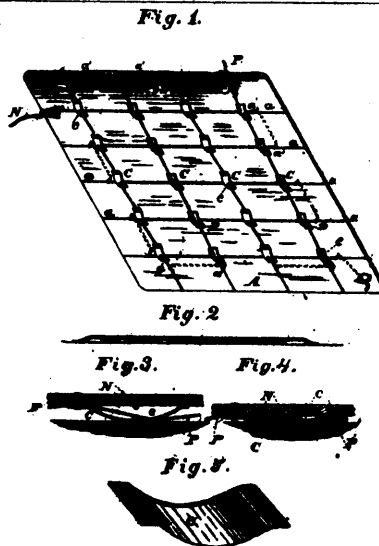
20467 Howe's Mechanism for Unloading Hay.



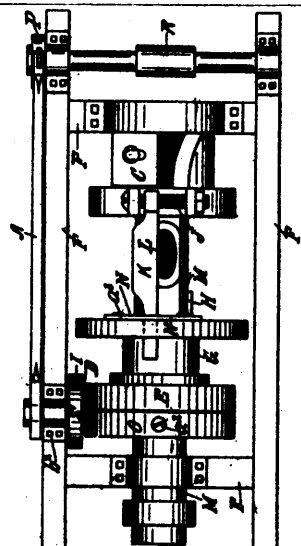
20468 Richardson's Dust Collector.



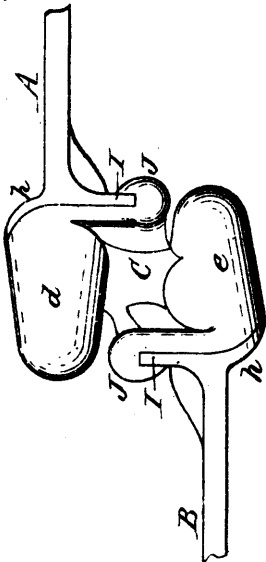
20469 Kramer's Convertible Injector.



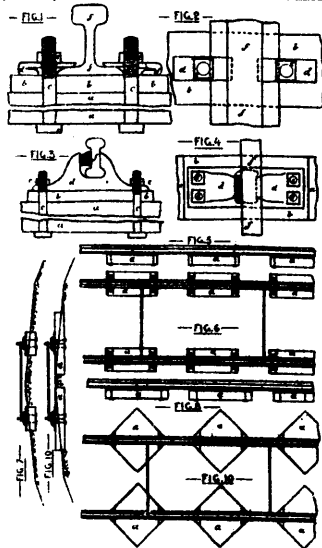
20470 Brigel's Circuit Closers for Electric Alarms.



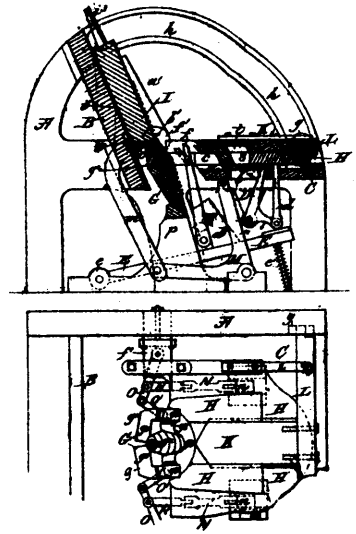
20471 Harley's Handle-Turning Lathe.



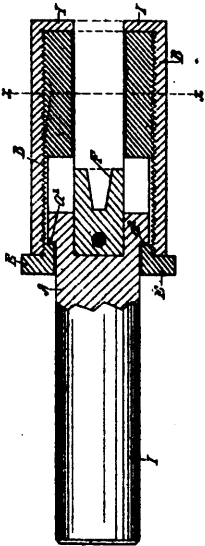
20472 Bradley's Carriage Springs.



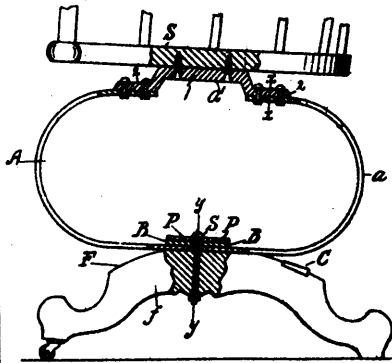
20473 Schauman's Permanent Way of Railway.



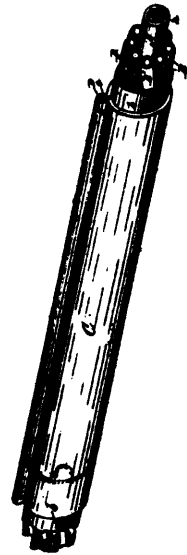
20474 Breed's Machine for making Hoes.



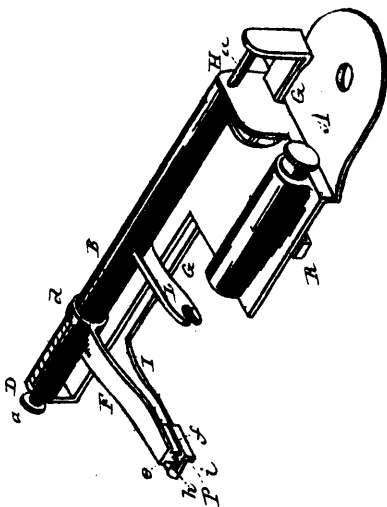
20475 Graham's Combined Chuck and Socket.



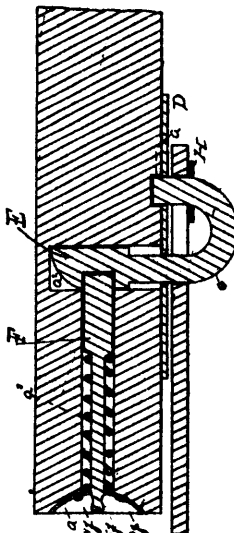
20476 Fisher's Oscillating Spring Chair.



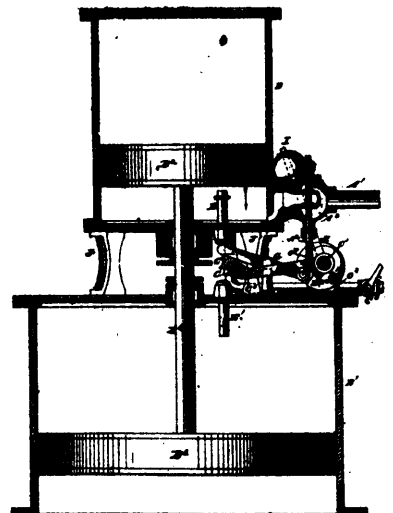
20477 Turner's Electric Cable.



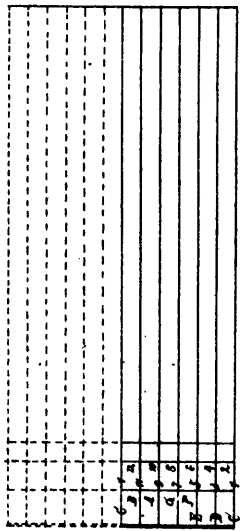
20478 Sackett's Tuck Marker.



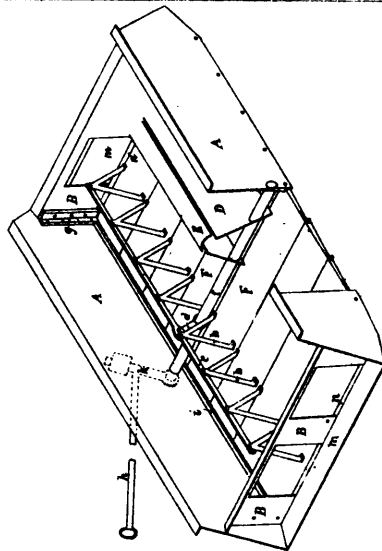
20479 Edgar's Seal Locks for Car Doors.



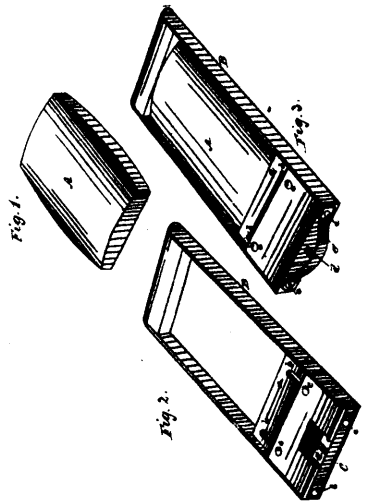
20480 Woodward's Signal or Fog Alarm.



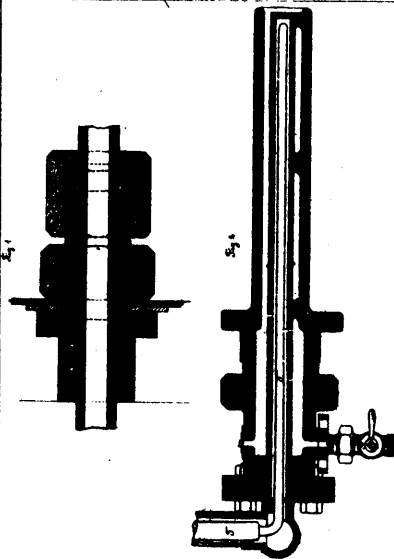
20481 Drew's System of Writing Music.



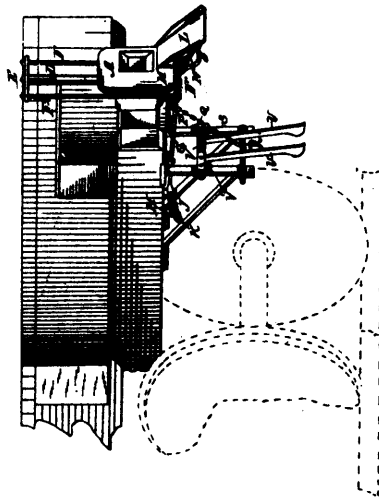
20482 Anderson & Latimer's Boiler Ash-Pans.



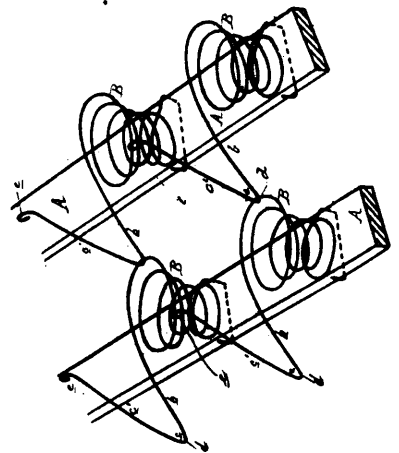
20483 Baker's Ironing Board and Frame.



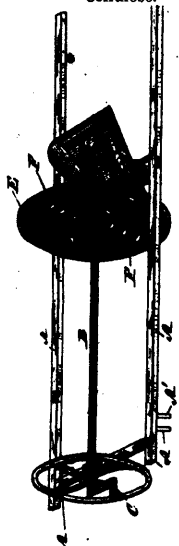
20484 Mitecherlich's Armature and Tube Coupling. In Apparatus for Manufacturing Cellulose.



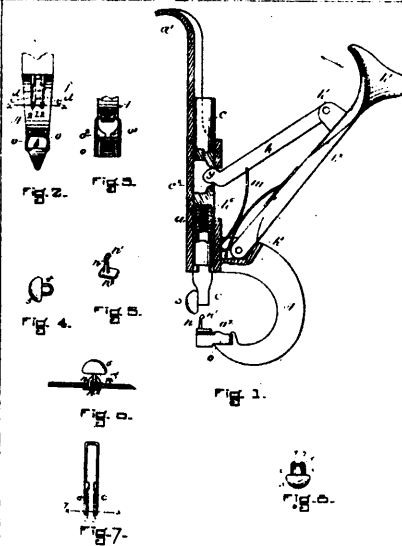
20485 Bryan's Car-coupling



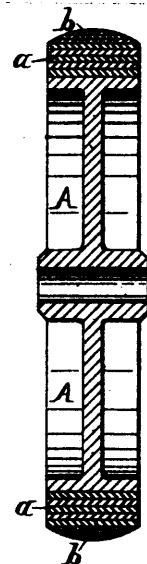
20486 Swayze & Gauntlett's Spring Bed.



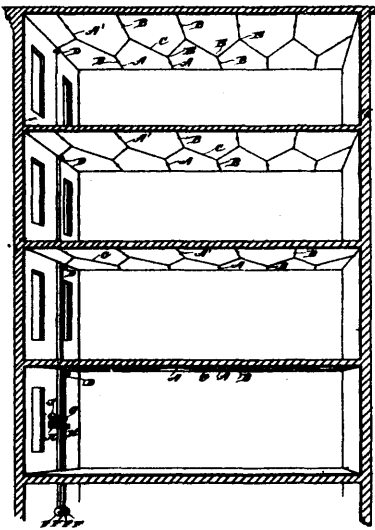
20487 Macpherson's Curd Agitator Implement.



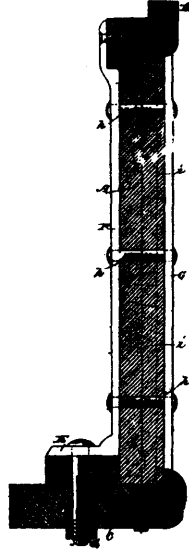
20488 Pratt & English's Button-Setting Instrument.



20489 Jack & Thomson's Pulley.



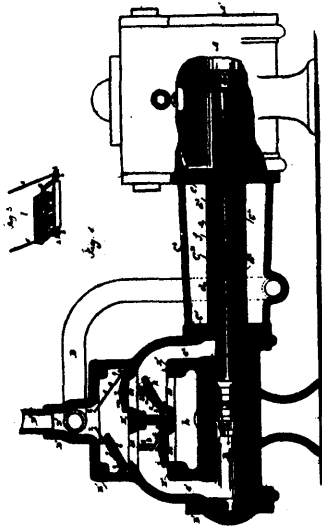
20490 Simonds' Automatic Fire Alarm and Indicator.



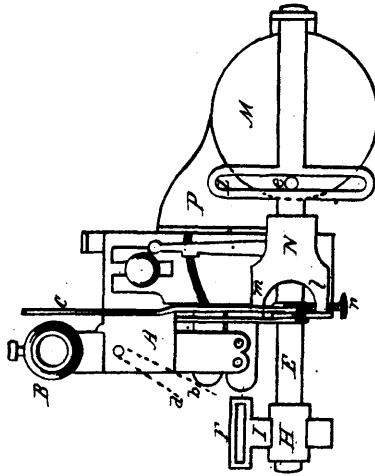
20491 Colby's Vehicle Body.



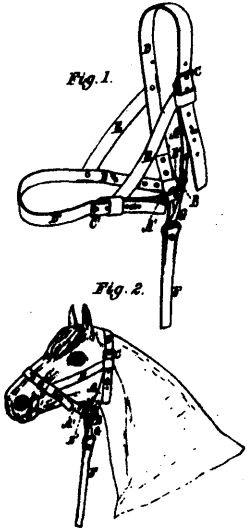
20492 Fagan's Folding Box.



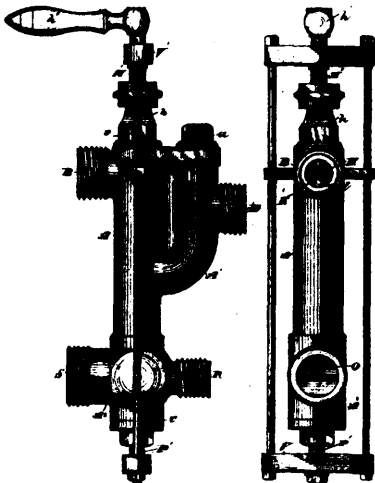
20493 Carricburn's Steam Pump.



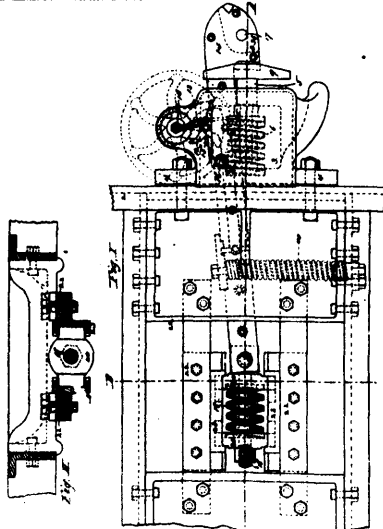
20494 Sackett's Ruffing Attachment for Sewing Machines.



20495 Corbett's Halters for Horses.



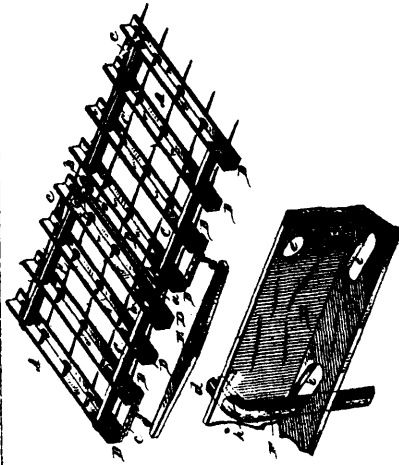
20496 Eberman's Injector.



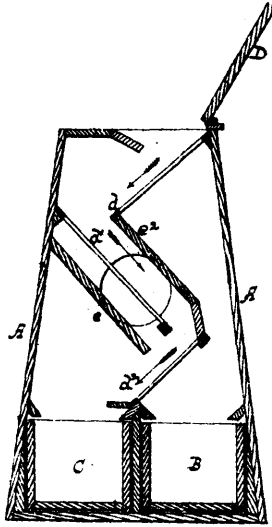
20497 Colby's Coupling Attachment for Locomotive Engine Tenders.



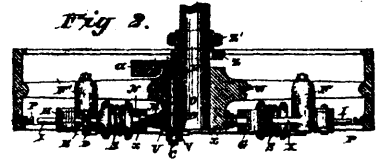
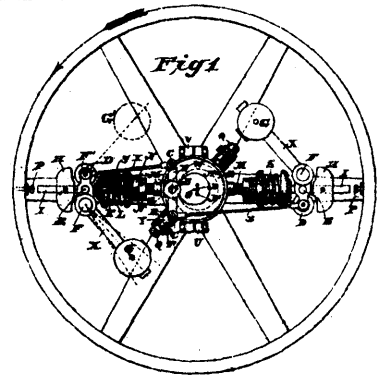
20498 Newton's Electric Arc Lamp.



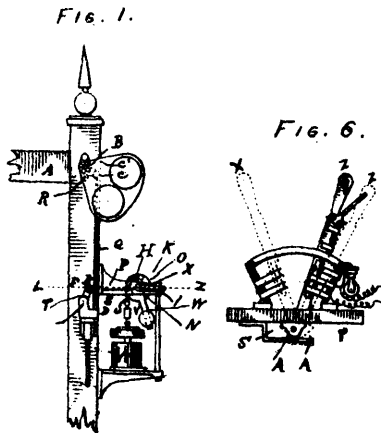
20489 Brostrom's Harrow.



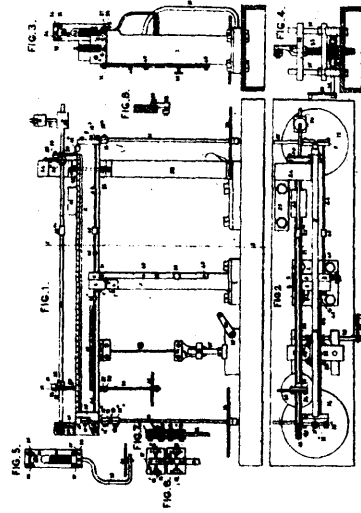
20500 Blanchard's Coal Sifter.



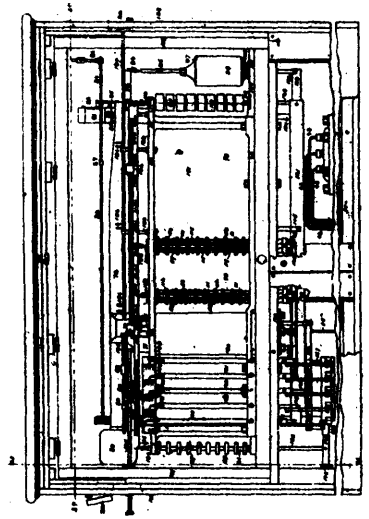
20501 Smith's Governor for Steam Engine.



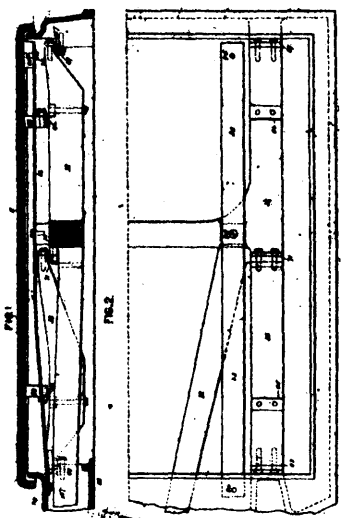
20502 Timmis & Currie's Means for Working and locking Railway Signals and Points.



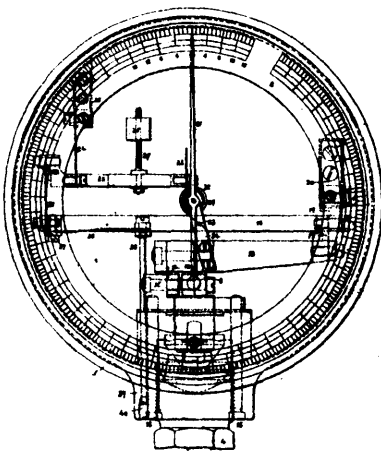
20504 Emery's Weighing Scales.



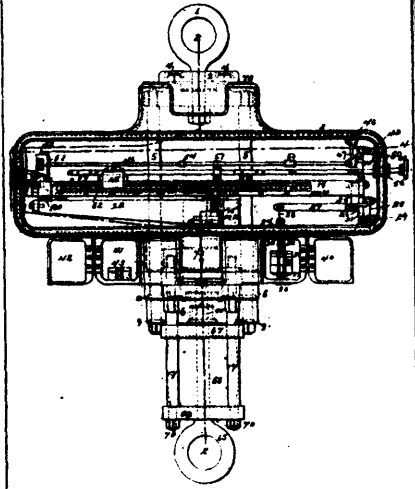
20505 Emery's Weighing Machinery.



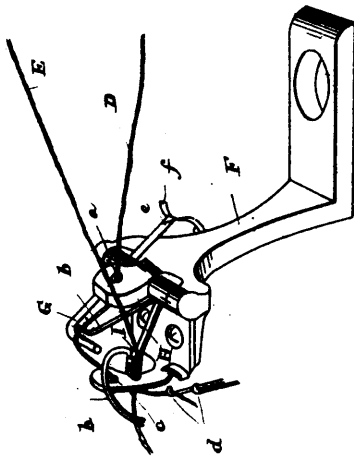
20506 Emery's Lever Platform Scales.



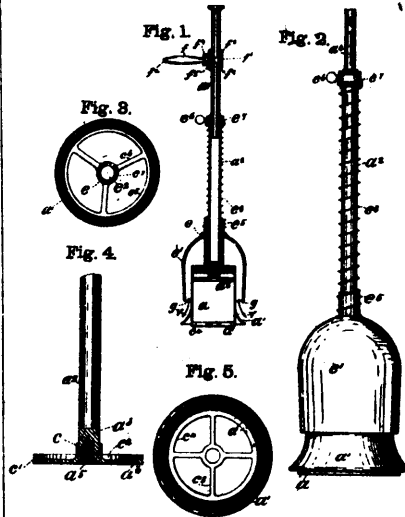
20507 Emery's Pressure and Vacuum Gauge and Dynamometer.



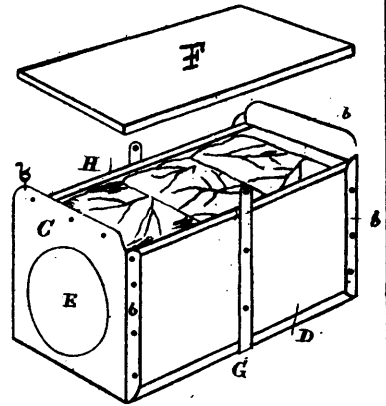
20508 Emery's Weighing Machine and Dynamometer.



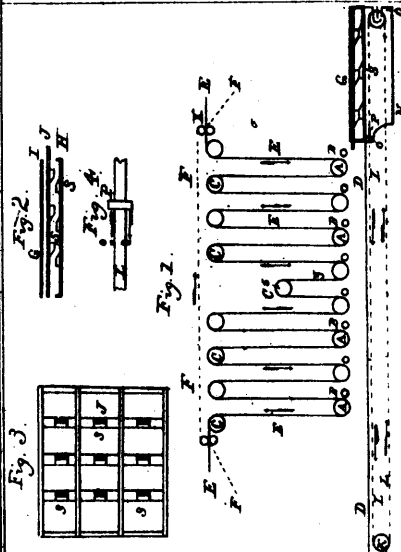
20509 Schofield & Davidson's Knitting Machine.



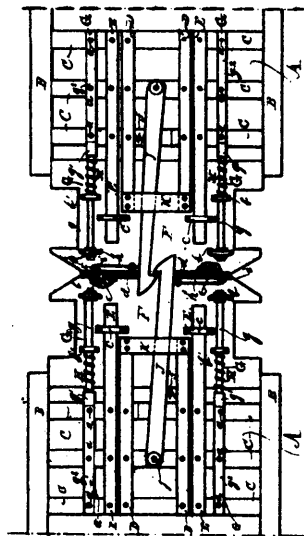
22510 Burham's Washing Machine.



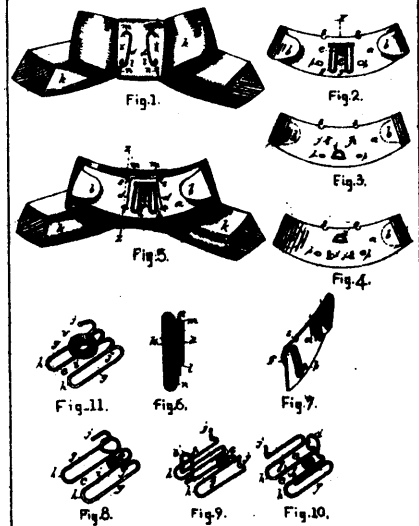
20511 Scale's Tobacco Boxes, Butts or Caddies.



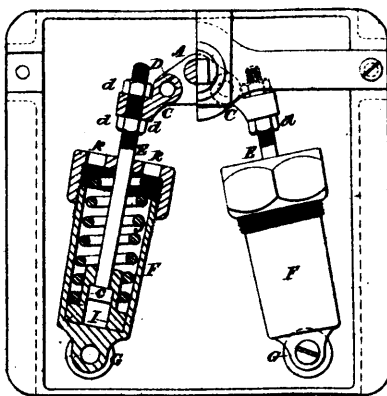
20812 Simpson's Printing Machine.



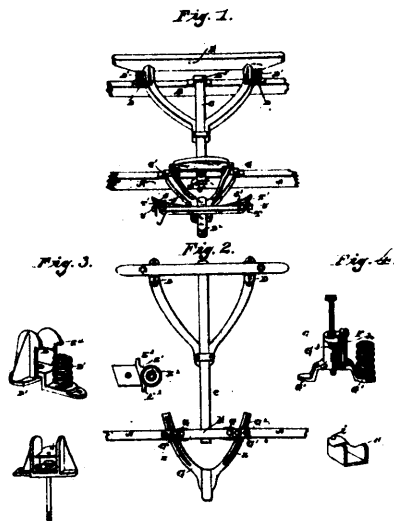
20513 Reary's Car Platform.



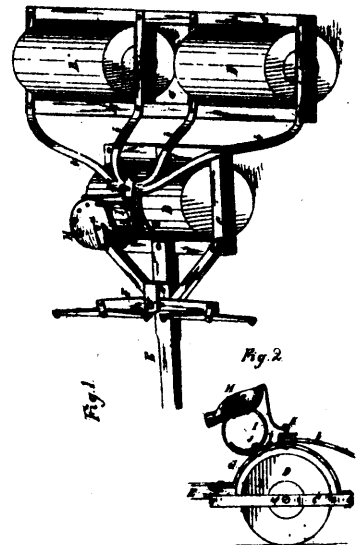
20514 Scully's Necktie Supporter.



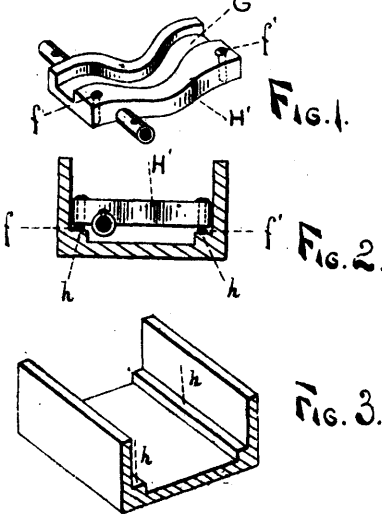
20515 Stevens & Major's Spring Hinge for Doors.



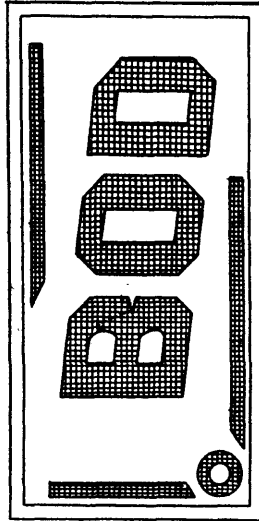
20516 Seaton's Wagon.



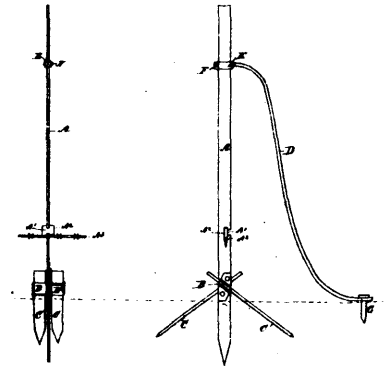
20517 Jones' Land Roller.



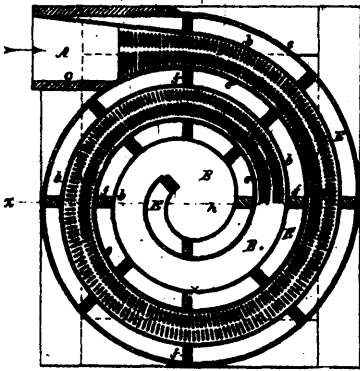
20618 Keeler's Sewing Machine.



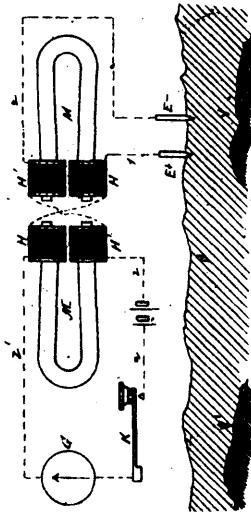
20519 Walker's Stencil.



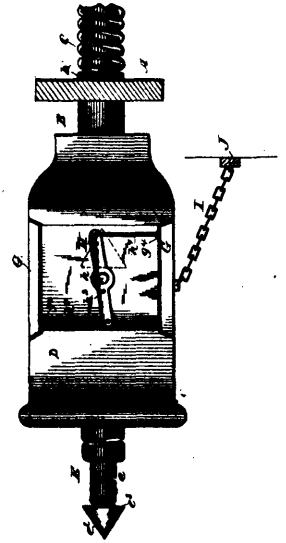
20520 Davy's Fence Post.



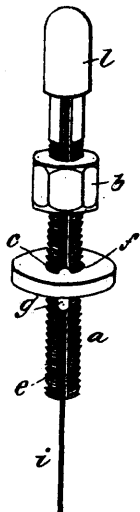
20521 Oartman & Taylor's Dust Collector.



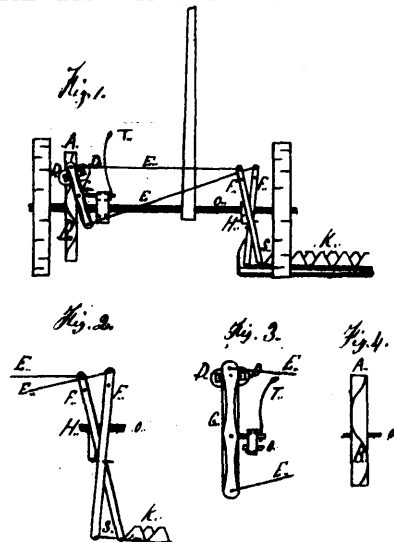
20522 Lighthill's Method of Electrically Detecting and Locating Mineral Veins.



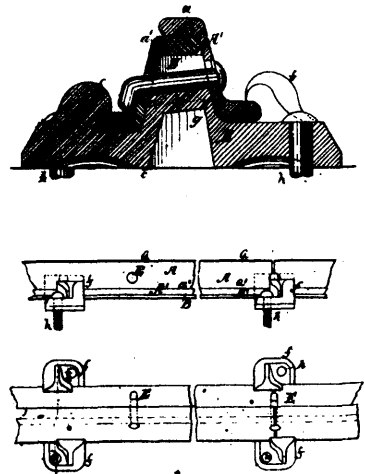
20523 Willaman, Stratton & Lynch's Car-coupling.



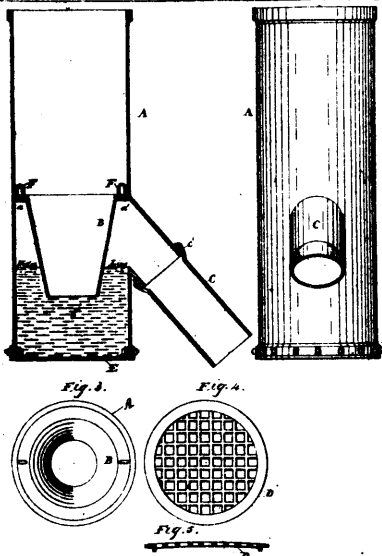
20524 Brinsmead's Method of Attaching Piano Strings.



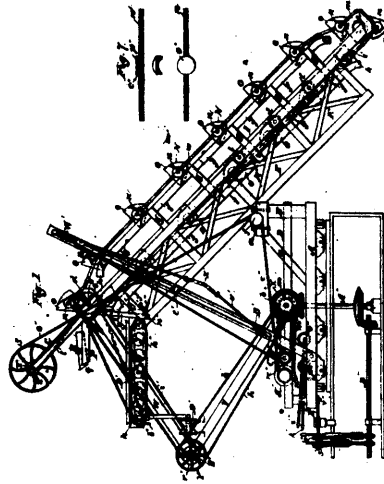
20525 Marr's Mowing and Reaping Machine.



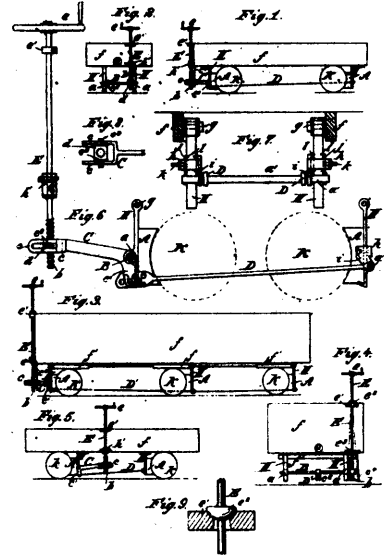
20526 Cowdery's Railway Track.



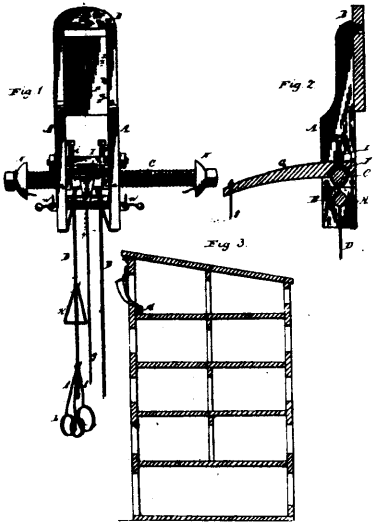
20527 Medcalf's Culverts and Traps for Sewers.



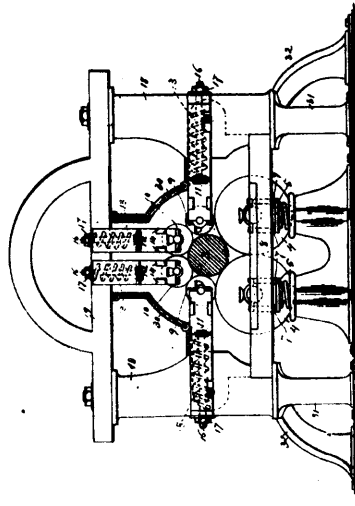
20528 Hawk's Dredging and Excavating Machine.



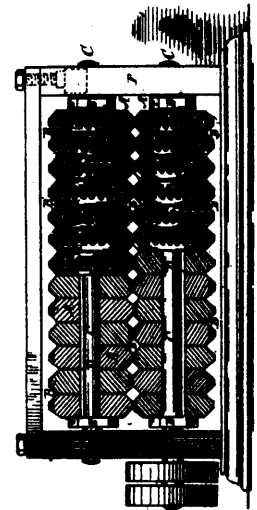
20529 Harding's Car Brake.



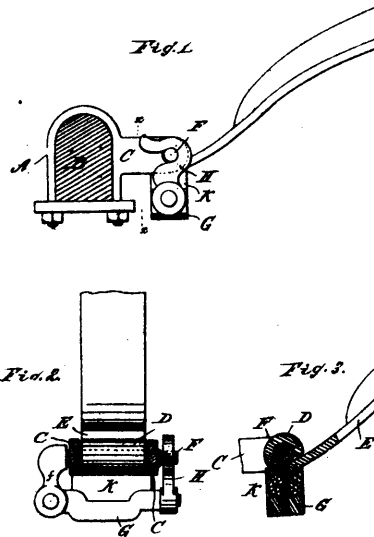
20530 Smith's Fire-Escape.



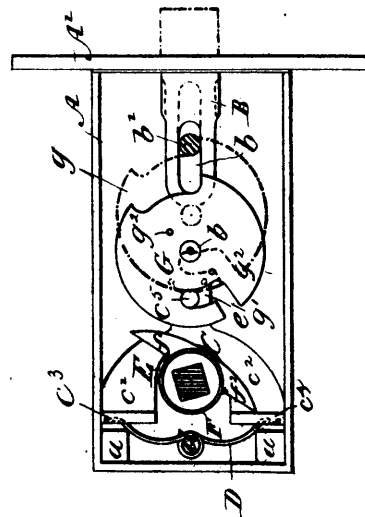
20531 Sutton's Shafting and Bearing.



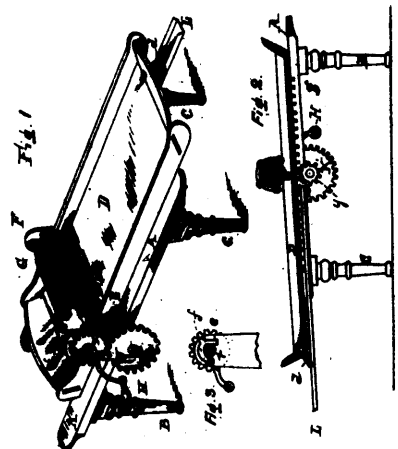
20532 Fletcher's Double Embossing Machine.



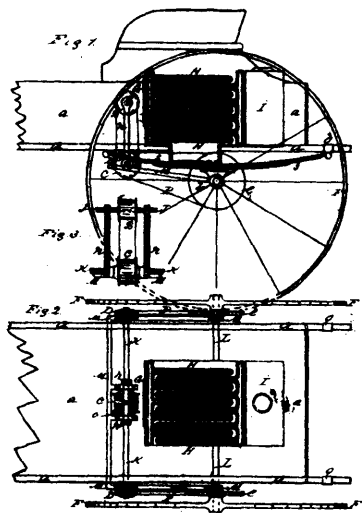
20533 Company's Thill Coupling.



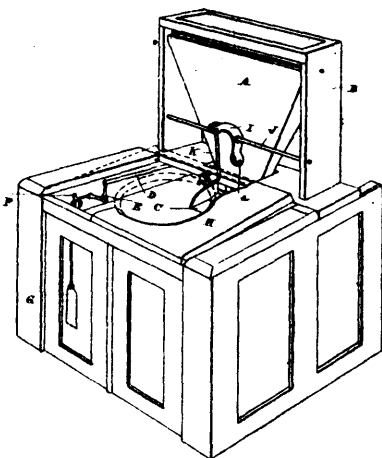
20534 Cote's Lock.



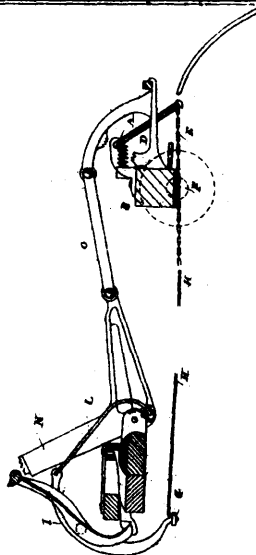
20535 Waters' Butter Worker.



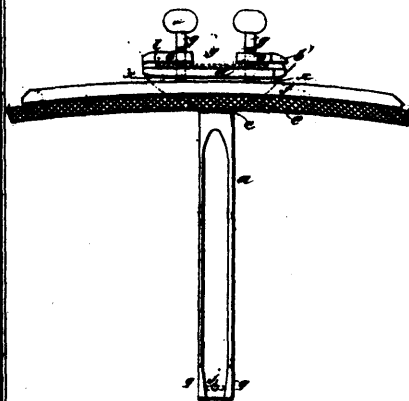
20536 Kendall's Steam Vehicle.



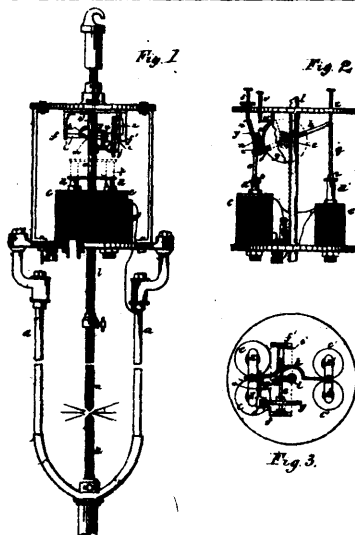
20537 Heap's Apparatus for operating Dry Earth Closets.



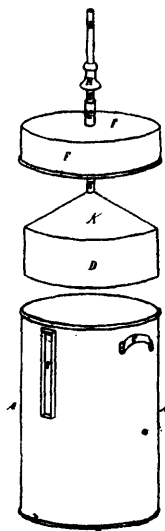
20538 Wilson's Horse Rake.



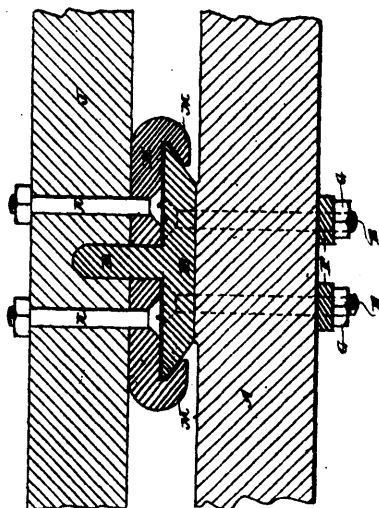
20539 Bridge's Saw Jointer and Set.



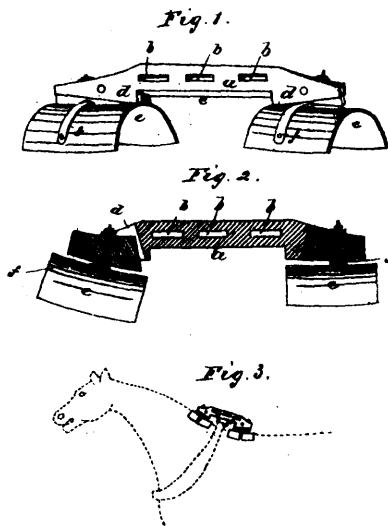
23640 Kay's Electric Lamp.



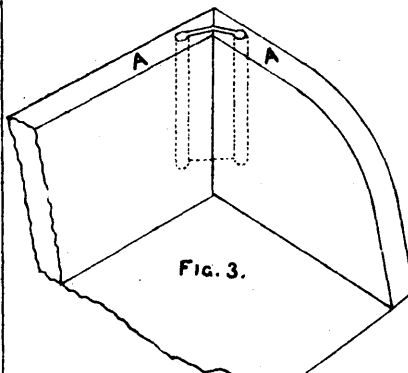
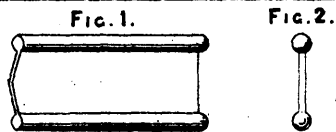
20541 O'Hara's Milk Can.



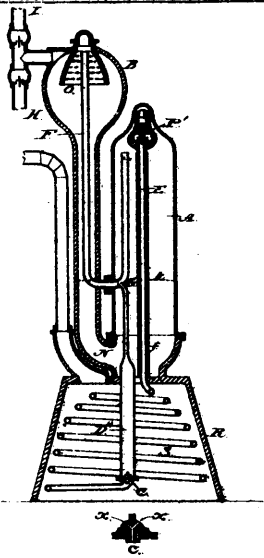
20542 Brandow's Bolster Plate.



20543 Wallmer's Horse Collar Pad.



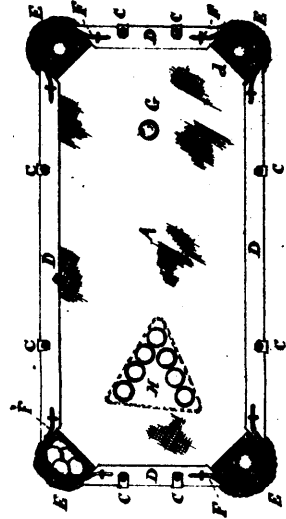
20544 Johnson's Vehicle Seat.



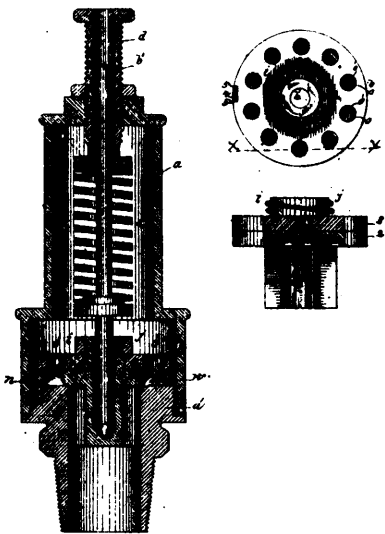
20545 Riker's Combined Pump.



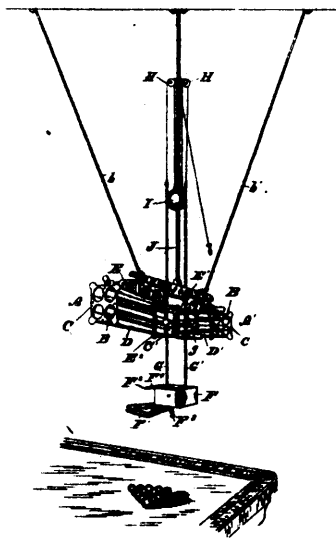
20546 Lafferty's Centrifugal Machine.



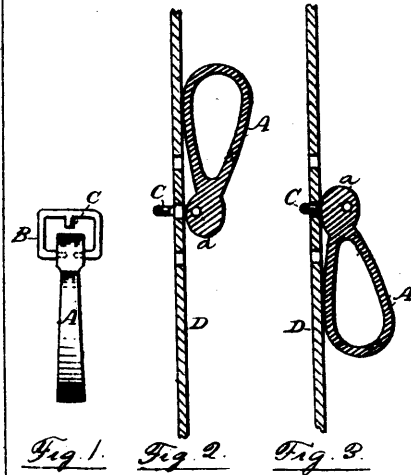
20547 Eulass' Parlor Game Apparatus and Cue.



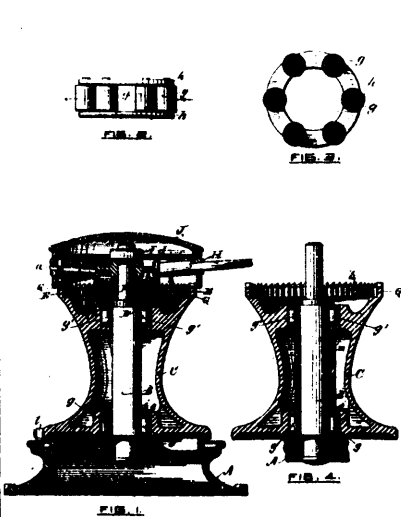
20548 Hill's Pop Safety Valve



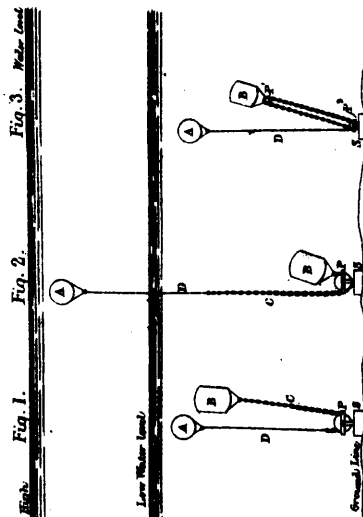
23549 Henkel's Pool Ball Racks and Spotters.



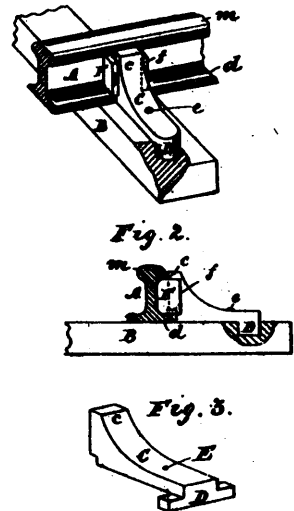
20550 Armstrong's Gag Runner.



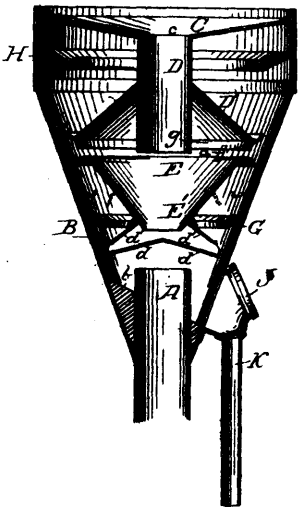
20551 Luther's Capstan.



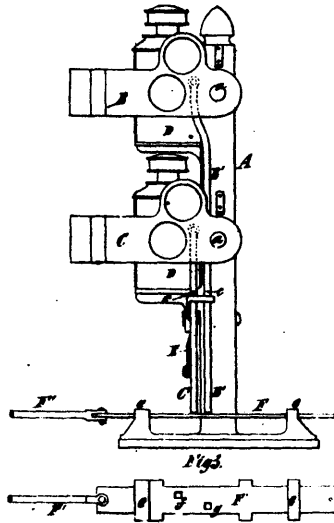
20552 Ruck & Jones' Apparatus for Maintaining Torpedoes etc., under Water.



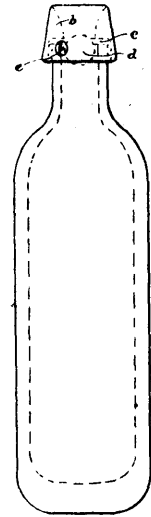
20553 Perkins' Railway Ball Brace



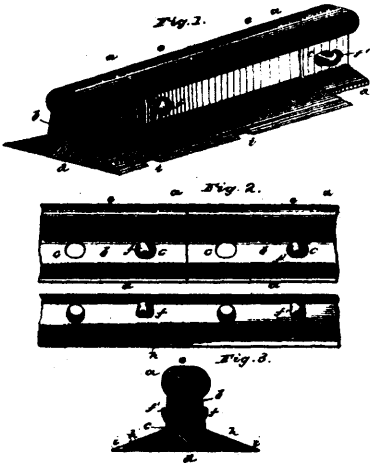
20554 Lyman's Condensing head for the exhaust Pipe of non-Condensing Engines.



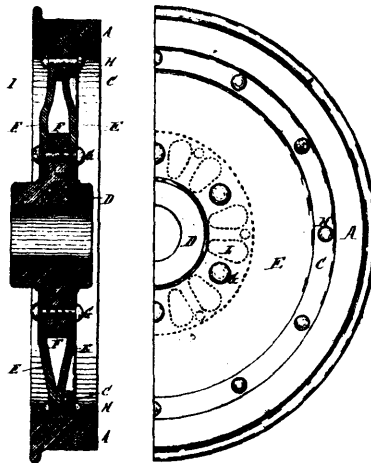
20555 Johnson's Railway Signals.



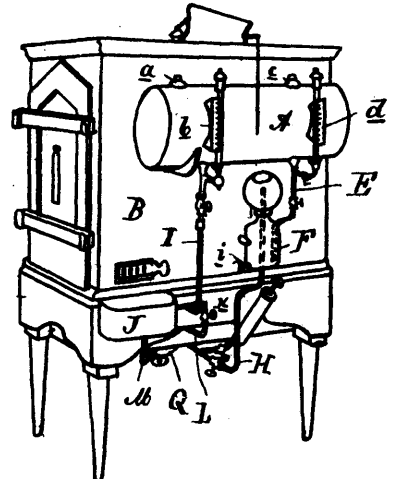
20556 Cochrane & Day's Method of Stopping and opening bottles containing aerated Liquids.



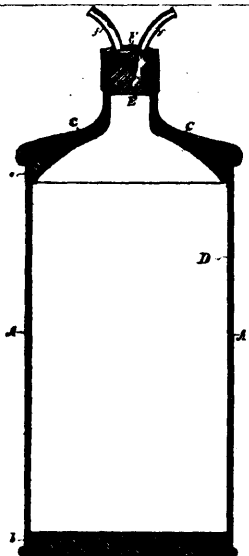
20557 Keefer's Railroad Rail Joint.



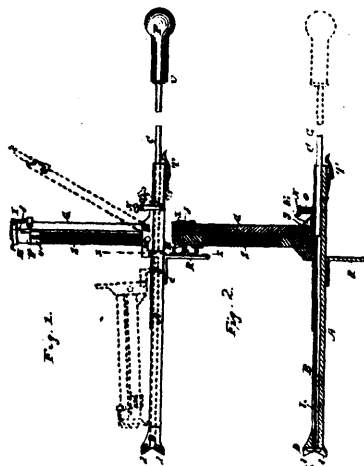
20558 Thurber's Car Wheel.



20559 Martin's Tobacco Re-Sweaters.



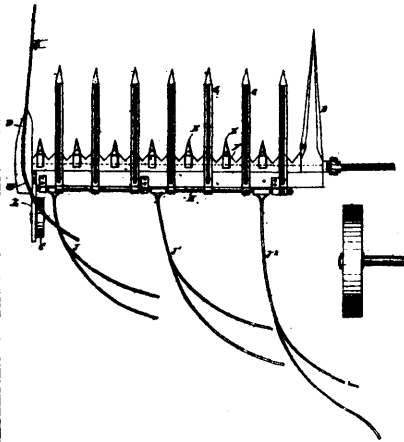
20560 Auble's bottle or can for Ink or other Liquids.



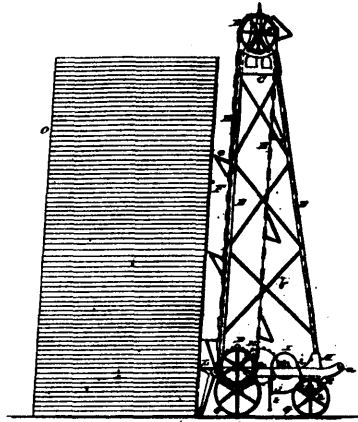
20561 Young, Nell & Wetsel's Implement for Driving Staples.



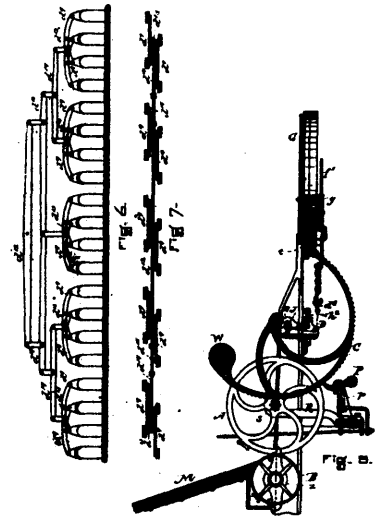
23562 Roberts' Belt Fasteners.



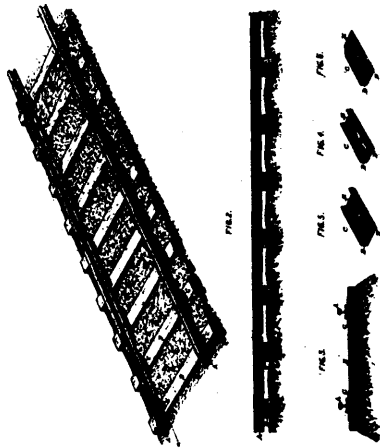
20563 Burroughs' Harvester Attachments.



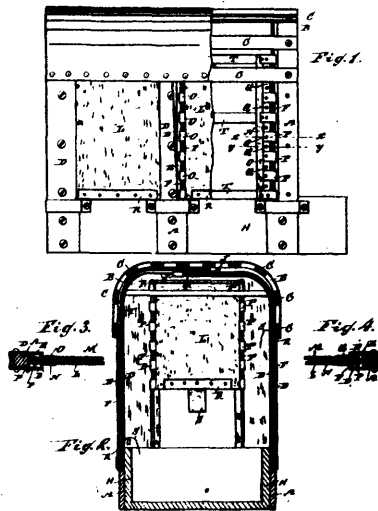
20564 Lee & Weir's Lumber Piling Machine.



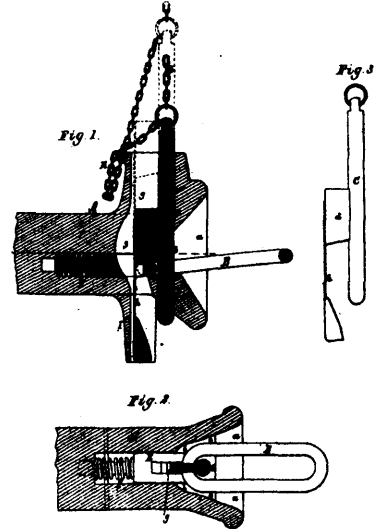
20565 Sawyer's Machine for measuring the areas of surfaces.



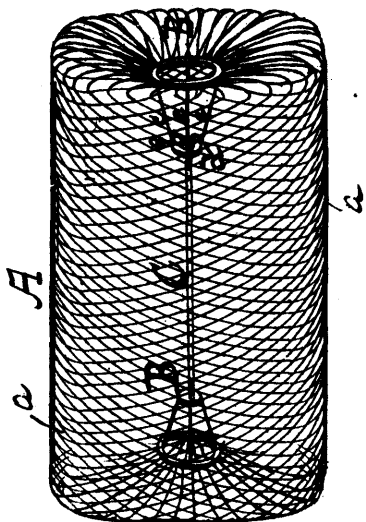
20566 Servis' Wear Plates for Railroad Ties.



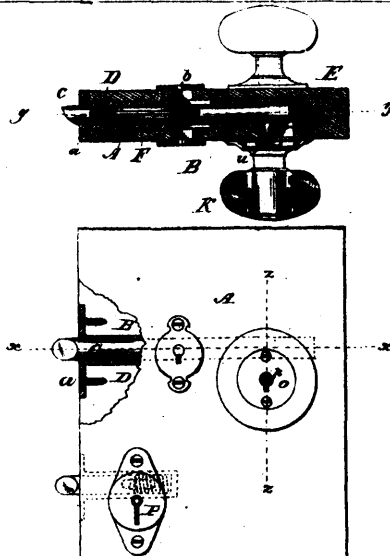
20567 McCurdy's Vehicle Top.



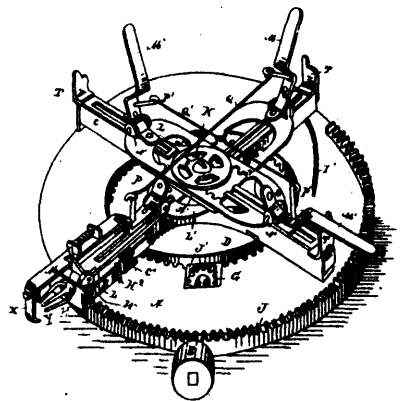
20568 Richards' Railway Car-Coupling.



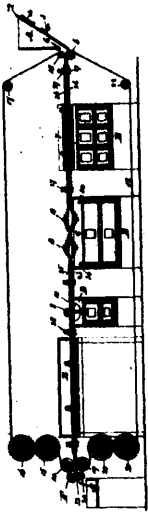
20569 Wells & Weston's Wire Cushion and Pillow.



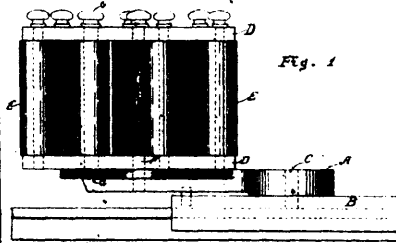
20570 Friedrick's Combined Lock and Latch.



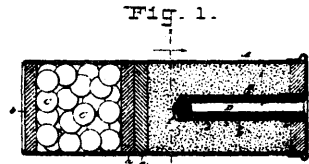
20571 Wilcox's Apple Paring Machine.



20572 Eddy, Millen & Mousseau's Match-Dipping Apparatus.



20573 Killam's Press Rollers for Saw Mills.



20574 Russell's Cartridge.

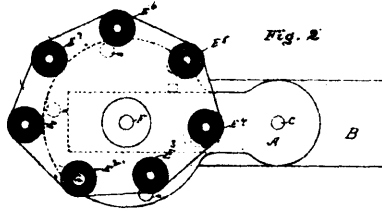
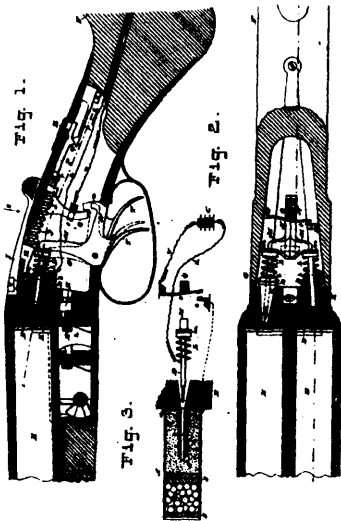


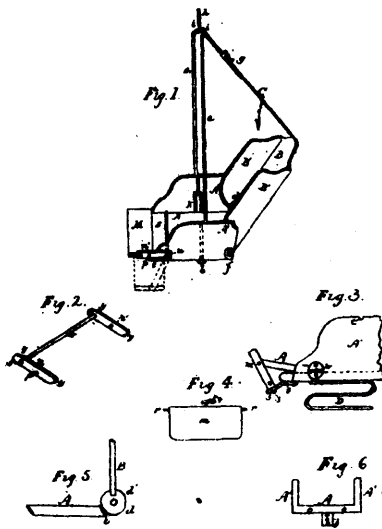
Fig. 2.



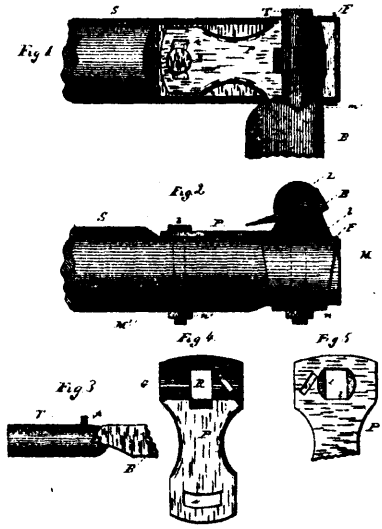
Fig. 3.



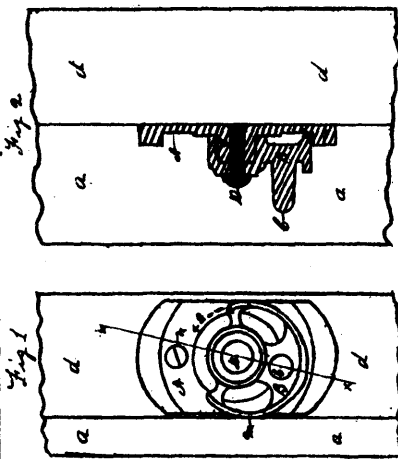
20575 Russell's Electric Gun.



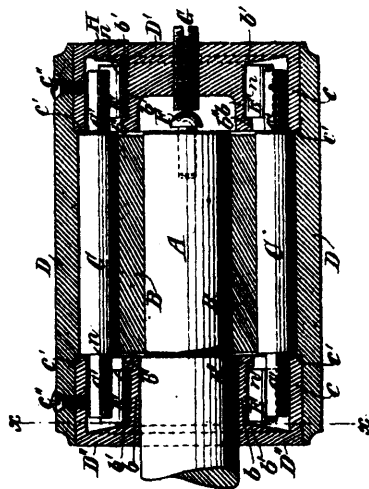
20576 Howell's Child's Suspended and Adjustable Chair and Bed.



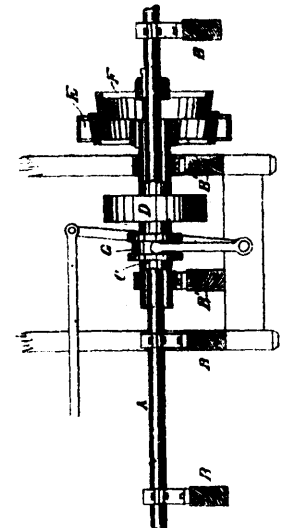
20577 Marston's Scythe Adjuster and Fastener.



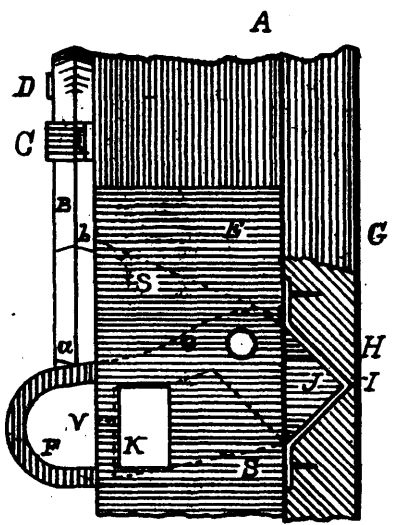
20578 Knight's Window Sash Support and Fastener.



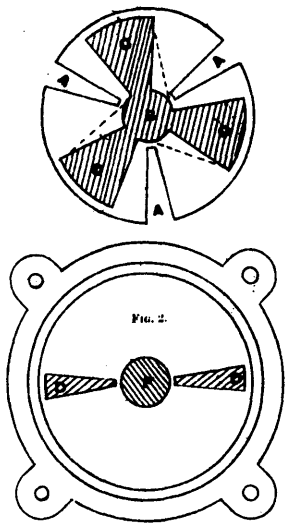
20579 Hall's Anti-Friction Journal Box.



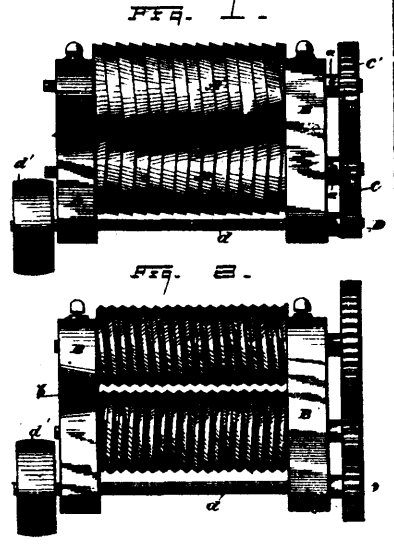
20580 Totman's Friction Gear.



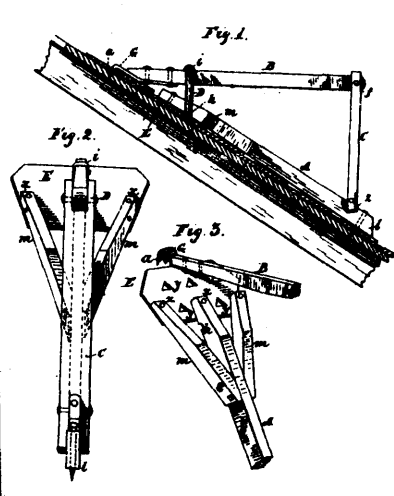
20581 Fisher's Car Door Lock.



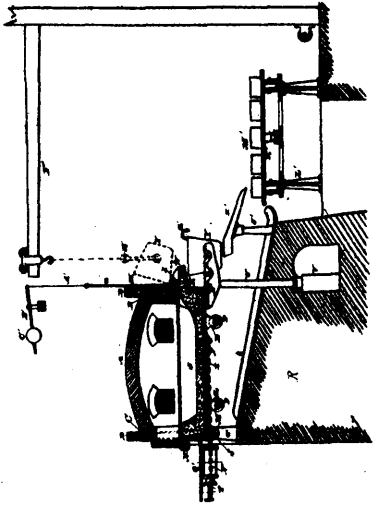
20583 Adamson's Steam Engine Cut-off Valve.



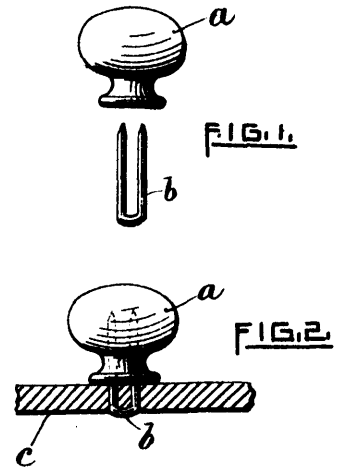
20584 Penfield's Clay Crushing Roller.



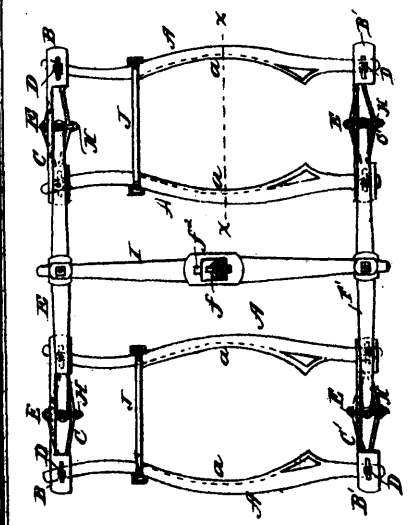
20585 Adame's Shingling Bracket.



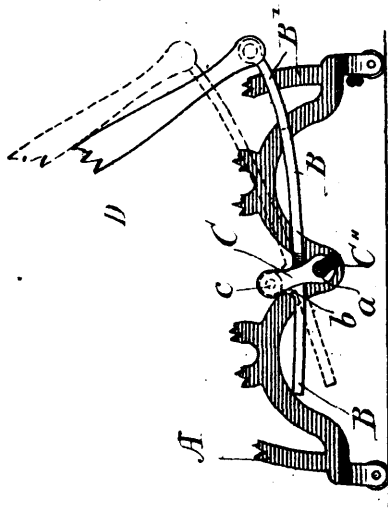
20586 Ryder's Open Hearth Steel Melting Furnace.



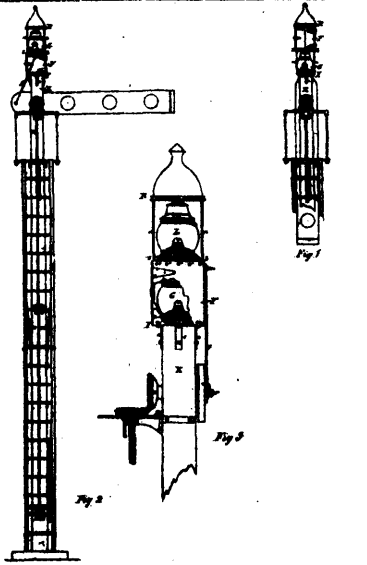
20587 Prentice's Method of Attaching Buttons to Fabrics.



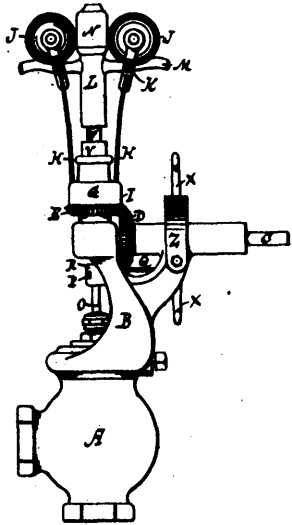
20588 Johnson's Yoke for Draft Animals.



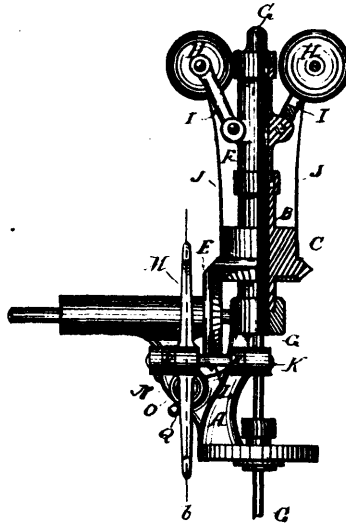
20589 McDonald's Treadle.



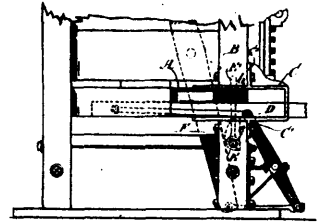
20590 Bacon's Railway Signal.



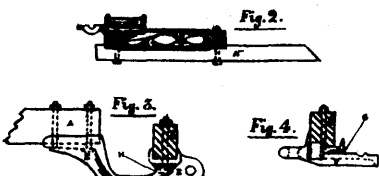
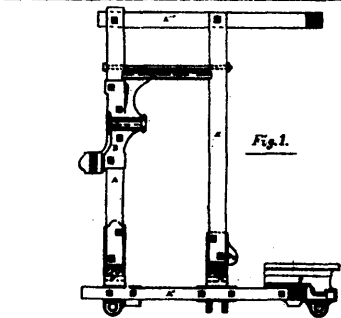
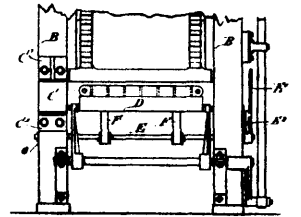
20592 Gardner's Governor.



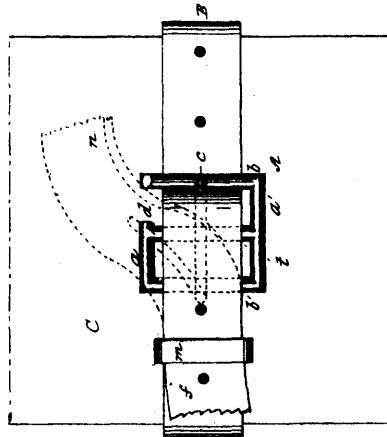
20593 Gardner's Governor.



20594 Peel's Brick Machine.



20595 McLeod's Machine for Cutting and Binding Grain.



20597 Simmons' Buckle.

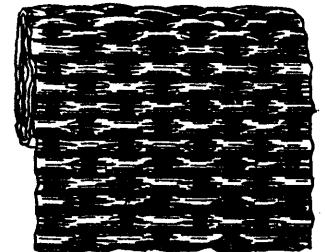


Fig. 1.

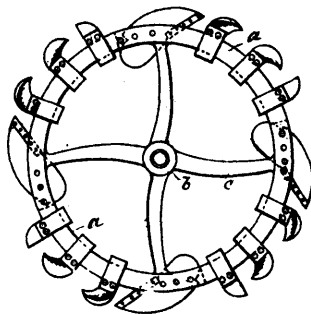


Fig. 2.

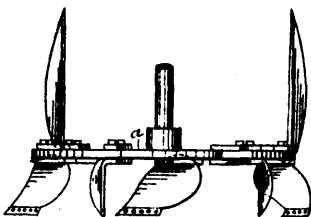


Fig. 3.

20598 Fletcher's Double Embossed Fabric.



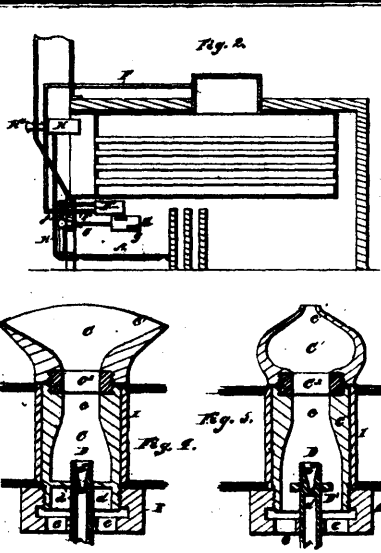
20599 Von Schmidt's Submarine Plough.



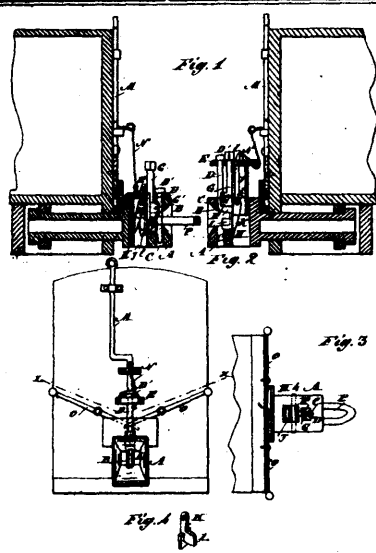
20600 Ney's Hay Elevator Track.



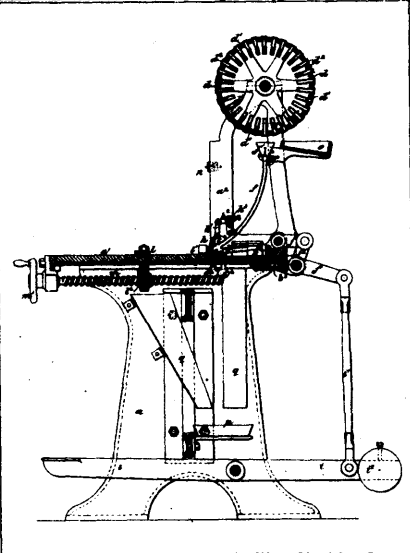
20601 McQuilkin's Combined and Handy Tool for Skaters.



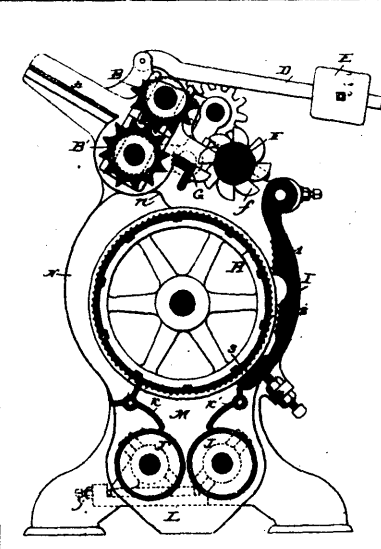
20612 Hedley's Smoke Consumer.



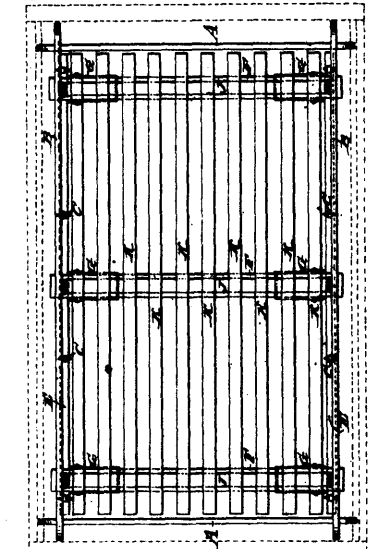
20613 Hoover's Car-Coupling.



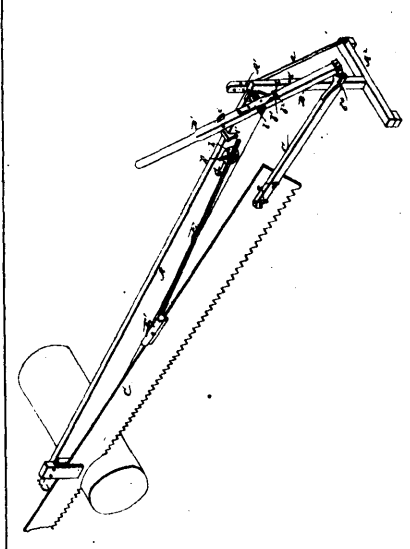
20614 Lines & Prigman's Nailing Machine for Packing Cases.



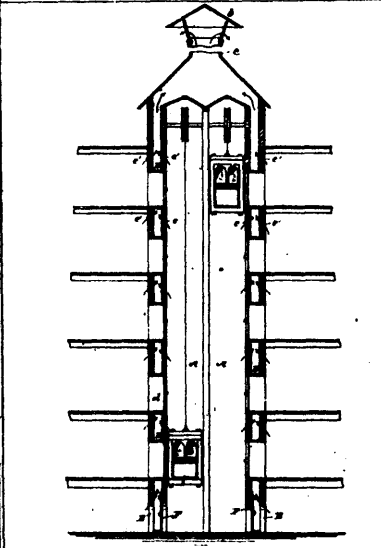
20615 Phillips' Bark-Breaking and Grinding Mill.



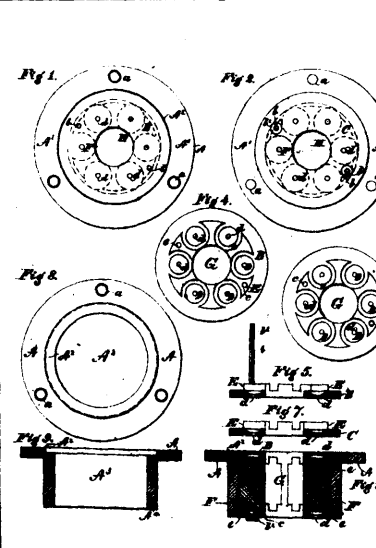
20616 Taylor's Spring Frame for Beds, &c.



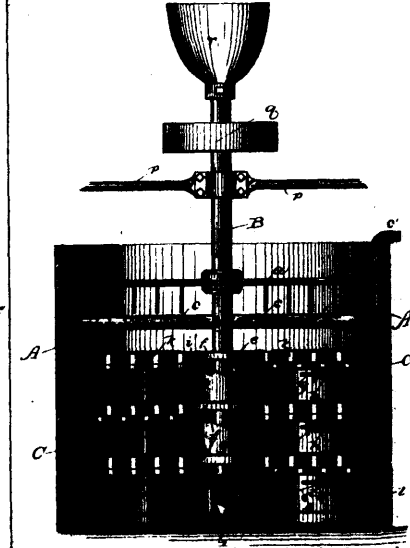
20618 Smith's Drag Saw.



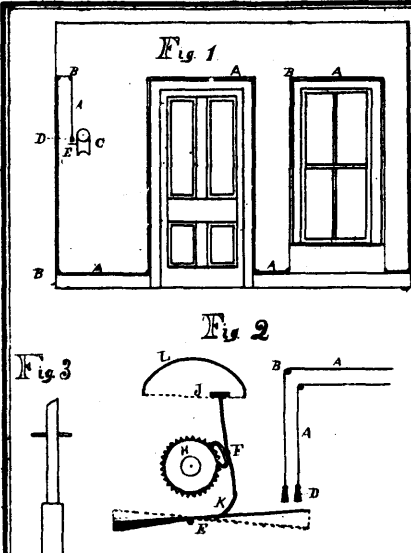
20619 Gilman's Combined Fire-proof Elevator and Ventilating Shaft.



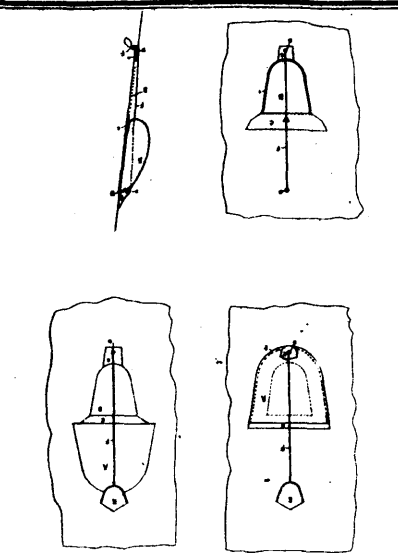
20621 Brownley's Anti-Friction Bearing.



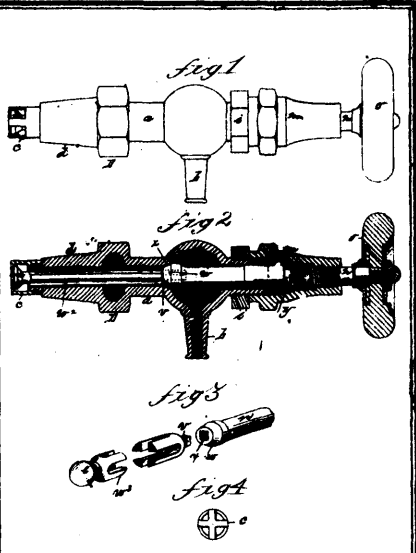
20622 Bliss' Process and Apparatus for Separating Gold and other metals from their Ores by means of Mercury.



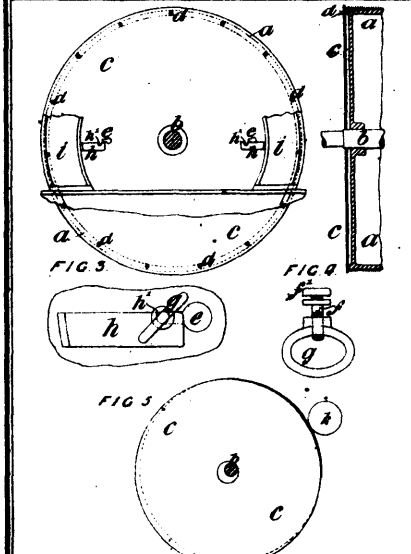
20623 Cornell & Cowan's Self-Acting Fire-Alarm



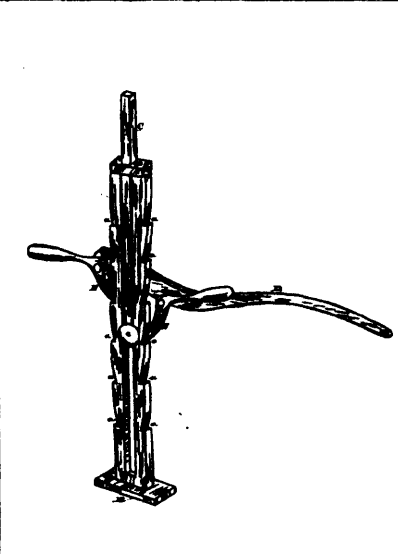
20624 Lewis' Ventilator for Tents.



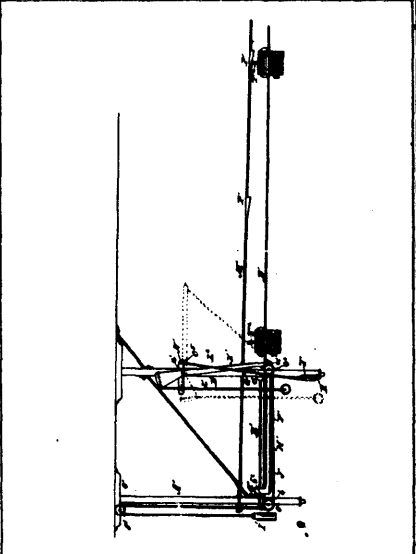
20625 Granger's Gauge Cock.



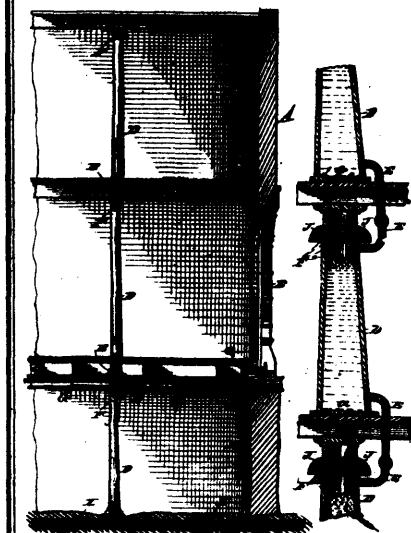
20626 Ashworth's Carding Engine Cylinder.



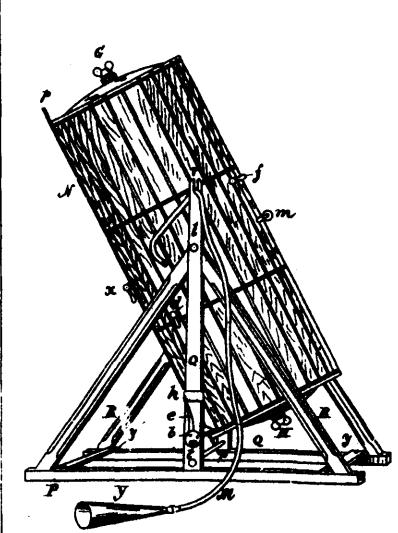
20627 Rose's Lifting Jack.



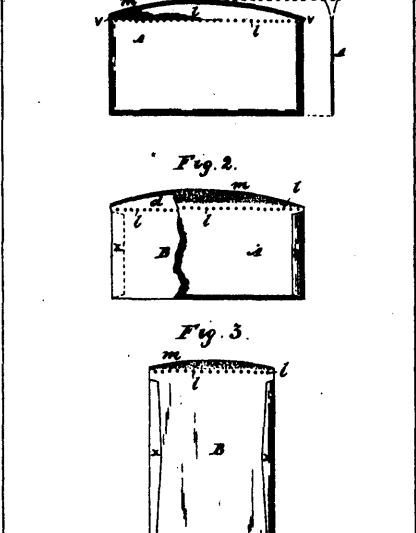
20628 Spring's Cash Carrier.



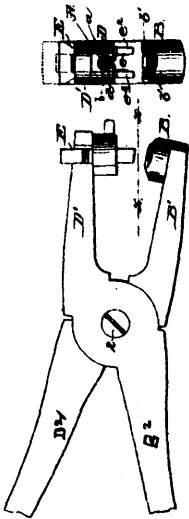
20629 Wright's Means for Rendering Buildings Fire-proof.



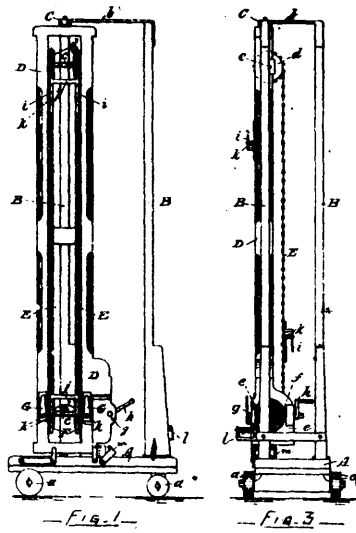
20630 Hoyt's Air Pump.



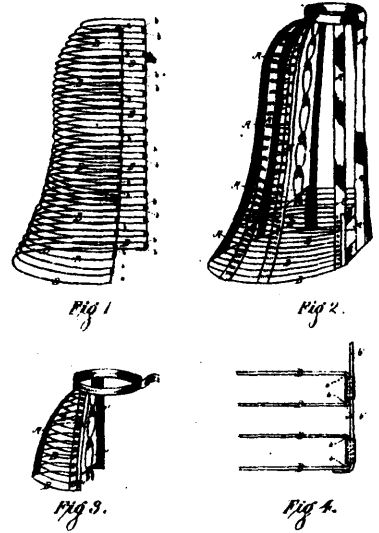
20631 Pedrick's Envelope.



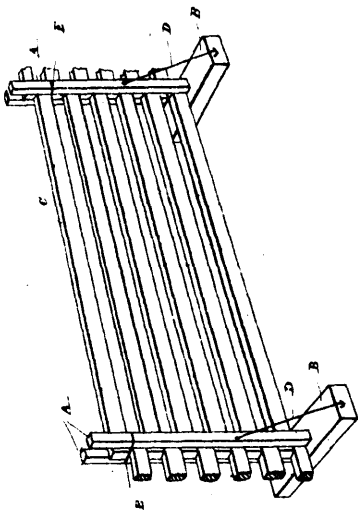
20532 Sp. Anderson's Mechanism for Setting Spring Buttons.



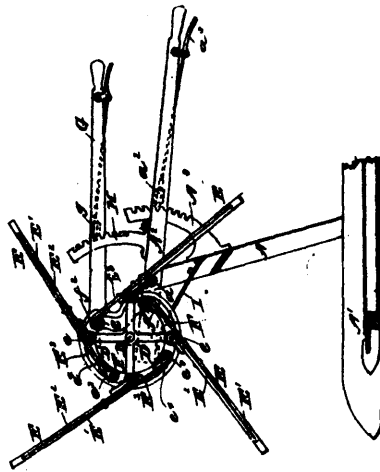
20633 Ritchie & Morency's Machine for Elevating Lumber for Piling.



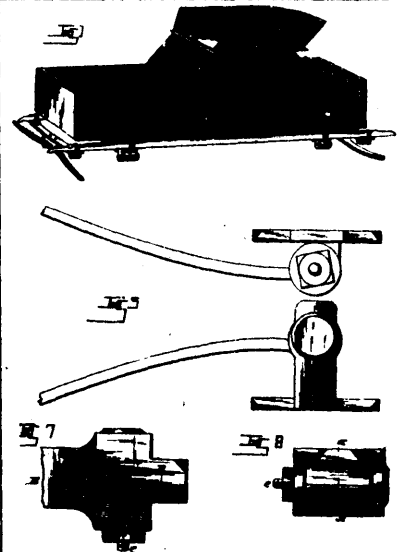
20634 Rosenstock's Hoop Skirt and Bustle.



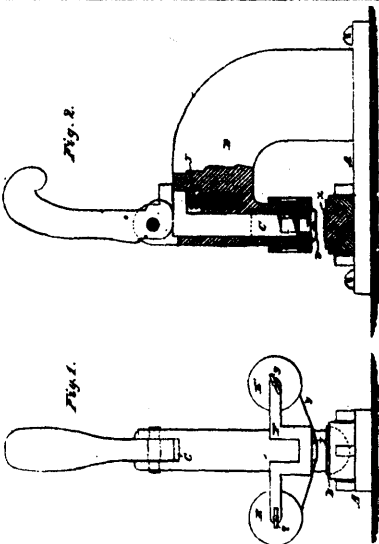
20635 Dunn's Fence.



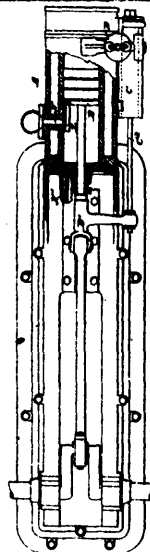
20636 Paddock's Grain Reel.



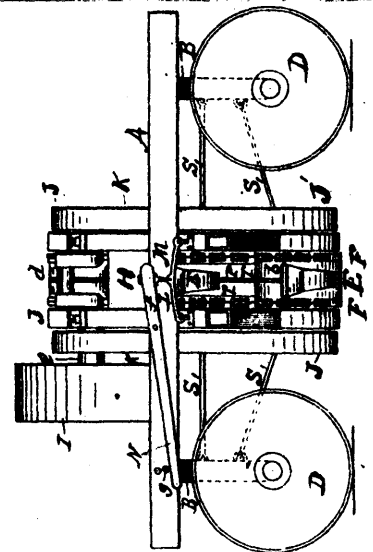
20638 Fetzer's Carriage Spring.



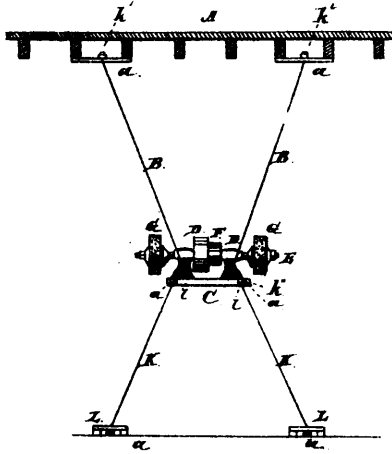
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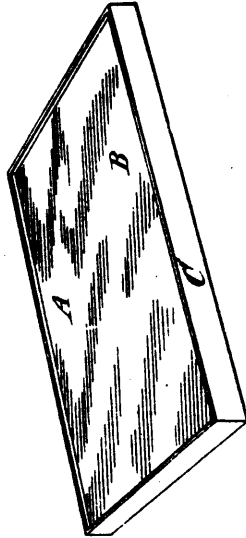
20640 Baldwin's Gas Engine.



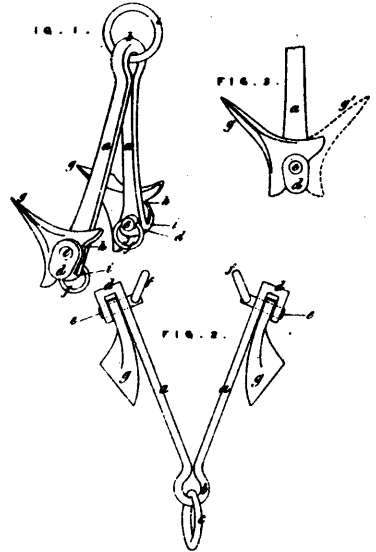
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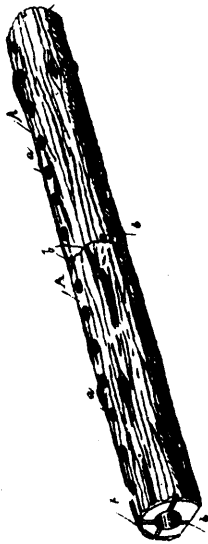
20643 Huntington's Device for Suspending Machinery and Obtaining Rotating Centres.



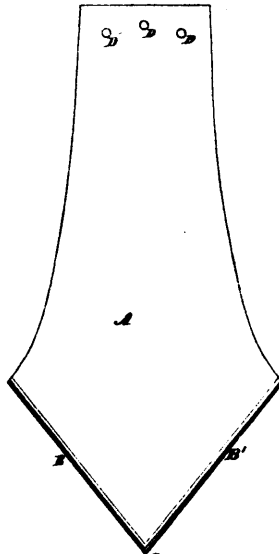
20644 Myers' Composition Pad for Copying.



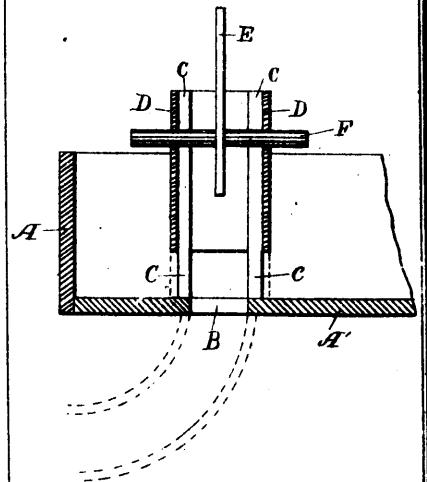
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20646 Dunn & Mallard's Drain Tile.



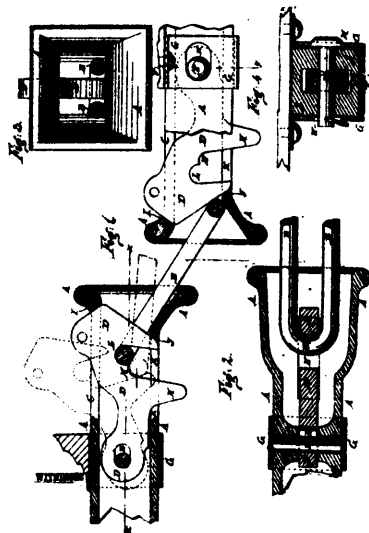
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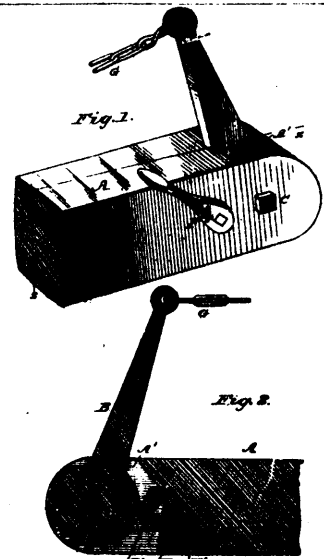
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20651 Adams & Polthousen's Car-coupling.



20652 Donalds' Attachments for Logging Sleds.

Fig. 1.

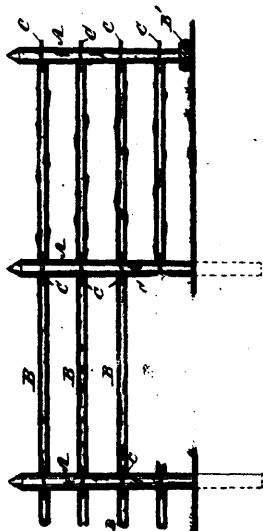
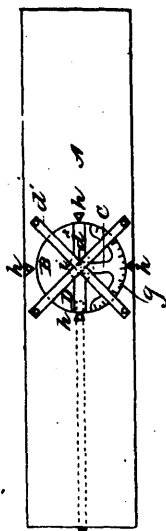


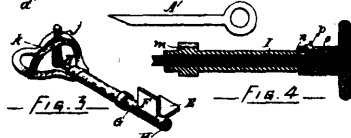
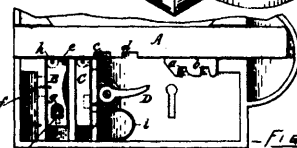
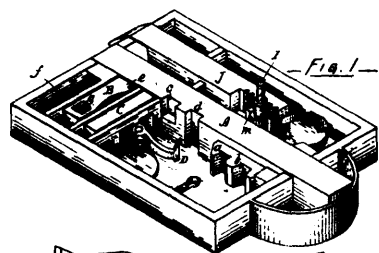
Fig. 2.



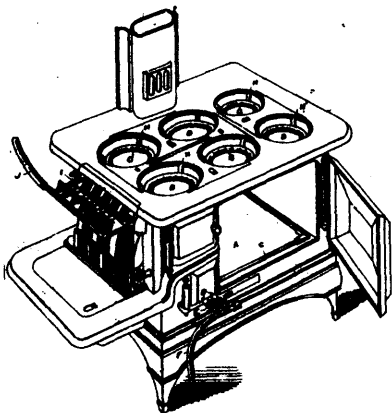
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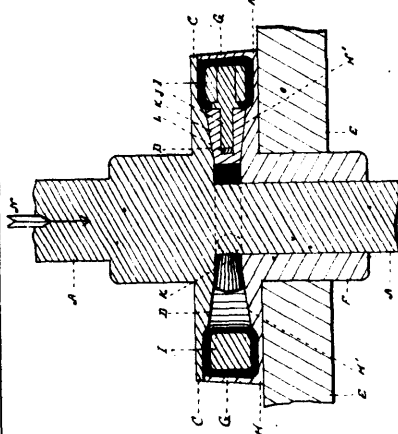
20654 Frambes' Level.



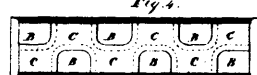
20655 Caron's Door Lock.



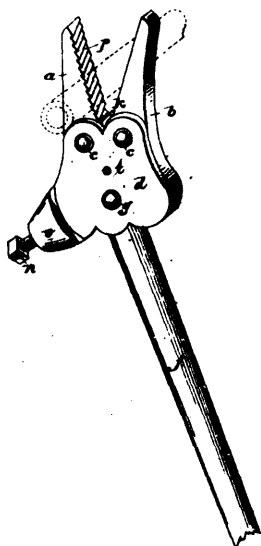
20656 Laxton's Cooking Stove.



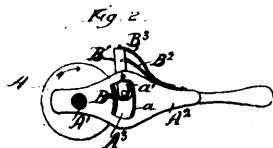
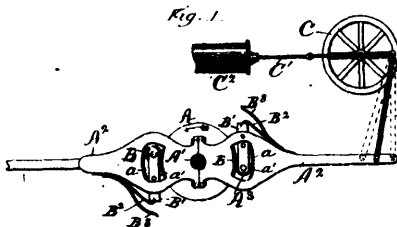
20657 Brownell's Anti-Friction Step Bearing.



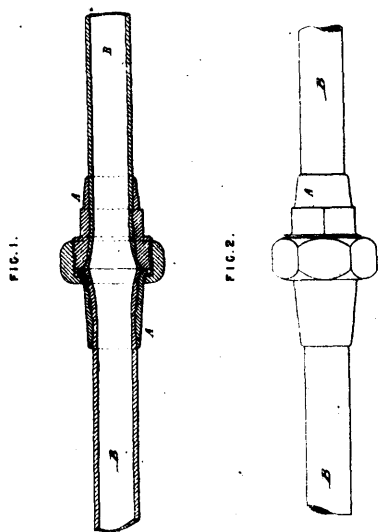
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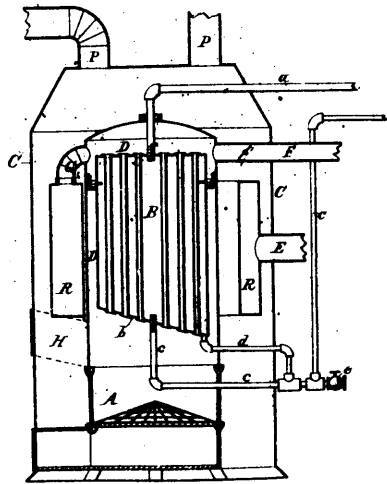
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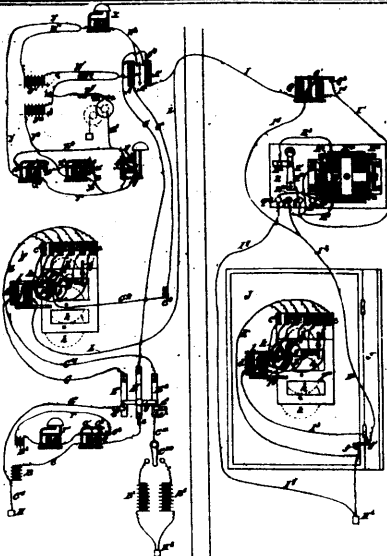
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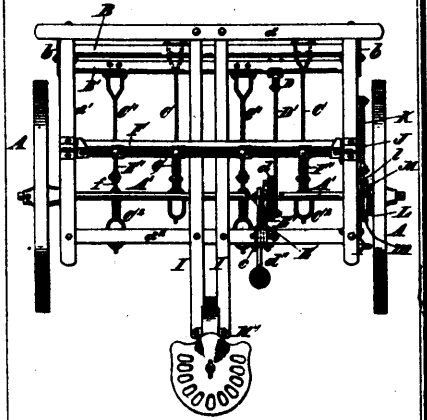
20661 George's Connection for Lead or other Pipes.



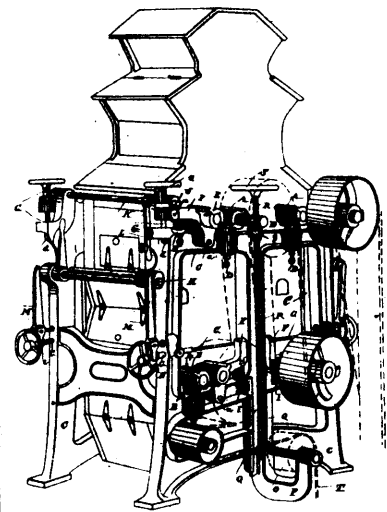
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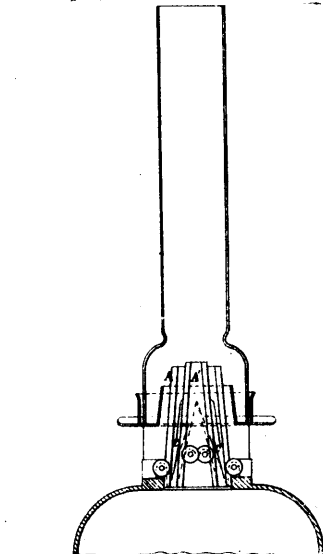
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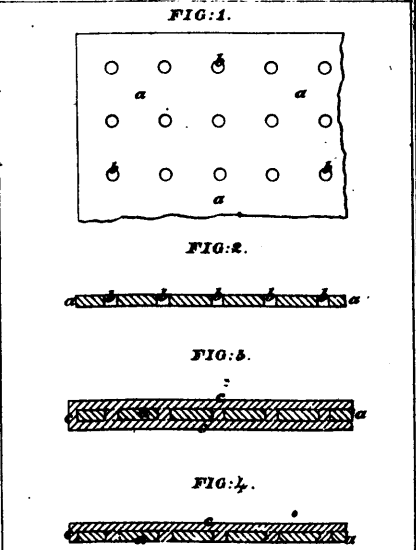
20664 Runstetler's Grain Drill.



20665 Wilson's Roller Mill.



20666 Morrison & Smith's Oil Burner.



20667 Makin's Coating Iron, Steel or other metal, with lead.

FIG. 1.

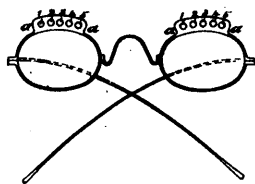
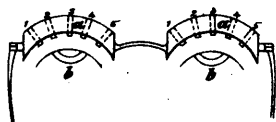
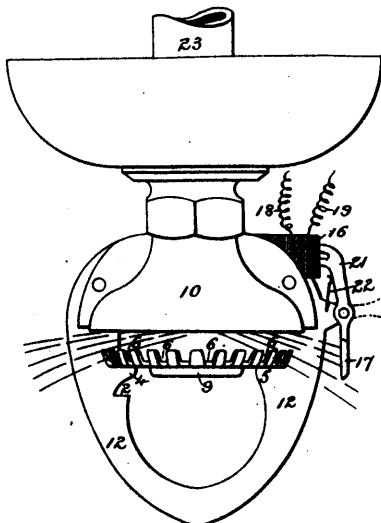


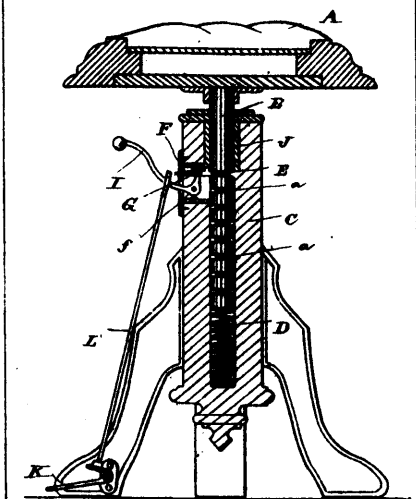
FIG. 2



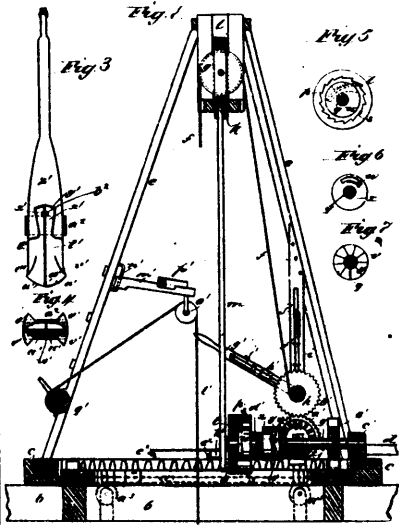
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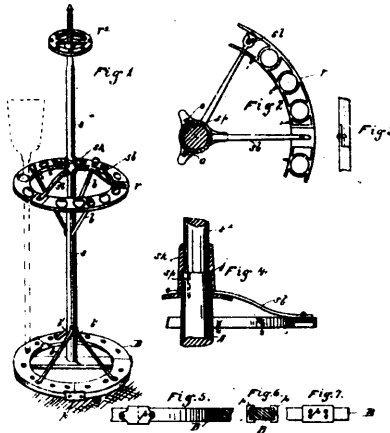
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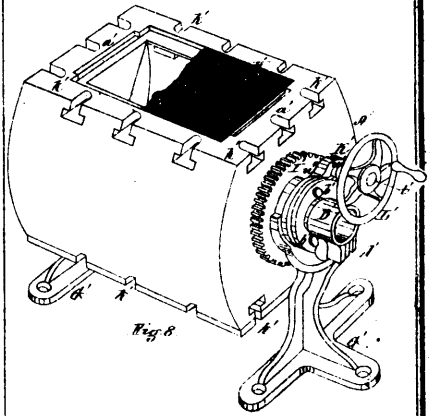
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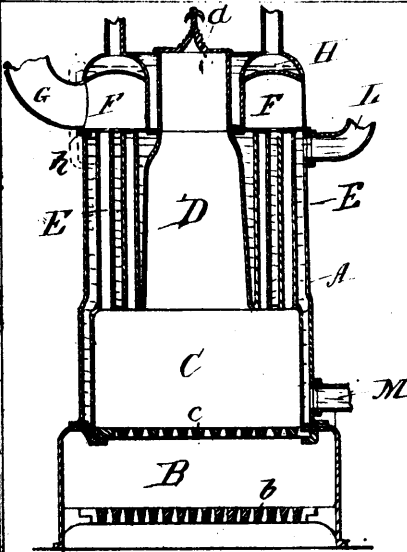
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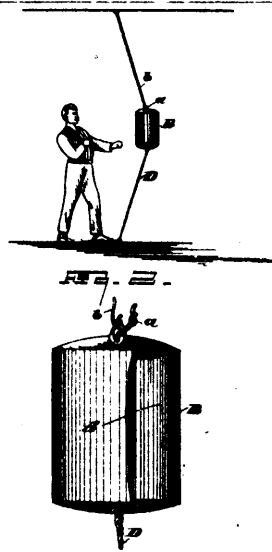
20672 Udell's Show Stand.



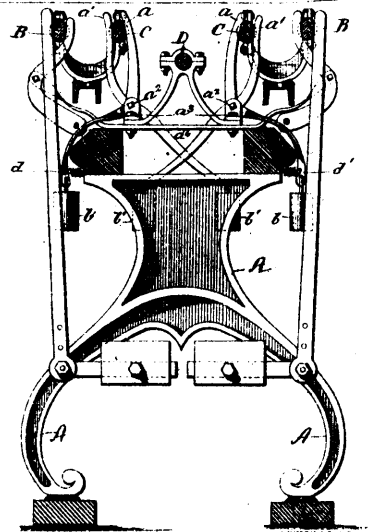
20673 Crocker's Filter and Filtering Machine.



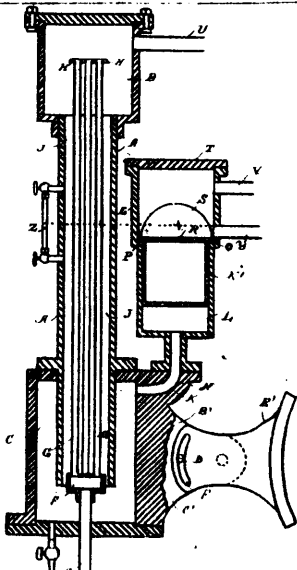
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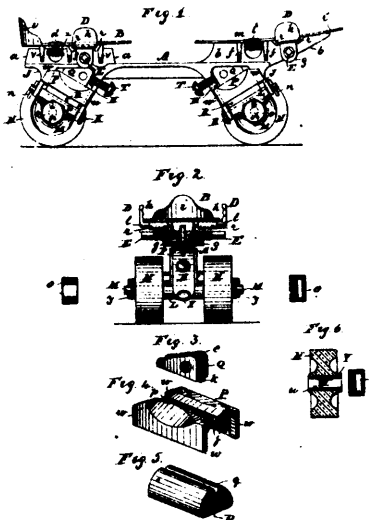
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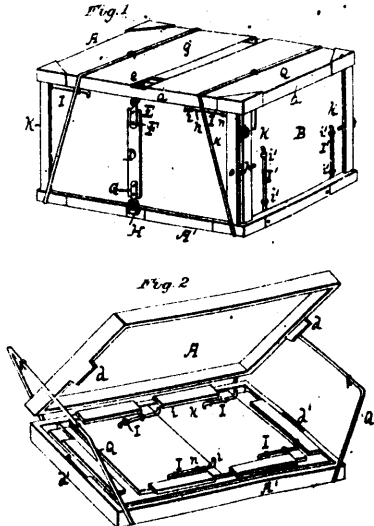
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