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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. 27,681. Implement for Inserting Glazier's Points. (*Pinces pour rabot à diamant.*)

Bartlett B. Chandler, Hyde Park, Mass., U. S., 1st October, 1887; 5 years.

*Claim*.—1st. As a new article of manufacture, the implement for inserting glazier's points, composed of the jaws B, C, pivotally connected and adapted to grasp hold and drive the point by one continuous forcible thrust, substantially as stated. 2nd. The combination, with the jaw B, of the jaw C pivotally connected therewith, and constructed with the holding lip c and driving lip b, substantially as described. 3rd. In combination with the jaw B, having the cushion b engaging the sash D, the jaw C co-operating therewith, and constructed with the notch e formed by the lips c, d, whereby the point F is grasped, substantially as herein stated. 4th. The combination, with the operating jaw B, of the jaw C pivotally connected therewith and constructed with the holding lip c, driving lip b and the transversely disposed shoulders a, adapted to engage the edge of the point, for purposes herein specified.

#### No. 27,682. Cam for Shingle Edging Machines, etc. (*Came pour machines à dresser le bardeau, &c.*)

Samuel Bromley, Pembroke, Ont., 1st October, 1887; 5 years.

*Claim*.—The cam A, having two vertically spiral faces 2, 2, to push laterally two eccentric horizontal faces 3, 3, to push vertically two radial faces diametrically opposite stopping against the faces 2 and 3, to break the push, and a central hole 5 to receive the driving shaft on which the cam is placed, as set forth.

#### No. 27,683. Shaft Key for Holding Gears, Wheels, etc., in Position. (*Clavette d'arbre pour maintenir en position les engrenages, les roues, etc.*)

William N. Woodruff, Hartford, Conn., U. S., 10th October, 1887; 5 years.

*Claim*.—The combination, herein described, the same consisting in a shaft having longitudinally thereof a key seat concaved, substantially as described, a part fitting said shaft and having a key-way and a key lying in said key-seat, one edge of said key being formed convex to fit the concavity of the key-seat, and the other edge thereof being fitted to the key-way in said part, substantially as described.

#### No. 27,684. Harness Buckle. (*Boucle de harnais.*)

John M. Hill and Alexander McRae, Collingwood, Ont., 1st October, 1887; 5 years.

*Claim*.—As an improved article of manufacture, the buckle described, consisting of the rectangular frame a, the longitudinal bars of which are enlarged to form bearings for a shaft, the shaft c journaled therein, the shank A pivoted on said shaft and slotted, as described, the tongue d pivoted on said shaft and working in said slot, and extending in the opposite direction from said shank, and the strap part B connected to said shank by a swivel-joint, substantially as described.

#### No. 27,685. Door Stop and Holder.

(*Butoir Arrête-porte.*)

Philip T. Halls, Elmville, Ont., 1st October, 1887; 5 years.

*Claim*.—1st. The combination of a pivotal holder B, formed with a bevelled or inclined and hooked end D, in combination with the stop plate A formed with an eye C, substantially as shown and described and for the purpose specified. 2nd. The combination of a pivoted holder B, formed with a bevelled or inclined and hooked end D, plate E, ribs F and pins G, in combination with a stop plate A, formed with an eye C bevelled or inclined on one side, substantially as shown and described and for the purpose specified.

#### No. 27,686. Machine for Cutting Bands of Sheaves in Combination with Thrashing Machines. (*Machine à couper les liens des gerbes pour les machines à battre.*)

Robert Aldred and Peter D. McCollam, Glencoe, Ont., 1st October, 1887; 5 years.

*Claim*.—1st. The rotary circular cutter or saw A, which is placed about the centre and in front of the cylinder of the thrashing machine, so as to come in contact with the sheaves of grain, substantially as and for the purpose specified. 2nd. In a band cutting machine, the adjustable iron frame B and short shaft c, in combination with sprocket-wheel D and malleable chain F, and sprocket wheel G, substantially as and for the purpose specified. 3rd. In a band cutting machine, the driving shaft H, bracket boxes I, I, platform J, slotted circular standard K, pulley m, all combined substantially as and for the purpose specified.

#### No. 27,687. Folding Clothes Bar.

(*Séchoir à linge pliant.*)

David M. Pickett, Dearborn, Mich., U. S., 1st October, 1887; 5 years.

*Claim*.—The combination of the central standard, the heads mounted thereon and provided with slots for the reception of the arms, the sliding arms secured therein by pins, which prevent their withdrawal therefrom, and the standards hinged to the outer ends of the arms, all as specified.

#### No. 27,688. Receiver for Electrical Type Writers. (*Récepteur pour graphotypes électriques.*)

James F. McLaughlin, Philadelphia, Penn., U. S., 1st October, 1887; 5 years.

*Claim*.—1st. An electro-mechanical receiver, comprising a series of fulcrumed type-levers, carrying respectively the desired type or symbols, electro-magnets for actuating said levers, a local circuit, including spacing mechanism, and a suitable circuit-changer in said circuit, operated by each of said type-levers, all arranged to operate as specified. 2nd. A receiver for printing telegraphs, for automatically receiving and printing messages, the combination of a suitable transmitter, having circuit-closing keys electrically connected with a corresponding electro-magnet, of the receiver provided with a pivoted armature located in proximity to the poles thereof, and connected by flexible link-rods to each and every type-lever, a series of fulcrumed type-levers radially and adjustably arranged, as shown, around a central point, and the means, such as described, which automatically operates a local electrical circuit by descent of any said type levers, after the imprint of desired letter is made upon a travelling paper roll, as set forth. 3rd. In a receiver for printing telegraphs, in connection with a suitable transmitter provided with a series of circuit-closing keys, electrically connected respectively with each corresponding electro-magnet, of receiver, the combination of a series of electro-magnets, having each a pivoted armature flexibly connected with upper end of a type-lever by link-rods, a series of fulcrumed type-levers radially and adjustably arranged around a central point, and adapted to be forced up against paper-roll by the attraction of its respective armature, the means for automatically operating a local circuit by descent of said type-levers,

after their imprint or registration is effected, and the electro-mechanical means, such as described, for operating a local circuit without effecting an impression of a type-lever upon the travelling paper roll, as described. 4th. The combination of a series of adjustably fulcrumed type-levers flexibly connected at their upper ends by link-rods with a correspondingly pivoted armature, an electro-magnet operating said armature, whereby said type-levers are forced upwardly by the closing of an electrical circuit, a local circuit and a circuit changer included in said circuit, and operated by the type-levers, as shown and described. 5th. The combination of the electro-mechanical means for effecting the imprint of symbols, comprising a series of fulcrumed type-levers, electro-magnets for severally actuating said levers, a local electrical circuit and circuit-changer therein operated by any of said type-levers, with means, as shown, for gradually advancing and inking an endless ribbon by which the type-levers record their imprint upon the paper, and a travelling paper-roll for automatically feeding said paper, substantially as described. 6th. The combination of a series of fulcrumed type-levers radially supported around a central point, with electro-mechanical means for actuating said type-levers, and an automatic device for operating a local electrical circuit by the descent of any one of said levers, as specified. 7th. The combination of a suitable transmitter for printing telegraphs, having a series of circuit-closing keys electrically connected with a series of corresponding electro-magnets circularly arranged in a receiver with said magnets, each having a pivoted armature adapted to be attracted by both poles of its respective magnets, and the conducting circuit-ring electrically connected with a suitable battery and with each magnet, substantially as described. 8th. The combination of a suitable transmitter for printing telegraphs, having a series of circuit-closing keys, each electrically connected with a respective electro-magnet in a receiver with the receiver, such as described, for automatically printing each letter indicated by the depression of key of transmitter upon a travelling paper roll, by the upward stroke of one of a series of fulcrumed type-levers actuated by the closing of a circuit by said key of transmitter, and at a determinate instant thereafter operating a local electrical circuit, by the descent of the same type-lever, which made the impression upon the said paper-roll. 9th. In a combined transmitter and receiver for an electrical type-writer, a transmitting instrument having a series of circuit-closing keys, each electrically connected to one of a series of corresponding electro-magnets in a receiver, the receiver comprising a series of fulcrumed type-levers and electro-magnets provided with armatures for actuating said type-levers, in combination with a local electrical circuit, including a circuit changer, spacing mechanism in said circuit, and means, such as shown and described, for cutting the receiver out of circuit with its respective transmitter, as shown and described. 10th. The combination of the receiver for an electrical type-writer, with the shunt plug-switch having a removable plug for making a dual electrical contact, both with the series of switch segments and the perforated circular battery plate cutting said receiver in or out of circuit with its respective transmitter, and for shunting the transmitter in the circuit, the electrical connections and the circuit, as set forth. 11th. In an electrical type-writer, the combination of a series of electro-magnets, each having a lower extended pole-piece and circularly arranged, as shown, a series of armatures corresponding in number and relative situation with the said magnets, and acted upon severally by both poles of their respective magnets, a series of type-levers actuated by said armatures, a circuit-ring electrically connected with each magnet, the circuit, the electrical connections and the transmitter, as specified. 12th. The combination of a series of electro-magnets, each having an extended lower pole-piece, the circuit-ring electrically connected respectively with the electro-magnets, the electrical connections, the transmitter, the pivoted armatures acted upon by both pole-pieces of each magnet, and the adjustable supports for said armatures, as set forth. 13th. The combination, with the transmitter, having each key thereof electrically connected to its corresponding magnet, the electro-magnets, arranged as shown, the circuit, the parallel ring having a binding-post for each magnet, the pivoted armatures, the adjustable supports therefor, and the slotted ring carrying said supports, substantially as specified. 14th. The combination of the series of circularly-arranged electro-magnets, connected electrically with their respective keys of transmitter, and each having a lower extended pole-piece, the pivoted armatures, the adjustable supports, the fulcrumed type-levers and the connections between each armature and type-lever, substantially as described. 15th. The combination of electro-magnets, arranged as shown, and having their lower poles converted and brought up in proximity to lower arm of pivoted armature, the pivoted elbow-shaped armature, the adjustable supports and slotted ring therefor, the link-rods and links connecting the forward end of each armature with upper end of its respective type-lever, the fulcrumed type-levers and their supporting ring provided with transverse central slot, as described. 16th. The combination of the ring, carrying the adjustable type-lever supports, and having a central transverse slot, the adjustable type-lever supports, and having a central transverse slot, the adjustable type-lever supports and the type-levers, whereby the said levers may be adjusted at any desired intervals apart and in an inclined position, as shown. 17th. The combination of levers L, I, with ring K, strip  $\lambda$ , finger  $\alpha$ , and the electrical wires connecting respectively ring K and strip  $\lambda$  with secondary circuit. 18th. The means, such as shown, for cutting the receiver out of circuit with its respective transmitter, which consists of a plug switch having a series of segments corresponding in number both to keys of transmitter and magnets of receiver, which are each electrically connected to their respective keys of transmitter, a metal plate in circuit with battery of receiver, and a removable conducting plug of suitable shape to simultaneously make contact with segments and battery plate when inserted, substantially as described. 19th. The means, such as shown, for cutting the receiver out of circuit with its respective transmitter, which consists of a plug switch having a series of segments corresponding in number to the keys of a transmitter, which are each electrically connected to their respective keys of the transmitter, a metal plate in circuit with a battery of a receiver, and removable conducting plug of suitable shape to simultaneously make contact with segments and battery plate when inserted, substantially as described. 20th. The combination of the transmitter and the re-

ceiver with the plug switch, consisting of a series of segments corresponding in number to keys of transmitter, and connected by wires  $\alpha$  and  $\alpha'$  to said keys, the insulating ring P, plug P, and plates R and O, and the battery of the receiver electrically in circuit with plate R, as described. 21st. The combination of the curved parallel levers t, z, keys U, U, arranged as shown, the cushion stops W and W', shaft  $\tau$ , bearing  $\tau$ , connections V, V, armatures d, d, and the base C $\tau$  having perforations  $\nu$ ,  $\nu$ , as described. 22nd. An electro-mechanical type-writer comprising a series of fulcrumed type-levers carrying respectively the desired types or symbols, electro-magnets for actuating said levers, circuit closing mechanism for directing the current through a particular magnet, the main circuit, a local circuit, a local circuit including spacing mechanism, and a suitable circuit changer in said local circuit operated separately by each of said type-levers, all arranged to operate, as specified. 23rd. In an electrical type-writer, a series of fulcrumed type-levers, electro-mechanical means for actuating said type-levers, a travelling carriage, a local circuit, an electro-magnetic motor in said circuit for advancing the carriage step by step, and a circuit changer, also included in the local circuit, operated by the type-levers, substantially as described. 24th. In an electrical type-writer, circuit-closing mechanism for directing the current severally through a series of magnets, a magnet provided with a circuit changing armature, a circuit operated by said armature, electro-magnetic spacing mechanism in said circuit, and a travelling carriage, all arranged to operate as set forth.

### No. 27,689. Clothes-Drier. (*Séchoir à linge.*)

Jesse Stimden, Gananoque, Ont., 1st October, 1887; 5 years.

*Claim.*—A clothes-drier consisting of bars A, B, pivoted at lower end to bar C, and at top hinged to bars F, I, connected together by notches and studs K, side bars G, J pivoted to the outer ends of bars F, E, and to bottom bar L provided with a pivoted brace M, notched to engage stud N on bar G and lines P, stretched across from bar A to bar B, and from bar G to bar J, as set forth.

### No. 27,690. Motor. (*Moteur.*)

Jérôme Latour, North Winchester, Ont., 1st October, 1887; 5 years.

*Claim.*—1st. The combination of the eccentric gear wheels F on the shaft A, and meshing into the eccentric gear wheels G on the shaft B, and the fly wheels D attached to the wheels F with the frame C. 2nd. The combination of the weighted fly wheels D and spur gear wheels F and G, with the grooved brake wheels H on the shaft I, the springs  $\kappa$  connecting the shaft bearings with the sliding frame J and the shaft L, bevel gears  $m$  and screws  $k$ , arranged to move said sliding frame, all substantially as herein shown and described.

### No. 27,691. Saw Mill Dog. (*Clameau de scierie.*)

William Gowen, Wausau, Wis., U.S., 1st October, 1887; 5 years.

*Claim.*—1st. The combination of the standard A provided on opposite sides with oblique slots, the dogs a,  $\alpha$ , arranged to work in opposite directions in said slots, dog bars B, B $\tau$ , lever C pivoted to one of said dog bars and provided with an arm E, by which it is connected to the other, substantially as and for the purposes set forth. 2nd. The combination of the standard A provided on opposite sides with oblique grooves or guides, dogs a,  $\alpha$ , arranged to work in said grooves, dog bars B, B $\tau$ , to one of which each set of said dogs is pivoted, lever C pivoted to one of said dog bars and provided with an arm E, and rod F connecting the said arm E with the other dog bar, substantially as and for the purposes set forth. 3rd. The combination of the standard A having oblique grooves or guides in its opposite sides, two sets of dogs arranged to work in opposite directions in said grooves, dog bars B, B $\tau$ , lever C pivoted to one of said dog bars and provided with an arm E, by which it is connected with the other spring O, gib d and adjusting bolt d $\tau$ , substantially as and for the purpose set forth. 4th. The combination of the standard A, dogs a,  $\alpha$ , arranged to work in opposite directions, dog bars B, B $\tau$ , connected therewith and having notches g, g, catches H, H, and the spring bail G arranged to operate said catches and retain them in place, substantially as and for the purposes set forth. 5th. The combination of standard A, oppositely working dogs a and  $\alpha$ , dog bars B, B $\tau$ , connected therewith, lever C pivoted to one of said dog bars and provided with an arm E, by which it is connected with the other, and spring I arranged to retain said lever in its upper position, substantially as and for the purposes set forth. 6th. The combination, with the standard and two sets of dogs, one working upwardly and the other downwardly, and each connected by a dog bar, of a lever fulcrumed to, and movable with one dog bar and connected with the other, and provided with a projection, which bears against one side of said standard, and thereby holds the dog bar and its dogs on the opposite side thereof in their proper working position, substantially as and for the purposes set forth. 7th. The combination, in a saw-mill dog, of the standard having oblique grooves and dogs working therein, and formed with abrupt shoulders at the commencement of the bevel forming their cutting edges, whereby said grooves are cleared and kept free from dust, etc., substantially as and for the purposes set forth.

### No. 27,692. Car-Coupling. (*Attelage de chars.*)

George W. Lewton, Eldora, Iowa, U.S., 1st October, 1887; 5 years.

*Claim.*—The combination, in a car-coupler, of the draw-head having the vertical opening therein, shaft C having a crank-arm D, pin G secured on the said shaft lever K, connected with the said crank-arm and the adjustable weight L sliding on the said lever, all arranged and operated substantially as specified.

### No. 27,693. Seat for Railway Cars.

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

James L. Wiseman, Montreal, Que., 1st October, 1887; 5 years.

*Claim.*—1st. In a car seat, the combination, with the ends provided with pivot pins, of the turnover back and slotted connections turning

and sliding on such pivot points, as and for the purposes described. 2nd. In a car seat, the combination, with the ends of back C with extensions Ct, Ca, of arm B slotted so as to turn and slide on pivot pin a, all as and for the purpose set forth. 3rd. The combination of the seat end A with pivot point a, slotted arm B, back C and catch D, all as and for the purposes described.

**No. 27,694. Manufacture of Hydraulic Cement.** (*Fabrication de la chaux hydraulique.*)

Ruggles Wright, Hull, Que., 1st October, 1887; 5 years.

*Claim.*—1st. A hydraulic cement composed of lime, clay and an alkaline solution, mixed, ground, calcined and pulverized, as set forth. 2nd. The manufacture of a hydraulic cement by calcining limestone, pulverizing the lime product, adding thereto pulverized clay and tempering the mass with an alkaline solution, then calcining the same and reducing the product to a powder by pulverization, as set forth.

**No. 27,695. Spark Arrester.** (*Garde-étincelle.*)

James M. C. Tyner, Aberdeen, Dak., U. S., 1st October, 1887; 5 years.

*Claim.*—1st. The combination, with the smoke stack and the head, the former extending up into the latter, which is provided with lugs on its inner side of a removable spark-arrester consisting of an inverted wire cloth cone secured at its base between annular plates, a downwardly-extending and outwardly flaring wire cloth apron secured at its top between said plates, the bottom of the apron fitting the interior of the head and resting on the lugs, and laterally acting springs for securing the arrester in place, substantially as described. 2nd. The combination, with the smoke stack and the head, the former extending up into the latter, which is provided with lugs on its inner side, above the top of the stack, and an outlet at the junction of the stack and head, a conduit removably attached to the outlet, and a removable cap for the conduit, of an inverted wire cloth cone whose apex extends into the stack and whose base is secured between annular plates, a downwardly extending and outwardly flaring wire cloth apron secured at its top between said plates, the bottom of the apron fitting the interior of the head and resting on the lugs, and laterally acting springs secured to one of the annular plates and hooked under the lower edges of the apron, substantially as described and for the purpose set forth.

**No. 27,696. Stove Pipe.** (*Tuyau de poêle.*)

Walter S. Ships, Minerva, Ohio, U. S., 1st October, 1887; 5 years.

*Claim.*—1st. A pipe section consisting of a sheet of metal having two of its opposite edges provided with oppositely turned flanges, and having a lip or projection formed near one end of said flanges, and adapted to engage over the edge of the opposite flange, substantially as set forth. 2nd. A pipe section consisting of a sheet of metal having two of its opposite edges provided with oppositely turned flanges and having a lip near one end of each of said flanges, said lips being upon opposite ends of the section and extending respectively inwardly and outwardly, substantially as set forth. 3rd. A pipe section consisting of a sheet of metal having two of its opposite edges provided with oppositely turned flanges, and a lip near one end of each of said flanges, said lips extending respectively inwardly and outwardly, being upon opposite ends of said sections and struck up from the sheet of metal and projecting over and above their respective flanges, and the flanges being provided with a nick or notch at one end, substantially as set forth. 4th. A pipe section consisting of a sheet of metal having two of its opposite edges provided with oppositely turned flanges, and a lip near one end of each of said flanges, said lips being upon opposite ends of said section and one of them being nearer the end of the section than the other, substantially as set forth.

**No. 27,697. Screen Guard for Railway Car Seats.** (*Ecran pour sièges de chars de chemin de fer.*)

Richard Smith, Sherbrooke, Que., 1st October, 1887; 5 years.

*Claim.*—1st. A screen-guard for railway car-seats composed of a screen adapted to be temporarily mounted upon and extensible longitudinally the entire top of a car-seat back, to which it is secured, substantially as and for the purposes herein stated. 2nd. In combination with a car-seat and the reversible back thereof, an extensible screen-guard composed of sections 1, 2, 3 surmounting said back, its entire length, and pivotally attached to the side of the car, substantially as described. 3rd. In a railway passenger-car, a series of windows B, C, intervening panels C, Ct and seats D, Dt, having the reversible backs E, Et, in combination with a series of extensible screen-guards a, at, adapted to surmount and be secured temporarily upon said backs E, Et, each screen-guard serving to co-operate with the two car-seat backs adjacent to the panel on which it is affixed, substantially as specified. 4th. The combination, with a car-seat D and its reversible back E, of the extensible screen-guard a adapted to be folded against the panel C to which it is pivotally secured, and the locking bolts b, b, which render it a temporary fixture upon the back E, substantially as hereinbefore stated.

**No. 27,698. Paint.** (*Peinture.*)

George W. Banker, Brooklyn, N. Y., U. S., 1st October, 1887; 15 years.

*Claim.*—1st. The above-described paint composed essentially of corn oil and a pigment, substantially as set forth. 2nd. The above-described paint composed essentially of corn oil and a dryer and a pigment, substantially as set forth. 3rd. The within-described paste paint composed of a pigment ground in corn oil, substantially as set forth.

**No. 27,699. Appliance for Locking Bolts and Nuts.** (*Arrête-écrou.*)

Arthur T. Allen and Henry Cavill, Sheffield, Eng., 1st October, 1887; 5 years.

*Claim.*—1st. An appliance for locking bolts and nuts consisting of locking washers, with undercut teeth arranged to intermesh with each other and to be turned in contrary direction to be disengaged, substantially as shown and described. 2nd. As a means for holding together the ends of two railroad rails, the combination, with such rails, of bolts B, fish-plates A, A', washers D and E, as shown and described.

**No. 27,700. Frame for Door and Window Openings.** (*Châssis de porte et de fenêtre.*)

John E. Stuart, Newark, N. J., U. S., 3rd October, 1887; 5 years.

*Claim.*—1st. A door or window-frame composed of stiles and rails, each formed with a longitudinal groove or grooves, in combination with fastening-plates for said stiles and rails, each plate being provided with transverse and longitudinal ribs corresponding in number to said grooves and made to enter therein, substantially as shown. 2nd. A door or window-frame composed of stiles and rails, each formed with a longitudinal groove or grooves, in combination with fastening-plates for said stiles and rails, each plate being provided with transverse and longitudinal ribs corresponding in number to said grooves, said longitudinal ribs of each plate being separated from said transverse ribs by a space *g* equal in width to the distance between a groove and the side of the stiles, as described.

**No. 27,701. Lubricating Compound.**

(*Composition lubrifiante.*)

Edward C. Leahy, Halifax, N. S., 3rd October, 1887; 5 years.

*Claim.*—A lubricating compound consisting of oil, lard, tallow, plumbago, yarn waste, stannous chloride crystals, carbonate of soda, and chloride of sodium, compounded as set forth.

**No. 27,702. Electric Temperature Regulator.** (*Régulateur électrique de température.*)

Charles E. Lee, Rochester, N. Y., U. S., 3rd October, 1887; 5 years.

*Claim.*—1st. The combination, with the electromagnet E, of the pivoted armature G, provided with arm *f*, and the make-and-break L consisting of arms *e*, *e'* and segments *r*, *r'*, and the electric connections *s*, *s'*, substantially as described. 2nd. The combination, with electromagnet E, of the pivoted armature G provided with arm *f*, and the make-and-break L consisting of arms *e*, *e'*, and segments *r*, *r'*, electric connections *s*, *s'*, thermostat R, damper B and double electric circuit O, P, Q, substantially as described. 3rd. The combination, with the electromagnet E, of the damper B and pivoted armature G, arranged to swing in a circular arc across the pole of the magnet, a double electric circuit and a thermostat, and a pivoted make-and-break operated by the armature and constructed to break one of the electric circuits at the time the armature is nearest the magnet, and to close the other circuit at the end of the oscillation of the armature, whereby the device is adapted to open and close the damper positively by the attraction of the magnet, substantially as and for the purpose set forth.

**No. 27,703. Combined Flour Receptacle and Sifter.** (*Farinibre-tamis.*)

Frederick A. Tyler, Rome, N. Y., U. S., 3rd October, 1887; 5 years.

*Claim.*—1st. The herein-described combined flour receptacle and sifter comprising the vertical receiver having the contracted discharge end, a removable discharge throat carrying a swinging cover at its lower end, the locking devices for detachably connecting the throat to the receiver, the screen housed within the throat, an agitator located above the screen, the vertical flanges affixed to the receiver, and the back-board secured between the flanges, substantially as and for the purpose described.

**No. 27,704. Fence Post.** (*Pieu de clôture.*)

Daniel B. Ayres, Brooklyn, Mich., U. S., 3rd October, 1887; 5 years.

*Claim.*—The fence posts described, consisting of the wrought iron bar A having its lower end bent at right angles, as at *a*, the plate G secured to said part *a*, the plates D, E secured to said bar by angle irons, as shown, and the wooden top portion B secured to said bar, above the plate E, substantially as herein shown and described.

**No. 27,705. Electro-Automatic Synchronal Motor Escapement.** (*Moteur échappement synchrone électro-automatique.*)

James F. McLaughlin, Philadelphia, Penn., U. S., 3rd October, 1887; 5 years.

*Claim.*—1st. The means for synchronously revolving two or more separated shafts, which consists essentially of a train of wheels or other suitable mechanism for imparting and transmitting rotary motion respectively to each of said separated shafts, a metallic insulated drum or wheel revolved by the same mechanism hereinbefore mentioned, and provided on its tread or periphery with a current conducting projecting pin or stud, and having a portion of its periphery formed of insulating material, the two contact-brushes, or equivalent devices, bearing normally at separate and relative points upon the periphery of said drum or wheel, and electrically connected substantially in the manner described, an electromagnet included in the line circuit, a pivoted lever provided with the armature of the said electromagnet and adapted to normally obstruct the passage of the current conducting pin, the electrical connections, means for

making and breaking the circuit and a suitable source of electricity, the whole being arranged to operate substantially as specified. 2nd. The two instruments located respectively at two extremities of a line circuit, and each consisting essentially of suitable mechanism for rotating their respective main shafts, a metallic drum or wheel also rotated by said mechanism having a portion of its periphery formed of, or provided with insulation, for the purposes described, a current conducting pin or stud located upon the periphery of said wheel, at a certain distance from the insulation, two contact-brushes or equivalents, normally bearing at relative and different points upon the said drum or wheel and included in an electrical circuit, and electromagnet also included in the said circuit, a pivoted reciprocating lever carrying the armature of the electromagnet and adapted to obstruct the path of the before mentioned current conducting pin or stud, when in its normal inactive position, and the electrical connection within the said instruments, in combination with the line circuit, means for making and breaking said circuit and a suitable source of electricity. 3rd. The two instruments or motors respectively located at two extremities of a line circuit and each consisting essentially of suitable mechanism for rotating their respective main shafts, a speed governor for controlling the speed of said main shaft, a metallic drum or wheel also rotated by said mechanism having a portion of its periphery formed of or provided with insulation, for the purpose described, a current conducting pin or stud located also upon the periphery of said wheel at a certain distance from the insulation, two contact-brushes or their equivalents, normally bearing at relative and different points upon the said drum or wheel and included in the electrical circuit, an electromagnet also included in said circuit, a pivoted metallic reciprocating lever carrying the armature of the said electromagnet and adapted to obstruct the path of the before mentioned current conducting pin or stud, when in its normal inactive position, and the electrical connections within the said instruments, in combination with an electrical line circuit, means for making and breaking said circuit, and a suitable source of electricity. 4th. The combination of two wheels or drums, each mounted upon and insulated from a rotating shaft, and each having a portion of its periphery provided with insulation, two metallic pins or studs secured respectively upon the peripheries of the said drums or wheels, two pairs of contact-brushes or their equivalents, bearing respectively in pairs upon the drums or wheels at different points, two electromagnets located each in proximity to its respective armature, two armatures respectively affixed to two reciprocating pivoted levers, two reciprocating metallic pivoted levers adapted each to normally obstruct the path of each of the current conducting pins or studs, the respective electrical connections, means for making and breaking the circuit, and a suitable source of electricity, as shown and described. 5th. The combination of the metallic drum or wheel mounted on, and insulated from a rotating shaft, and having a portion of its periphery formed of insulation, a metallic pin or stud secured at predetermined point upon the periphery of the said drum and wheel, the shaft, means for rotating same, the contact-brushes bearing normally at relative and different points upon the said drum or wheel, an electromagnet, a pivoted reciprocating metallic lever carrying the armature of the said electromagnet and adapted to normally obstruct the path of the metallic pin or stud, the electrical connections, the circuit and a circuit-closer, as specified. 6th. The combination of the train of wheels actuated by a suitable motive power, the main shaft of the motor provided with a universal joint, for the purpose described, an adjustable speed governor arranged to control the rate of speed of the said motor shaft, and the electro-mechanical devices for intermittently arresting and correcting the speed of the main shaft and its actuating mechanism, substantially as shown and specified. 7th. The combination of an electromagnet in circuit with its armature, and armature pivotally supported opposite to its electromagnet, a pivoted reciprocating metallic lever carrying said armature and provided with suitable retracting spring, a drum or wheel having a portion of its periphery formed of insulation and provided with a metallic projecting pin, said wheel or drum being in circuit with a source of electricity through a suitable device for making and breaking the circuit from said source, the two contact-brushes normally bearing at relative and different points upon the periphery of said drums, means for making and breaking said circuit and the circuit, as specified. 8th. The combination of the two motors, of the construction, substantially as described, and located respectively at separate extremities of a line circuit, and each having a clock-work mechanism operating by a weight, or its equivalent, a speed governor, a main shaft provided with a drum or wheel, a portion of its periphery formed of insulation and provided with a current conducting pin at a relative distance from said insulation, the contact-brushes bearing normally at relative and different points upon the main drum, and two electro-mechanical devices, such as shown, for synchronously controlling and automatically correcting the relative speed of said motors with a line circuit, and means for making and breaking said circuit, as specified. 9th. The combination, with an insulated drum or wheel having a piece of insulation located upon its periphery, of a current conducting pin located also upon the periphery of said drum or wheel at a relative distance from the said wheel or drum, at a relative distance from the insulation, mechanism for normally rotating said drum or wheel, two contact-brushes bearing normally upon the periphery of said drum at relative and different points and out of line with the current conducting pin, the electro-mechanical auxiliary escapement devices, the circuit and a suitable source of electricity, as specified.

## No. 27,706. Machine for Drilling Rock.

(Machine à percer la roc.)

Eugene Moreau, Philadelphia, Penn., U. S., 3rd October, 1887; 5 years.

Claim.—1st. In a rock-drilling machine, the combination of the inclosing case F, the gates H, the sleeves E in which said case can slide freely, the strap D in which the sleeve E and, with it, the case F, containing the entire drill-operating mechanism can rotate, the locking device, whereby the sleeve E is held to the bracket C, the clamp B, constructed as described, the revolving hammer

frame R, the reciprocating hammers T, the cam rollers U, the crank-shaft M, the bevel-wheel  $m_1 m_2$  for operating the hammer-frame, the hammer driving-spring t, the hammer locking end releasing devices, the feed-screw N working in the feed-nut G, which latter is adjustably attached to the sleeve E by the latch g, the spring-rod V5, the presser-foot  $\alpha_3$ , and the latch  $r_5$ , the drill-socket  $\alpha_{10}$ , the four-tooth cam  $\sigma$  rotated by the hammer-frame and the hollow-stem V, all operating substantially as shown and described. 2nd. In a rock-drilling machine, the combination of the inclosing case F, the gates H, the hammer-frame R capable of being revolved upon suitable bearings, by means of the bevel-wheel  $m_1 m_2$  operated by a crank, the hammers T capable of being reciprocated in guides upon the hammer-frame R, by helical springs  $t_5$  and cam rollers U, the spring triggers  $r_2$  for locking and releasing the said hammers, the feed-screw N working in the feed-nut G, the pinion  $m_4$  gearing with the spur-wheel  $m_5$ , which in turn is adjustably secured to the bevel-wheel  $m_2$ , by spring-latch operated by a rod V5, passing through the hammer-frame and bearing by a presser-foot  $\alpha_3$  upon the drill-socket  $\alpha_{10}$ , the said drill-socket being intermittently revolved by a cam  $\sigma$  actuated by the said hammer-frame when it is revolved, all being constructed substantially as described and for the purpose set forth. 3rd. In a rock-drilling machine, the combination of the feed-nut G, locked to the sleeve E by the latch g, the feed-screw N, revolved by the pinion  $m_4$ , which is also connected with the feed-screw N by a spring-latch released when required by means of the thumb-piece  $m_5$ , the said pinion  $m_4$  being in its turn revolved by the spur-wheel  $m_5$ , secured to the bevel wheel  $m_2$  by a latch  $r_5$ , the said latch being retained in its place by a spring  $r_2$  and released by the rod V5, which passes through the centre of the hammer-frame and bears, at its opposite end, by means of a presser-foot  $\alpha_3$  upon the end of a tool-socket  $\alpha_{10}$ , against which it is pressed by a spring  $r_5$ , the bevel-wheel  $m_2$ , above-referred to, being driven by a bevel-wheel  $m_1$ , capable of being turned by a crank, and the whole operating, substantially as described, to feed the drill-tool forward in measure as it penetrates the rock. 4th. In a rock-drilling machine, the combination of the tubular feed-nut locked to the ring, in which the case of the machine slides a feed screw bearing in the inclosing case in one end, and at the other end working in said feed-nut, a pinion locked to the feed-screw by a clutch, when automatic feed is not required, and gearing with a wheel which is caused to rotate with the hammer-frame by a latch catching in the bevel wheel which drives the said hammer-frame, the said latch being operated automatically by a rod passing through the centre of the hammer-frame and kept pressed against the tool-socket, by suitable springs, the whole operated substantially as set forth, to feed the tool forward in measure as it penetrates the rock. 5th. In a rock-drilling machine, the improved device for regulating the feed automatically, consisting of the presser-foot  $\alpha_3$  bearing against the drill-tool socket  $\alpha_{10}$ , and rod  $r_5$  passing freely through the centre of the hammer-frame held against the presser-foot  $\alpha_3$  by the spring  $r_5$ , and its other end entering a latch  $r_5$ , which passes through the bevel-wheel  $M_2$ , and locks it to the spur-wheel  $M_5$ , as long as the tool enters the rock fast enough to allow of the distention of the latch-spring  $r_2$  and releasing the said spur-wheel  $m_5$ , when the tool, meeting greater resistance, presses by means of the presser-foot  $\alpha_3$  and rod  $r_5$  against the latch  $r_5$ , compressing its spring and withdrawing it from its notch in the wheel, the whole operating substantially as shown and described. 6th. A supporting device, consisting of the combination of the following parts, a clamp of any suitable construction, provided at one end with a ring B, which has an internal flange  $b'$ , a bracket C to which the machine is attached, and a circular plate  $c$  held to the bracket C by a pin  $c_3$  and a bolt  $c_2$ , the flange of the said ring B being tightly clasped by the bracket and plate, when the eccentrically-placed bolt  $c_2$  is tightened, substantially as described and for the purposes specified. 7th. In a rock-drilling machine, the combination of the sleeve E in which the tubular inclosing-case F rests and can be fed forward by the feed-screws N turning in the feed-nut G, the said feed-nut G being provided with a locking device for holding it in place, which locking device consists of a lever  $p$  pivoted at  $p'$ , and having a notch which fits over the nut and into a groove cut in it, a thumb-latch  $g_3$  held to  $g$  by a pivot  $g_5$ , and provided with a lip  $g_4$ , which can engage with a lip upon the sleeve E, all the said parts co-operating to secure the feed-nut G, so that it can neither be withdrawn nor rotated, all constructed substantially as shown and described. 8th. In a rock-drilling machine, the toothed cam  $\sigma$  rotated by a shaft connected with the main driving gear and itself meshing with the toothed outer circumference of the drill-socket  $\alpha_{10}$ , the said socket having a polygonal hole for the shank of the drill-tool, in combination with a pawl  $\alpha_1$ , pressed by a spring firmly against the socket  $\alpha_{10}$ , so that it is stopped after receiving its required portion of a revolution and before the next tooth comes in contact with the succeeding tooth of the cam  $\sigma$ , thus preventing the transmission of shocks injurious to the working mechanism of the machine. 9th. In a rock-drilling machine, the combination of hammers capable of being reciprocated by suitable mechanism about an axis parallel with the axis of the hammers, with spring triggers bearing friction rollers at their ends, the said triggers being pivoted to a drum attached to the revolving hammer-frame and pressing at one of their ends into notches in the ends of the hammers, and at the other ends bearing against pivoted levers or pawls upon the face of the drum, which levers or pawls are in turn forced against the triggers by being brought, in the course of the rotation of the machine, against a cam affixed to the inclosing case of the machine, all substantially as shown and described and for the purpose set forth. 10th. In a rock-drilling machine, a loosely-fitting helical spring bearing at one end against a conical internal support or thimble upon a stem of the reciprocating hammer, and also at the other end bearing upon a like thimble secured to the revolving hammer frame opposite the end of the hammer, in combination with the said hammer-frame and hammers, all constructed substantially as shown and described. 11th. In a rock-drilling machine, a hammer reciprocating in a revolving frame by means of a helical driving spring surrounding a stem forming a part of the hammer, the said spring being compressed by cams upon the stationary frame of the machine and upon the hammer, which is itself rotated about an axis parallel, but not coincident with its own axis by a crank and intermediate gearing, in combination with a pivoted and spring-actuated

trigger bearing upon its end, a friction-roller which engages in the notch in the end of the hammer, and locks it when the hammer-driving spring is compressed, and releases it when required by a pawl or lever, operated by a cam fixed upon the inclosing case of the machine, all constructed substantially as shown and described. 12th. In a rock-drilling machine, a cylindrical inclosing-case, provided with gates hinged to a narrow strip forming an integral portion of the case above referred to and constructed to expose, when opened, almost the entire circumference of the inclosed working mechanism, the said gates being locked, when closed by a flanged lid fitting over small flanges upon the edges of the gates, and this lid being itself secured by a latch pivoted to it, and locking by means of a projecting lip fitting into an undercut portion of the inclosing case, all constructed substantially as and for the purpose set forth. 13th. In a rock-drilling machine, a cylindrical inclosing case, provided with hinged gates, on the inside of which freely revolving rollers are set, to form a helical cam-course acting in concert with cams upon the hammers to compress the hammer-driving springs the whole being constructed and arranged, substantially as shown, to permit of the easy examination, cleaning and oiling of the working parts. 14th. A machine hammer, consisting of a single solid bar of steel, substantially a sector, in its cross-section, the radial sides of the bar being grooved to slide in a hammer-frame, and the curvilinear face being provided with a cam forming a portion of a helix, said hammer being further shaped at one end for the delivery of a blow, and at the other and formed into a stem for a helical driving steam and a notch by which the hammer can be locked in place upon its frame, when required, all constructed substantially as shown and described. 15th. In a rock-drilling machine, reciprocating hammers mounted to slide freely in guides upon a revolving frame, the said hammers being each provided with coiled driving-springs, and a cam which forms a portion of a helix, in combination with freely-revolving rollers mounted upon the inside of the inclosing case of the machine in a helical curve of like pitch, the said rollers acting in concert with the cams upon the hammers to force the hammers back against their actuating springs, when the hammer-frame is revolved, all constructed substantially as and for the purpose set forth. 16th. In a rock-drilling machine, a nose or projection upon the working end of the case of the machine, having a removable pin so placed that, when the said pin is in position, it presses against the shoulder of the drill-tool and prevents it falling from its socket in the machine, constructed substantially as and for the purpose set forth. 17th. In a rock-drilling machine, the combination of a tubular case for inclosing and protecting the working mechanism with a hollow cylindrical sleeve in which the said case rests and can slide freely in the direction of its length, but cannot rotate, and with a strap made in two parts secured together, encircling the said sleeve in a groove, the sleeve, and with it the entire case of the machine being free to rotate upon its longitudinal axis, substantially as shown and described. 18th. The clamp for securing the machine to its supporting column, consisting of a base B, to which the machine is attached, having integral therewith two springing or yielding curved arms  $b_1$  and  $b_2$ , and a rigid curved arm  $b_3$  hinged to the base B, and notched to its other end to receive the end of the eye-bolt  $b_4$ , which is hinged to the yielding arms  $b_1$ ,  $b_2$ , the said bolt  $b_4$  being provided with a nut  $b_5$ , to bear against the arm  $b_3$ , and thus draw the arm  $b_3$  and the yielding arms  $b_1$ ,  $b_2$  together, to firmly clasp the supporting-column or other cylindrical object, substantially as shown and described. 19th. In a rock-drilling machine, the combination of a tubular case for inclosing and protecting the working mechanism, with a sleeve in which the said case rests and can slide freely in the direction of its length, a strap encircling the said sleeve in a groove prepared for it, and a bracket secured to the supporting column of the machine and to which the strap is hinged by suitable lugs, and a pivot and locked by a hand-lever, which, when released, permits the machine inclosing case and the sleeve to be rotated about its axis, parallel with, but not coincident with the axis of the case, as and for the purpose specified. 20th. In a rock-drilling machine, the device for intermittently rotating the drill-tool, consisting of the combination of the revolving hammer-frame R, the hollow stem V pinned to the said frame and revolving with it, the four-toothed cam  $\sigma$ , rotated by a lug upon the stem fitting into a recess cut on the end of the cam, and the socket  $\sigma'$  provided with teeth meshing with the teeth of the cam  $\sigma$ , all constructed substantially as shown and set forth.

### No. 27,707. Centrifugal Pump.

(*Pompe centrifuge.*)

Eli J. Hawley, Manchester, Vt., U.S., 3rd October, 1887; 5 years.

*Claim.*—1st. In a centrifugal pump, the combination, with the casing, the removable cap-plate and a removable annular lining, of side linings, consisting of two plates of hard metal, one of which is placed loosely on each side of the annular, and all of said linings being held in place by the cap-plate of the casing. 2nd. In a centrifugal pump, having a recessed cap-plate, the combination, with the casing, the removable recessed cap-plate and a removable annular concave-faced lining, of side linings, consisting of two plates of hard metal, one of which is placed loosely in the casing on each side of the annular lining, and all of said linings being held in place by the cap-plate of the casing, all as described and for the purpose set forth.

### No. 27,708. Glass Cover for Pictures, etc.

(*Verre pour images, etc.*)

Joseph A. Egginton, Montreal, Que., 3rd October, 1887; 5 years.

*Claim.*—1st. As an improved article of manufacture, a glass cover for pictures, provided with marginal lines  $b$  formed about the field for the picture, and a mirrored or silvered back formed about or around the field for the picture, the whole substantially as described. 2nd. As an improved article of manufacture, a glass cover for pictures, provided with marginal lines  $b$  formed about the field for the picture, and a mirrored or silvered back formed about or around the said field for the picture, and also provided with bevels  $a$ , the whole

substantially as described. 3rd. As an improved article of manufacture, a glass cover for pictures provided with marginal lines  $b$  formed about the field for the picture, and a mirrored or silvered back formed about or around the said field for the picture, etc., and also provided with ornamental cutting, engraving or etching  $d$  and bevels  $a$ , the whole substantially as shown and described.

### No. 27,709. Machine for Holding Grain Sacks and Bags. (*Acroche-sac.*)

James A. Fraser, Portage la Prairie, Man., 3rd October, 1887; 5 years.

*Claim.*—The combination of the parts A, A and B, B, with the hopper bottom, as regards the shooting of the grain either way, also the combination of the parts D, D and E, E, as connected with the supporting and keeping in position of the bags, hereinbefore set forth.

### No. 27,710. Wheel. (*Roue.*)

Frank H. Harris, Toledo, Ohio, U.S., 3rd October, 1887; 5 years.

*Claim.*—1st. A wheel consisting of an axle box or thimble inclosing within a hub, opening between such axle box and hub, diagonally opposite each other in the longitudinal direction of the hub, and spokes passing through such openings with their ends secured to a rim, substantially as described. 2nd. In a wheel, the combination, with a hub having spokes, passages formed longitudinally through said hub, of an axle box supported within said hub, and spokes made in pairs connected together by a horizontal portion passing longitudinally between said hub and axle box, substantially as described. 3rd. In a wheel of the character described, a hub provided with spoke notches upon its ends, and with spoke passages leading longitudinally through the hub, substantially as described. 4th. In a wheel, the combination, with a metallic hub provided with longitudinal spoke passages through the hub, and with spoke notches formed on the ends of the hub, of spokes formed in pairs, each pair being connected by a horizontal portion passing through the hub, of two caps provided with spoke grooves corresponding with those upon the ends of the hub, and of an axle box passing concentrically through the hub and caps and binding them together, substantially as described. 5th. In a wheel, the combination, with a hollow metallic hub made in halves, provided with interlocking meeting faces and with spoke apertures through the end walls, of spokes formed in pairs connected by horizontal portion passing longitudinally through the spoke apertures in the ends of the hub, thereby forming the means for tying the two halves of the hub together, substantially as described. 6th. In a wheel, the combination, of a hollow metallic hub tapering from the centre towards the ends and provided with two like halves, of interlocking meeting faces formed thereon, of circular flanges formed on the outer ends of the hub and provided with spoke notches, of spoke apertures through the end walls of the hub, and apertures corresponding radially with the spoke notches on the same end of the hub, and to spokes formed in pairs connected by a horizontal portion passing longitudinally through the hub, whereby the two portions of the hub are firmly tied together, substantially as described. 7th. In a wheel, the combination of two-part metallic hub  $a$ ,  $b$ , having interlocking circular flanges  $c$ , lug  $d$  and recess  $e$ , the circular flanges  $f$  provided with spoke notches  $g$ , the spoke apertures  $h$  in the end walls of the hub, and the spokes B, B formed in pairs and passing longitudinally through the hub, substantially as described. 8th. In a wheel, the combination, with the two-part hollow metallic hub  $a$ ,  $b$ , having interlocking meeting faces, of the circular flange  $c$  having spoke notches  $g$  formed therein, the spoke apertures  $h$  in the end walls of the hub, the spokes B, B formed in pairs and connected longitudinally through the hub, the caps E having spoke notches  $k$ , and the axle box D concentrically supported in apertures in the end walls of the hub, and connecting the hub and caps together, substantially as described. 9th. In a wheel, the combination, with a two-part hollow metallic hub having interlocking central meeting faces, of central apertures formed in the end walls of the hub, caps fitting against the ends of the hub and having corresponding central apertures with the hub, and means, as described, for tying the hub and caps together through the medium of said axle box, substantially as specified. 10th. In a wheel of the character described, a hub provided with notched circular flanges upon its ends, and with circular flanges forming horizontal spoke passages through the hub, substantially as described.

### No. 27,711. Toy Sling. (*Fronde-jouet.*)

Lewis B. Myers, Fremont, Ohio, U.S., 3rd October, 1887; 5 years.

*Claim.*—1st. In a toy sling, the crotch A having prongs at the ends slitted and forming the fingers  $a$ , combined with rubber having thickened ends introduced into the slits in a stretched condition, and thus held without other fastening, substantially as described. 2nd. In a toy sling, a crotch having prongs slitted or with openings holding and retaining by friction the ends of rubber bands, in combination with a missile-holder fastened separately to each of two bands having thickened ends by a staple over the band within the thickened end, and clinched on the inner face of the missile-holder with the legs of the staple bent inward, substantially as shown and described. 3rd. A sling comprising a crotch of metal, or other suitable substance, having its arms provided with slits, the inner face of the slitted portion being apexiform, and rubber bands confined in the slitted ends, substantially as described. 4th. In a toy sling in which the prongs of the crotch portion are pivoted and capable of folding upon each other, substantially as described. 5th. The pieces B, B, pivoted together and provided with slits or openings to receive the throwing band or bands, in combination with such band or bands and with the missile-holder, the whole comprising a folding sling, substantially as set forth. 6th. A toy sling consisting of a crotch portion and a handle portion made separate, secured together by a suitable pin forming a pivot, each portion being provided with a shoulder, whereby movement in one direction only is allowed, substantially as described.

**No. 27,712. Composition of Matter to be used for the Cure of Horses.**  
(*Composition de matières pour le traitement des chevaux.*)

Hugh G. Turley, Dorchester, Ont., 3rd October, 1887; 5 years.

*Claim.*—A compound composed of iodine, iodide of potassium, cross's sublimate, cantharides, sulphate of copper, prussian blue and arsenic, substantially in the proportions and for the purposes hereinafter set forth.

**No. 27,713. Car Axle Journal Box Cover.**  
(*Couvercle de boîte à graisse de char.*)

François G. Susemihl, (administrator of the estate of Charles G Susemihl, deceased.) Detroit, Mich., U.S., 3rd October, 1887; 5 years.

*Claim.*—1st. In a car axle-box, a wedge-shaped projection on the rear face of the lid of a width substantially the width of the opening in the box, and forming with its lower end a shoulder or rest for the lid in its raised position, substantially as described. 2nd. In a car axle-box lid having wedge-shaped guides engaging into corresponding guide-grooves in the box, a wedge-shaped projection on the rear face of the lid substantially the width of the opening in the box, and forming a guide for the rear face of the lid in raising, and a shoulder upon its lower end for the lid to rest on in its raised position, substantially as described. 3rd. In a car axle-box lid having wedge-shaped guides engaging into corresponding guide-grooves in the box, the solid wedge D upon the rear face of the lid to permit the falling back of the lid in raising it, substantially as described. 4th. In a car axle-box lid having wedge-shaped guides engaging into corresponding guide-grooves in the box, the wedge D upon the rear face of the lid extending nearly across the same and having a pitch as described, to permit the gradual falling back of the lid in raising, and provided with the shoulders *b*, in combination with the stop-rib E, substantially as described. 5th. In a car axle-box lid of the kind described, the combination, with the raised front edge *c* of the roof of the box, of the wedge D extending nearly across the rear face of the lid and forming the shoulder *b*, and the rib E forming a stop for the lid, and the recess *d* between it and the lower end of the wedge, substantially as described. 6th. The combination, with a lid, of a lip upon its back, shaped to permit the lid to be inserted into place, and adapted to be then bent outward and serve as a stop to prevent its removal, substantially as described. 7th. A lid formed of malleable iron and having a lip *f* formed thereon, said lip shaped to permit the introduction of the lid into place, and adapted to be bent outward to prevent its removal, substantially as and for the purposes described.

**No. 27,714. Recording Thermometer.**  
(*Thermomètre enregistreur.*)

Daniel Draper, Hastings-on-Hudson, N.Y., U.S., 3rd October, 1887; 5 years.

*Claim.*—1st. In a recording thermometer, the combination, with a clock movement and a chart carried thereby, of two thermostatic strips, a recording lever and a mechanical connection between said lever and both of said strips. 2nd. In a recording thermometer, the combination of two thermostatic strips, a recording dial and means for revolving the same at a constant rate of a recording arm applied thereto, an arbor carrying the same, a lever having its face formed in the arc of a circle, a wire or other mechanical connection having its ends brought over the face of said lever and fastened to the respective thermostatic strips, substantially as described. 3rd. The combination, in a recording thermometer, of four thermostatic strips, a recording-lever, a mechanical connection between two of said strips and said lever, and an independent connection, two of said strips and said lever and an independent connection between the remaining two of said strips and lever. 4th. The combination, in a recording thermometer, of a recording-arm, a thermostatic strip, a cord or wire connecting said strip and recording-arm, and an adjusting device upon said strip consisting of a screw N<sub>1</sub> having the groove *n*, for changing the point of connection in the length of said strip with said cord or wire. 5th. The combination, in a recording thermometer, of the four bi-metallic strips K<sub>1</sub>, K<sub>2</sub>, K<sub>3</sub> and K<sub>4</sub>, the segments *o*, *r*, levers H<sub>1</sub>, H<sub>2</sub>, the cords A<sub>1</sub>, A<sub>2</sub>, the adjusting screws N<sub>1</sub>, N<sub>2</sub>, *m*, *m*, *m*, the frame A, the perforated case B and the supporting springs *a*, *a*.

**No. 27,715. Sewing Machine.** (*Machine à coudre.*)

Cecil Noble, London, Eng., 3rd October, 1887; 5 years.

*Claim.*—1st. A sewing machine having a pair of needles working opposite each other, diagonally carried by needle bars united by a slide or link moving in, or worked from a centre, and to both which needle bars a combined reciprocatory and oscillatory motion is imparted through the said slide or link, causing the said needles to cross each other in the act of making the stitch, as described. 2nd. In combination with a pair of diagonally placed needle bars having a connecting slide or link imparting to them a combined reciprocatory and oscillatory motion, a screw or like device for limiting such motion and so altering the stitch, substantially as described. 3rd. The general arrangement and combination of parts constituting my new or improved sewing machine, substantially as described and illustrated in the accompanying drawings.

**No. 27,716. Wire Fencing and Method of Erecting Wire Fences or Lines of Wires and Appliances for Constructing the Same.** (*Clôture en fil de fer et manière de faire des clôtures ou lignes en fil de fer, et appareil pour cet objet.*)

John B. Evans, Mabus, Cape of Good Hope, South Africa, 3rd October, 1887; 5 years.

*Claim.*—1st. A fence composed of wires strained from opposite

directions, the ends of which pass each other and held in position by eccentric clips for the purpose of holding the wires at full strain between terminal and terminal, and for the purpose of affording a grip of the loose ends when retightening the fence at any future time, as described. 2nd. A fence terminal formed of a standard with strained horizontal wires passing through or by, and converging to an anchorage in the ground, as shown and described. 3rd. The combination of wood or metal standards notched and tied, and suspenders, as shown, with strained wires passing freely through or by them to the terminals, and rendered if necessary burrow and dog proof by wires set closely together in the fence and other closely set wires strained along the ground, as shown and described. 4th. A portable coil drum, as and for the purpose specified and shown.

**No. 27,717. Percussion Burglar Alarm.**  
(*Avertisseur d'effraction à percussion.*)

William Elliott, Toronto, Ont., 3rd October, 1887; 5 years.

*Claim.*—1st. A percussion burglar-alarm composed of a metal receiver A, having the cartridge chamber B, bolt chamber C and spring chamber E, parts thereof, and containing the spiral spring F and bolt D having a central conical point, and the arm G, all operating substantially as shown and described and for the purpose specified. 2nd. A percussion burglar-alarm as above but having instead a bolt D, with the projecting point on the circumference of the said bolt adapting the use of rim fire cartridges, as shown and set forth.

**No. 27,718. Steam Engine.** (*Machine à vapeur.*)

Amos H. Messer, Concord, N.H., U.S., 3rd October, 1887; 5 years.

*Claim.*—1st. In a steam engine, the combination, with the driving shaft, of a revolving piston rigidly secured thereon, and a suitable housing or cylinder made in two parts, in which said piston revolves, and provided with steam supply and exhaust ports, substantially as described. 2nd. In a steam engine, the combination of a revolving piston consisting of a disk having two or more cylindrical followers attached to its periphery transversely therewith, and a suitable housing formed in two parts and having an annular chamber to which the piston followers are fitted, provided with supply and exhaust ports, substantially as set forth. 3rd. In a rotary steam engine, the combination, with the revolving piston consisting of a disk and two or more follower plates placed or formed radially thereon, of suitable packing for said disk and followers, substantially as and for the purpose set forth.

**No. 27,719. Combination Tools for Shoe Makers.** (*Combinaison d'outils pour cordonniers.*)

Henry Richmond, East Newark, N.J., U.S., 3rd October, 1887; 5 years.

*Claim.*—In combination with a shoemakers' tool consisting of two lasts, connected by an angular plate of metal and provided with sockets, as D, of lasts provided with a shank, as E, and adapted to fit said socket, substantially as set forth.

**No. 27,720. Machine for Covering Buttons.**  
(*Machine à couvrir les boutons.*)

William P. Devine, Newark, N.J., U.S., 3rd October, 1887; 5 years.

*Claim.*—1st. An improved machine for making covered buttons consisting of a suitable standard or frame, a punch, as B, working therein, a sleeve, as M, mounted on said punch, a spring engaging with said sleeve and punch, as described, a lower die or dies, a sleeve or sleeves, an automatically operating catch and springs arranged in connection therewith, as described, and means for operating said punch and holding said dies in place, arranged and adapted to operate substantially as and for the purpose set forth. 2nd. In a machine for making covered buttons, the combination of a punch, as B, a gang of lower adjustable dies and an automatically working catch, as I, for holding said dies in place, said parts being arranged and adapted to operate substantially as and for the purposes set forth. 3rd. In a machine for making covered buttons, the combination of a punch, as B, an intermediate punch, as J, a gang of lower adjustable dies and an automatically working catch, as I, arranged with relation to each other and adapted to operate substantially as and for the purposes set forth. 4th. In a machine for making covered buttons, the combination, with a punch, as B, an intermediate punch, as J, a gang of lower adjustable dies arranged, as described, with relation to said punches, and a spring fastening bolt for locking said dies in place, substantially as and for the purposes set forth. 5th. In a machine for making covered buttons, the combination of a punch, as B, an intermediate punch, as J, a gang of lower dies mounted on a sliding plate and held in place by means of a spring-actuated locking device, arranged and adapted to operate substantially as and for the purposes set forth. 6th. In a machine for making covered buttons, the combination of a punch, as B, having a shoulder N, a sleeve M mounted upon said punch and adapted to engage said shoulder, a spring to hold said sleeve in place, and an intermediate punch, as J, and a gang of lower dies, all arranged and adapted to operate substantially as herein described for the purposes set forth.

**No. 27,721. Potato-Digger.** (*Arrache-patates.*)

Joseph W. Calef, North Easton, Mass., U.S., 3rd October, 1887; 5 years.

*Claim.*—A potato-digger cast into one piece and then joined to a common handle, or having an adjustable bar A and side flanged teeth B B, *b b* and centre double flanged one C, *c c*, and a projection D to join to the said common handle, the whole as above described and for the purposes set forth.

**No. 27,722. Reflector for Lamps, etc.***(Réverbère pour lampes, etc.)*

Julius Levy, San Francisco, Cal., U.S., 3rd October, 1887; 5 years.

*Claim.*—A reflector or shade for lamps having its body and neck portions constructed with double walls, which are coated with a silvring material and provided also with a series of apertures near its bottom, which leads into the chamber between the said double walls and thus allow a current of cold air to pass through it, substantially as shown and described.

**No. 27,723. Punching and Shearing Machine.** *(Machine à découper et cisailier.)*

Nicholas J. Rice, Meadville, Penn., U.S., 3rd October, 1887; 5 years.

*Claim.*—1st. The mechanism C D E combined with the mechanism M L to operate the punch, as described. 2nd. The combination, with the lever C and shear G, of the mechanism D E H of which the lever E is pivoted in the movable punch I, as and for the purpose specified. 3rd. In combination, the punch, as I, a suitable hand lever cam mechanism between said lever and punch, and lever mechanism between said elements, substantially as described. 4th. In combination, the punch, as I, a suitable hand lever pivoted as at 6, two sets of devices connected one in front and the other in rear of said pivot for actuating the punch, substantially as described. 5th. In combination, the punch, the hand lever, two sets of devices between these parts for actuating this punch, the shears and suitable connections between said shears and the punch, substantially as described.

**No. 27,724. Thermostat.** *(Thermostat.)*

Henry E. Jacobs, Fond du Lac, Wis., U.S., 3rd October, 1887; 5 years.

*Claim.*—1st. The combination, with a thermostat of an electromagnet adjacent to the thermostat-bar, an armature for the electromagnet upon the thermostat bar, and contact mechanism having electrical connection with the said electromagnet, substantially as and for the purpose set forth. 2nd. The combination, with a thermostat, of an electromagnet adjustably supported adjacent to the thermostat-bar, an armature for the electromagnet upon the thermostat-bar and contact mechanism having electrical connection with the said electromagnet, substantially as and for the purpose set forth. 3rd. The combination, with a thermostat, of electromagnets C and C<sub>1</sub> on opposite sides of the thermostat-bar, an armature C<sub>2</sub> secured transversely upon the thermostat-bar to extend between the cores of the said magnets, contact-points *r* and *r*<sup>1</sup>, and conductors *n* and *n*<sup>1</sup> connecting the said contact-points and electromagnets, substantially as and for the purpose set forth. 4th. A thermostat comprising in combination, a bar B having an extension B<sup>1</sup>, a frame A carrying the bar, an armature C<sub>1</sub> secured transversely upon the bar, electromagnets C and C<sub>1</sub> supported on the frame at opposite sides of the bar, to have their cores in line with the armature and adjustable with relation to the armature, adjustable contacts *r* and *r*<sup>1</sup> supported on the frame and between which the extension B<sup>1</sup> projects, and conductors *n* and *n*<sup>1</sup> connecting the said contact-points with the said electromagnets, substantially as and for the purpose set forth.

**No. 27,725. Machine for Crushing and Screening Quartz.** *(Machine à broyer et sasser le quartz.)*

John E. Paramore, John F. Tuttle and Frank Barnhardt, Wausau, Wis., U.S., 3rd October, 1887; 5 years.

*Claim.*—1st. A machine for separating metal from quartz or other substances, comprising a main frame, a series of horizontal crushing rolls vertically arranged in successive pairs, a vibratory hopper located above the rolls, a series of vibratory sieves arranged below the lowest pair of rolls, and means, substantially as described, for simultaneously operating said rolls, hopper and sieves, as set forth. 2nd. A machine for separating metal from quartz or other substance, comprising a main frame, a series of horizontal crushing-rolls vertically arranged in successive pairs, a series of vibratory sieves beneath the lowest pair of crushing-rolls, a revolving settling-pan operatively connected to the frame, a trough arranged beneath the lowest sieve to lead to the pans, and means, substantially as described, for simultaneously operating said rolls, sieves, and pan, whereby the quartz or other substance is successively crushed, screened and washed by a single machine, as set forth.

**No. 27,726. Glass Furnace.** *(Fourneau de verrerie.)*

Andrew Ferrari, Glassborough, and Thomas W. Synnott, Wenonah, N.J., U.S., 3rd October, 1887; 5 years.

*Claim.*—1st. A glass furnace having retorts and chambers for warming the tools, said retorts and chambers being grouped in pairs, substantially as described. 2nd. A glass furnace having in the glass receiving chamber a series of flues having openings above the retorts, and being in communication with a series of flues beneath said chamber, the former series of flues being in communication with the fire chamber, and the latter series of flues in communication, by means of a transverse flue, with the smoke-stack, whereby the products of combustion are placed above and below the bed or floor of said chamber, substantially as described. 3rd. A glass furnace having a fire chamber, a batch-holding tank and a glass-receiving chamber, the latter chamber having flues for directing the products of combustion from said chamber or flues below the floor or bed thereof and below the floor or bed of said tank, and thence to the smoke-stack, substantially as described. 4th. A glass furnace having below its bed or floor flues for the products of combustion, and flues for the admission of air or steam, or both, which is or are directed into the flame in or near the fire chamber, substantially as described. 5th. A glass furnace having beneath the batch-holding tank and the glass-receiving or retort chamber, a net-work of flues for the passage of the products of combustion and admission of air or steam, or both, to the fire chamber, whereby the beds or floors of said tank and cham-

ber and the flues for air and steam are heated by the products of combustion as they are directed to the smoke-stack, substantially as described. 6th. The bridge D formed of partitions R, R<sup>1</sup>, R<sub>2</sub>, with the passage N therein, substantially as and for the purposes set forth. 7th. The bridge D having an air-conveying tube *c*, substantially as and for the purpose set forth. 8th. The bridge D having air-conveying tubes *d*, for passing air to the stone R<sub>1</sub> on one side, and the box Q on the other side, substantially as and for the purpose set forth. 9th. The bridge D with tubes *c*, *d*, for the inlet of fresh air to the bridge, and tube *e* for discharge of hot air therefrom, substantially as and for the purpose set forth.

**No. 27,727. Mining Pan or Settler.***(Machine à séparer le métal du minéral.)*

John E. Paramore, John F. Tuttle and Frank Barnhardt, Wausau, Wis., U.S., 3rd October, 1887; 5 years.

*Claim.*—1st. A pan having an inwardly projecting rim provided with a depending flange, an internal trough also provided with a depending flange, a perforated cover and a hollow revolving shaft provided with perforations, substantially as and for the purposes set forth. 2nd. A pan having an inwardly projecting rim provided with a depending flange, an internal trough also provided with a depending flange, a perforated conical cover having a vertical collar, the set-screws for securing the same, a hopper designed to fit upon said collar, and a hollow revolving shaft provided with perforations, substantially as and for the purpose set forth. 3rd. A pan having an inwardly-projecting rim provided with a depending flange, an internal trough also provided with a depending flange, a perforated cover and a hollow revolving shaft provided with perforations, in combination with a water supply pipe inserted in the bore of said shaft, substantially as and for the purpose set forth.

**No. 27,728. Machine for Bunching Cigars.***(Machine à botteller les cigares.)*

Isaac C. Caswell and William A. Pease, New Bedford, Mass., U.S., 3rd October, 1887; 5 years.

*Claim.*—1st. In a machine for bunching cigars, the combination of the following instrumentalities, to wit: a body or base, two fixed standards provided with face-plates for giving shape to the bunch of cigars, a block fitted to slide in said body, a screw for actuating said block, two movable standards secured to said block and provided with face-plates for giving shape to the bunch of cigars, a gauge or stop against which the ends of the cigars abut, a follower for compressing the bunch of cigars, and means for securing said follower when depressed, substantially as described. 2nd. In a machine for bunching cigars, the combination of the following instrumentalities, to wit: a body or base, two fixed standards provided with face-plates for giving shape to the bunch of cigars, a block fitted to slide in said body, a screw for actuating said block, two movable standards secured to said block and provided with face-plates for giving shape to the bunch of cigars, a gauge or stop against which the ends of the cigars abut, a follower for compressing the bunch of cigars, means for securing said follower when depressed, and a finger or elastic bar so arranged as to press upon the ribbon with which the cigars are bound together and aid in tying the same, substantially as set forth. 3rd. In a machine for bunching cigars, the body A provided with the standards *d*, the sliding block C provided with the standards *m*, and screw D, the face-plates *r* secured to the standards *d* by the screws *l*, and provided with the spring-actuated serrated bars *k*, the gauge B and follower H, combined and arranged to operate substantially as described. 4th. In a machine for bunching cigars, the follower H provided with the slot *l*, in combination with the face-plates *r*, provided with the spring-actuated serrated bars *k*, substantially as set forth. 5th. In a machine for bunching cigars, the elastic bar or finger N, in combination with the follower H, provided with the slot *l*, means for supporting said finger and means for holding said follower in a depressed position when forced downward onto the cigars, substantially as described.

**No. 27,729. Binder.** *(Lieuse.)*

William Mawhinney, Portage la Prairie, (Co-inventor with George Bellamy, Shoal Lake), and Festus Chapin, Portage la Prairie, Man., 3rd October, 1887; 5 years.

*Claim.*—The combination of the frame A A, the rods B, B, the frame C C and the hutter E E, substantially as and for the purpose hereinbefore set forth.

**No. 27,730. Car-Coupler.** *(Attelage de chars.)*

John C. Reed and James L. Rankine, Topeka, Kas., U.S., 3rd October, 1887; 5 years.

*Claim.*—1st. The combination, with a car-coupling and the "dead wood" to which it is secured, of two coupling pins carried by said coupling, one located under said "dead wood", substantially as described. 2nd. The herein described car-coupling provided with a pocket adapted to receive and contain the coupling link, substantially as described. 3rd. The combination of a car-coupling provided with a pocket, for containing the full length of the coupling link and having two coupling pins, substantially as described. 4th. The herein described car-coupling provided with a pocket adapted to receive and contain the coupling link, and means such as are described, for inclining the link and supporting it in its inclined position, substantially as described. 5th. The combination of a car-coupling provided with a pocket, for receiving the full length of the coupling link, a seat, as 17, and a guide for supporting the link in an inclined position, substantially as described. 6th. The combination of a car-coupling provided with a pocket for receiving the full length of the coupling link, a seat and an inclined guide, substantially as described. 7th. The combination, with a car-coupling provided with a flange, as 22, of a coupling pin having a nose for contacting therewith, substantially as described. 8th. The combination, with a car-coupling of a pivoted coupling pin provided with the nose 21, substantially as



described. 9th. The combination, with a car-coupling and a flange, as 22, of a coupling pin having a nose for contacting with said flange and pivoted to links, as 14, substantially as described. 10th. The combination, with a car-coupling and its coupling pin, of a rotatable rod connected with said pin and a hook, as 4, substantially as described. 11th. The combination, with a car-coupling and its coupling pin, of a rotatable rod having a projecting stud connected with said pin, and a pair of hooks 4 with which said stud may be engaged, substantially as described. 12th. A car-coupling having its side walls perforated by openings 7, substantially as described.

### No. 27,731. Telephone. (*Téléphone.*)

J. Frank Lee (assignee of Allen W. Rose), New York, N. Y., U. S., 3rd October, 1887; 5 years.

*Claim.*—1st. The combination, with the free ends of two suspended carbons in a microphone, of a transverse centrally-pivoted carbon attached to the diaphragm or sounding-board of the instrument, and whose free ends are brought into contact with the free ends of said suspended carbons, substantially in the manner and for the purpose herein set forth. 2nd. The combination, with the diaphragm or sounding-board and line wires of a telephonic transmitter, of a bracket formed with two horizontal arms *m*, *m*, secured to said diaphragm, opposite set screws *K* and *K*, passing in a right line with each other through said arms, a metallic ring *I* pivoted diametrically between the points of said set-screws, a carbon-rod *H* inserted through said ring and carbon-rods *E*, *E*, whose upper ends are pivoted loosely to a supporting-block *G*, so that their lower dependent ends shall rest by gravity against the ends of the carbon *H*, on either side of its central pivot, substantially in the manner and for the purpose herein set forth.

### No. 27,732. Smoke Consumer. (*Appareil fumivore.*)

Edward Dobson, Montreal, Que., and Daniel M. Brodie, Greenock, Scotland, 3rd October, 1887; 5 years.

*Claim.*—In a furnace, the combination of an air chamber placed immediately in rear of the bridge, having a minutely-perforated inclined top plate, and resting on the dead plate provided with openings for the admission of air, and a damper controlled from without to regulate the amount of air admitted, all as herein set forth and for the purposes described.

### No. 27,733. Waggon Brake. (*Frein de wagon.*)

John Fraser, Woodhouse, Jacob Youmans and Solomon Vroman, Townsend, Ont., 3rd October, 1887; 5 years.

*Claim.*—The combination, with the tongue *F*, rod *L*, roller *P*, crank-shaft *I*, *I*, bail *H*, spring *G*, brake *D*, substantially as and for the purposes herein set forth.

### No. 27,734. Apparatus for Heating Railway Cars. (*Appareil pour chauffer les chars de chemins de fer.*)

Oscar W. Bonter, Port Arthur, Ont., 3rd October, 1887; 5 years.

*Claim.*—The combination of stop-cock 5, check valve 6, and manner of passing the steam into the system of pipes *B*, *B*, *B*, *B*, by extending 4 some distance into *B*, see 7, for the purpose of heating the water in the system of pipes *B*, *B*, *B*, *B*, now used for heating railway cars.

### No. 27,735. Letter File. (*Serre-papier.*)

Benjamin Lawrence, New York, N. Y., U. S., 3rd October, 1887; 5 years.

*Claim.*—1st. In a letter-file, the combination, with a puncturing-wire and a transfer-wire, one of said wires being adapted to slide back and forth, of a lever arranged to vibrate in a plane parallel with the base or board and adapted to effect the reciprocations of said sliding wire, substantially as set forth. 2nd. In a letter-file, the combination with duplex puncturing-wires and duplex transfer-wires, one set of said duplex wires being mounted in a sliding cross-bar, of a lever connected to said cross-bar and adapted to reciprocate the same, substantially as set forth. 3rd. In a letter-file, the combination, with duplex puncturing-wires and duplex transfer-wires, one set of said duplex wires being mounted in a sliding cross-bar, of a lever for reciprocating the latter, and means for guiding it in its movements back and forth, substantially as set forth. 4th. In a letter-file, the combination, with duplex puncturing-wires and duplex transfer-wires, one set of said duplex-wires being movable, of a lever for operating the movable wires, and means for holding the two sets of wires together against accidental operation during the transference of papers, substantially as set forth. 5th. In a letter-file, the combination, with duplex puncturing-wires and duplex transfer-wires, one set of said wires being movable, of a lever for operating the movable wires provided with a lip for elevating the papers substantially as set forth. 6th. In a letter-file, having duplex puncturing-wires and duplex transfer-wires, the combination of the sliding cross-bar, containing one set of said wires and provided with bearing surfaces, and the cover or top-plate provided with depending side flanges, against which said bearing surfaces may slide, substantially as set forth. 7th. In a letter-file, the combination of duplex sliding wires, a rigid cross-piece forming a connection between said wires, and a lever connected to said cross-piece and adapted to reciprocate the same in a plane parallel with the base or board of the file, substantially as set forth. 8th. In a letter-file, the combination of duplex sliding wires, a rigid cross-piece between said wires, a lever and a connecting link *11*, substantially as set forth.

### No. 27,736. Excavator or Machine for Excavating and Removing Snow, etc. (*Fouilleur ou machine à fouiller et enlever la neige, etc.*)

George Cox, Paterson, N. J., U. S., 4th October, 1887; 5 years.

*Claim.*—1st. In an excavator, a revolving fan-wheel partially enclosed by a casing, in combination with a vertical spout provided with, and containing a set of inclined or curved plates, substantially as described. 2nd. In an excavator, a revolving fan-wheel, partially enclosed by a casing, provided with an opening or spout, in combination with two sets of plates inclining or curving in opposite directions, and so adapted that either set of inclined plates may be brought in or over said spout or opening, substantially as shown and described. 3rd. In an excavator, a casing *C* provided with double ends, connected by flaring parts *t*, *t*, substantially as shown and described. 4th. The combination of sections *d*, plates *e* and strips *h*, substantially as and for the purpose specified. 5th. The combination of plates *p*, *p*, *j*, *k* and *u*, and guide-bars *q*, substantially as described and for the purpose specified.

### No. 27,737. Bicycle. (*Bicycle.*)

George T. Warwick, Springfield, Mass., U. S., 4th October, 1887; 5 years.

*Claim.*—1st. A metallic spoke for bicycles, having one end rigidly attached to the wheel-hub, and having a gradually-decreasing diameter from the hub to the wheel-rim, substantially as set forth. 2nd. A velocipede saddle, consisting of a seat 32, of leather or similar material, a spring-box 36 attached to the frame of the machine beneath the seat, a rigid arm 34 pivoted to, and having one end extending into said spring-box, and its upper end extending upward and connected with the rear end of said seat, two springs enclosed to said box, between which the lower end of said arm extends, and an arm attached to said frame, and having forward end of said seat connected thereto, substantially as set forth. 3rd. A velocipede saddle, consisting of a seat 32, of leather or similar material, a spring-box 36 attached to the frame of the machine beneath the seat, a rigid arm 34 pivoted to, and having one end extending into said spring-box and its upper, and extending upward and connected with the rear end of said seat, two springs enclosed in said box, between which the lower end of said arm extends, and an elbow-lever pivoted to said frame, having the forward end of said seat connected to one arm thereof, and having its second arm extending over the back-bone, and a spring 35 interposed between said second arm and the back-bone, substantially as set forth. 4th. A seat for a bicycle saddle, constructed from flexible material, substantially as described, and provided with the flexible metallic reinforcing strips 38 secured to the under side thereof, substantially as set forth. 5th. A ball-bearing for velocipedes and analogous vehicles, consisting of a cylindrical case 39, a sleeve 49 extending through said case, having an annular groove therein, a ball-case 52, consisting of an internally-grooved, transversely-divided ring, having bevelled projections thereon, a series of balls enclosed in said ring, and having a bearing in the annular groove in said axle, and a ring-nut 55, having one end bevelled, and a screw-connection with the interior of said case 39, and engaging with said ball-case, whereby its parts are drawn together, combined and operating substantially as set forth. 6th. A ball-bearing for velocipedes and analogous vehicles, consisting of a cylindrical case 39, a sleeve 49 extending through said case, having an annular groove therein, a ball-case 52, consisting of an internally-grooved, transversely-divided ring, having bevelled projections thereon, a series of balls enclosed in said ring, and having a bearing in the annular groove in said axle, a ring-nut 52, having one end bevelled, and a screw-connection with the interior of said case 39, and engaging with said ball-case, and a pinion 48 hung, to be rotated on the side of said cylindrical case, having a geared connection, substantially as described, with said ring-nut, and a binding-screw to lock said pinion, substantially as set forth. 7th. The combination, with the pedal of a velocipede or analogous vehicle, of the two foot-grips 41, having a bearing on the ends of the pedal, one or both of which are capable of movement from and towards the centre of the pedal, and retracting springs connecting said grips, substantially as set forth. 8th. The back-bone and fork head of a bicycle, having a spindle-seat thereon, with flaring sides, combined with a spindle, whose lower end conforms substantially to the form of said seat, and a series of rolls interposed between said spindle and seat, substantially as set forth. 9th. The spindle of a bicycle, having its upper end cone-shaped, combined with the back-bone and fork-head, a bolt screwed into the upper end of said head, having a seat therein to receive said upper spindle end, and a series of rolls interposed between the sides of said seat and spindle, substantially as set forth. 10th. The combination, with the back-bone and fork-head of a bicycle, having a fork-spindle socket therein, of a fork having a spindle thereon entering said socket, and a rubber blushing interposed between said spindle and the inner sides of said socket, substantially as set forth. 11th. A handle bar support for a bicycle, consisting of the holder 29, having a projection on one side thereof to receive the handle-bars, and a lip 57 on its opposite side, combined with the head 21, having a lip 58 thereon, and a bolt passing through said lips, substantially as set forth. 12th. The axle of a bicycle, having a right-hand screw-thread on one end, and a left-hand thread on its opposite end, combined with cranks 7 correspondingly screw-threaded, substantially as set forth. 13th. A tubular back-bone for a bicycle, having walls of decreasing thickness, from the head or neck thereof to, or nearly to, its lower end, substantially as set forth. 14th. A fork for a bicycle having tubular arms, the walls of which are of decreasing thickness from the fork-head, to or nearly to their extremities, substantially as set forth. 15th. The handle bars of a bicycle, constructed from tapering tubes, having walls, which are of decreasing thickness, from the fork-head towards their extremities, substantially as set forth. 16th. The combination, with the rubber tire of a wheel, of a wheel of a binding-rod enclosed therein and having its ends united by a nut, substantially as set forth. 17th. In combination with the axle of a bicycle, a bracket 16 loosely hung on said axle, having an arm extending at right angles thereto, a fork-leg 9, having a sleeve 15 thereon to receive said arm, and a rubber bushing interposed between said arm and the interior of said sleeve, substantially as set forth. 18th. In combination with the fork-leg and wheel-hub of a bicycle, a stop-pawl pivoted by one end on said leg, and having its free end pending over the periphery of said hub, substantially as set forth. 19th. In combination with the wheel-hub and the fork-leg of a bicycle, a clamp

20 adjustable on said leg, and the stop-pawl 19 pivoted by one end to said clamp, and having its free end pending opposite the periphery of said hub, substantially as set forth.

### No. 27,738. Thrashing Machine.

(Machine à battre.)

Donald J. Robertson, Maxville, Ont., 4th October, 1887; 5 years.

*Claim.*—1st. The rotary beater 7 journalled intermediately of the cylinder 2 and rakes 8, to prevent the straw choking the concave by carrying it forward and transferring it to the rakes, as set forth. 2nd. The springs 12 and 17, hanging the upper and lower shoes 11, 15, respectively, and resisting the push and draw motion of the pitmans to relieve the shoes of jar at each reaction, as set forth. 3rd. The levers 20 pivoted to the sides of the lower shoe 16, and connected to the sieves therein, for adjusting the sieve to a desired inclination without stopping the machine, as set forth. 4th. The cleats 21 secured vertically to the sides of to arrest flying grain, as set forth. 5th. The guards 26, covering the journals of the rakes 8 to prevent straw clogging at the cranks, as set forth.

### No. 27,739. Device for Destroying Potato Beetles. (Appareil pour détruire la chrysomèle.)

Wilbert Hooley, Toronto, and John W. Bailey, Cartwright, Ont., 4th October, 1887; 5 years.

*Claim.*—1st. In a machine for destroying potato-beetles, the combination, with a wheel suitably journalled and provided with a bevel gear ring, of a spur pinion adapted to mesh with said gear ring and to drive a shaft and pulley thereon, which actuates by means of belting and pulleys, inwardly rotating beaters journalled in arms adjustably connected with the frame of the machine, adjustable inclined tables below said beaters, designed to direct the beetles swept from the plants to two inwardly rotating rollers, driven by spur pinions meshing into each other, one of which derives motion by pulley and belting connected with a pulley on the main shaft of the machine, substantially as specified. 2nd. The combination of wheel A, journalled on frame E, cogged ring B, spur pinion C, main shaft D, pulley L, rope G, pulleys M, N, adjustable arms J attached to said frame E, beaters G, H on spindles H, which are journalled on said arms, inclined table T, with adjustable leaves U, brackets U, crushing rollers R and S, gear pinion P meshing with gear pinion O, with latter is driven by power communicated from the main shaft to pulley N, and spring A formed in slot in end frame piece Q, and handles F, substantially as described and specified. 3rd. The combination, in a machine for destroying potato beetles, of wheel A journalled on frame E, and main shaft D actuated by said wheel by suitable gearing, inwardly-revolving beaters G, H, driven by power communicated from main shaft D, inclined tables T suitably attached to frame of machine, and crushing rollers R and S journalled an end frame-pieces Q, and adapted to rotate inwardly by means of gear pinions O and P, by power communicated from the main shaft, and means provided for wheeling the machine, substantially as specified. 4th. In combination with the frame of a machine for destroying potato beetles, arms J slotted to receive standards a, which are pierced for pins c and sleeve K similarly pierced for retaining pins r, the bearings G, G', journalled on said arms J and revolving inwardly by power communicated from the main shaft D of the machine, substantially as specified. 5th. The combination, with the crushing rollers R and S, suitably journalled, of gear pinions O and P, and spring A formed in slot in end frame-piece Q, pulley N, driven by power communicated from main shaft D, inclined tables T, brackets U and leaves T adjustably connected with tables T, by set-screws in slots i, substantially as described and for the purpose specified. 6th. In a machine for destroying potato beetles, the combination of the bevelled beater G journalled in the arm J, adjustably connected to the frame of the machine and adapted to rotate inwardly by power communicated from the main shaft D, which is actuated by bevel gear connected with the rod wheel A, and inclined table L designed to forward the beetles from the plants to the crushing rollers O and P, which are also driven by power communicated from the main shaft D, substantially as specified.

### No. 27,740. Boot and Shoe. (Chaussures.)

George Valiant, Toronto, Ont., 4th October, 1887; 5 years.

*Claim.*—1st. In combination with the two edges of material to be united, the welt-strip having along each of its edges two flaps, one narrower than the other, stitches fastening the narrow flaps to the edges to be joined, and stitches fastening the broader flaps to the material, substantially as and for the purpose set forth. 2nd. In combination with the welt-strip of leather, having along each of its opposite edges two flaps, of which the front or outer one is narrower than the other, the two edges of material to be united, stitches fastening such edges to the front or narrow flaps, and stitches fastening the other flap to the material beyond the seams connecting the material edges and the narrow flaps, substantially as and for the purpose described. 3rd. A back seam for boots or shoes, consisting of the welt strip, having along each of its opposite edges the two flaps, and suitable stitching connecting the edges of the quarter with such flaps, substantially as and for the purpose specified. 4th. In combination with the edges of a boot or shoe quarter or vamp and of the lining, the welt-strip provided along each of its edges with the narrower outer and wider inner flaps, stitches fastening the quarter-edges to narrow flaps, and stitches connecting the wider flaps with the quarter and passing through the edges of the lining, substantially as and for the purpose shown.

### No. 27,741. Projectile for Fire-Arms.

(Projectile pour armes à feu.)

John McCreary, Webberville, Mich., U.S., 4th October, 1887; 5 years.

*Claim.*—1st. In a projectile for fire-arms, the combination of the

cylindrical shell, the ball or missile secured in the front end thereof, the dynamite in rear of said missile, the tube of finely-perforated paste-board running axially through the shell in rear of the ball or missile, the layer of gum powder wrapped on each side with tissue-paper surrounding the perforated tube and the percussion fuse, substantially as described, acting through said tube and firing in the rear part of the shell, substantially as specified. 2nd. The herein-described projectile, consisting of the cylindrical steel shell A, provided with the central firing-bars f on the interior of its base, the ball or missile B secured to the shell by the steel pins b', the firing-pin C secured with its front end c projecting outward by the pin c' and carrying the percussion cap F on its inner end, the cylindrical paste board case D containing dynamite, the finely-perforated tube of pasteboard E, the layer of coarse gunpowder G and the sheets of tissue-paper g, g, on each side of said layer, all arranged substantially as and for the purpose specified.

### No. 27,742. Fence Post. (Pieu de clôture.)

William H. H. Yount, (co-inventor with Solomon Yount), and Noah Yount, Troy, N. Y., U.S., 4th October, 1887; 5 years.

*Claim.*—A fence-post, formed of the upper section A, having its sides apertured at e, and slots b leading upward from the lower edges of its sides, the ground section B having an anchor f, a permanent bolt m to enter the slots b, and an aperture g above the said bolt, the removable bolt k passing through the said aperture g, and the aperture c, and the nut on the said bolt, substantially as set forth.

### No. 27,743. Sewing Machine.

(Machine à coudre.)

Robert S. Looker, Springfield, Ohio, U.S., 5th October, 1887; 5 years.

*Claim.*—1st. A sewing-machine having its needle-bar and its presser-foot bar jointed, substantially as described, to permit the needle and presser-foot to be lifted above their operative positions. 2nd. A sewing-machine having the needle-clamping portion of its needle-bar jointed to turn upward in one direction, and the presser-foot bar jointed to turn upward in a different direction, whereby free access is afforded to the bed of the machine. 3rd. In a sewing-machine, a needle-bar provided at its lower end with a needle clamp, and also provided above the clamp with an independent joint, substantially as described, to permit the needle to be lifted above its operative position without releasing its clamp, whereby a space greater than the length of the needle may be secured below the needle-bar. 4th. In a sewing-machine, the needle-bar having its lower end hinged to the remaining portion, in combination with the notched rotary sleeve, applied thereto as described, for the double purpose of holding the needle in its operative and in its elevated position.

### No. 27,744. Smoke Consumer.

(Appareil fumivore.)

John T. Ellis, Toronto, Ont., 5th October, 1887; 5 years.

*Claim.*—1st. A pipe D, connected at one end to a steam-pipe, and extending into the furnace of the boiler where it is coiled, as specified, in combination with a bifurcated nozzle F set so that the jets of steam escaping from it shall strike the opposite inner corners of the furnace, substantially as and for the purpose specified. 2nd. A pipe or tube G, having a perforated inner end communicating with the ash-pit B, its outer end a being open to receive the nozzle of a steam-pipe and form an air injector, substantially as and for the purpose specified. 3rd. A pipe or tube G having a perforated inner end communicating with the ash-pit B, its outer end a being open to receive the nozzle of a steam-pipe and form an air injector, in combination with a bifurcated nozzle F connected to the inner end of a coiled pipe D, and set so that the jets of steam escaping from the bifurcated nozzle shall strike the opposite inner corners of the furnace, substantially as and for the purpose specified.

### No. 27,745. Machinery for Operating Steam Ploughs. (Appareil pour faire fonctionner les charrues à vapeur.)

George W. Morris, Brantford, Ont., 5th October, 1887; 5 years.

*Claim.*—1st. The combination of the hub L, keyed to the main axle E, and the winding drum L adapted to revolve thereon, and to be driven by gearing actuated by the pinion wheel F, keyed to the crank-shaft I, substantially as specified. 2nd. The combination of the hub L, keyed to the main axle E, and having holes I formed therein to receive bolt-pin K<sup>2</sup> for road-wheel K, and the winding drum L having flanges Z formed on its hub, and the driving gear wheel L<sup>2</sup> driven by gearing actuated by the pinion-wheel F, keyed to the crank-axle I, substantially as specified. 3rd. The combination of the hub L, keyed to the main axle E having bearings E<sub>1</sub>, which are bolted to the fire-box, holes I being formed in hub L, to receive the bolt-pin K<sup>2</sup> for road-wheel K and the winding-drum L, the driving gear-wheel L<sup>2</sup>, the pinion-wheel M, formed on spur-wheel M which is keyed to the divided countershaft H having bearings H<sup>1</sup> and H<sub>2</sub>, and the pinion-wheel F keyed to the crank-axle I, substantially as described and specified. 4th. The combination of the hub L, keyed to the main axle E having bearings E bolted to the fire-box, the winding drum L, driving gear-wheel L<sup>2</sup>, pinion-wheel M, formed on spur-wheel M which is keyed to the divided countershaft H supported in suitable bearing, and the pinion-wheel F secured to the crank-shaft I by feather-key f, and adapted to be thrown into and out of gear with the spur-wheel M and divided countershaft, by the shifting-lever F<sub>2</sub>, which engages with a collar formed on the pinion-wheel F, substantially as specified. 5th. The combination of the divided countershaft H, having collars A<sub>1</sub> adapted to revolve in grooves formed in the box H, attached to the fire-box, the bearings H<sub>2</sub> bolted to the saddle-bracket D, the spur-wheel M adapted to actuate independently the winding-drum L, and the spur-wheel M<sub>3</sub> adapted to actuate independently the road-wheels K and K<sub>3</sub>, substantially as specified. 6th. The combination of the pinion-wheel F having collar F<sub>1</sub>, and the shifting-lever F<sub>2</sub> adapted to throw the

pinion-wheel F into and out of gear with the spur-wheel M, and the feather-key / formed on the crank-axe I which has boxes C<sub>3</sub> supported by the saddle-bracket D bolted to the fire-box, substantially as specified. 7th. The pinion-wheel N<sub>2</sub>, rigidly connected to the female part of clutch N, and adapted to be clutched and partake of the motion of the crank-axe I, in combination with the spur-wheel M<sub>2</sub> on divided countershaft which actuates the driving gear for the road-wheel K<sub>3</sub>, substantially as specified. 8th. The pinion-wheel N<sub>2</sub>, adapted to be clutched so as to partake of the motion of the crank-axe I, and to actuate the gear which drives the road-wheels, substantially as specified. 9th. The combination of the pinion-wheel N<sub>2</sub>, adapted to be clutched so as to partake of the motion of the crank-axe I, the spur-wheel M<sub>2</sub> on the divided countershaft, the pinion I, driving gear-wheel J for road-wheel K<sub>3</sub> on the main axle E, and the pin K<sub>2</sub> passing through a hole in the hub of the driving gear-wheel J, substantially as specified. 10th. The combination of the pinion-wheel N<sub>2</sub>, adapted to be clutched so as to partake of the motion of the crank-axe I, and to actuate the gear which moves the road-wheel K<sub>3</sub>, the pin K<sub>2</sub>, main axle E working in suitable bearings, the drum L keyed to the main axle and having holes I formed therein to receive the pin K<sub>2</sub>, which passes through the hub K<sub>1</sub> of the wheel K, substantially as specified. 11th. The combination of the main bearing piece C formed on the head of the cylinder, and rigidly attached to the fire-box having guide-bars for the cross-head, of piston-shaft and bearing for crank-axe I formed thereon, the saddle-bracket D affording bearings for the divided countershaft H, the gusset-piece G and the bearings E<sub>1</sub> for main axle E, which bearing is rigidly secured to the fire-box B<sub>3</sub> by the bracket E<sub>2</sub>, substantially as specified. 12th. In combination with the winding drum L, adapted to carry the plough-ropes  $\alpha$ , and suitable gearing for actuating said winding-drum, the grooved wheel A adapted to revolve in bearings formed beneath the boiler and in front of the fire-box, substantially as specified. 13th. In combination with the winding-drum L adapted to carry the plough-ropes  $\alpha$ , and suitable gearing for actuating said winding-drum, the grooved wheel A adapted to revolve in bearings formed beneath the boiler, and the guard A<sub>1</sub> rigidly attached to the fixed shaft A<sub>3</sub>, substantially as described and specified. 14th. The combination of the male clutch-piece N<sub>1</sub>, and the female clutch-piece N adapted to be thrown into and out of clutch of suitable mechanism, substantially as specified. 15th. The combination, with the female clutch-piece N to which the pinion N<sub>2</sub> which actuates the driving gear for road-wheel I is attached, of the male clutch-piece N<sub>1</sub> pivotally attached to the lever V<sub>1</sub>, which is pivoted on the standard R, rigidly connected to the saddle-bracket D, the pivoted nut W adapted to move on the screw-shaft V<sub>3</sub>, so as to throw the friction-clutch N<sub>1</sub> into and out of gear, substantially as specified. 16th. The combination with the female clutch-piece N, and the pinion N<sub>2</sub> which actuates driving gear for road-wheels, of the male clutch-piece N<sub>1</sub> pivotally attached to the lever V<sub>1</sub>, which is pivoted on the standard R, suitably supported on machine, the pivoted nut W, screw-shaft V<sub>3</sub> adapted to be actuated by mitred gearing V<sub>1</sub> and V<sub>2</sub>, and rod  $\nu$  which is also adapted to revolve in suitable bearings formed in the fire-box, substantially as specified. 17th. The combination, with the female clutch-piece N, and pinion N<sub>2</sub> which actuates driving gear for road-wheels, of the lock-bolts O working in recesses formed in the male clutch-piece N<sub>1</sub>, and adapted to engage in holes  $\eta$  formed in the female clutch-piece N, the positive clutch-lever Q pivoted on the standard R, and pivotally connected with the movable collar P adapted to slide on a spindle formed at end of crank-shaft I, and to move the lock-bolts O into and out of the holes  $\eta$  formed in the base of female clutch-piece N, substantially as specified. 18th. The combination, with the rod T which passes through saddle-bracket D, and is pivotally connected to the handle end of positive clutch-lever Q, which operates the lock-bolts O, the collars  $\rho$  and  $\rho$  formed on said rod, the spring  $\sigma$  and spring  $\alpha$  having suitable bearings, and the hinged latch S having half-collar S<sub>4</sub> formed thereon and adapted to engage with the collar  $\rho$  formed on rod when the lock-bolts are disengaged from the female clutch-piece N, substantially as specified. 19th. The combination, with the rod T pivotally connected to the handle end of the positive clutch-lever Q which operates the lock-bolts O when engaging with or becoming disengaged from the holes formed in the female clutch-piece N, and the spring S having suitable bearings on the end of said rod and body of the machine, and adapted to throw the lock-bolts O into the holes formed in the base of the female clutch-piece N when the hinged latch S is raised from the collar  $\rho$ , so as to release said spring  $\sigma$  while the male clutch-piece N<sub>1</sub> is revolving on the crank-shaft I to which it is rigidly attached, substantially as specified. 20th. A steam plough in which the winding-drum which operates the plough is placed on the main axle for road-wheels, and adjoining one of said wheels and operated independently of said road-wheels by suitable gearing driven by the crank-axe, substantially as specified. 21st. A steam plough in which the winding-drum which operates the plough is adapted to revolve on a hub formed on the main axle for road-wheels, and contiguous to one of said wheels and operated independently of said road-wheels by suitable gearing driven by the crank-axe, in combination with a grooved pulley placed near to and in front of the fire-box, and immediately under the boiler of the engine, and over which grooved pulley the rope to the plough from the winding-drum passes, substantially as described and for the purpose specified.

**No. 27,746. Appliance for the purpose of Shutting off Water, or other Fluids, or Gases Escaping from the Walls or Interstices of Artesian or Oil Wells.** (*Appareil pour arrêter l'eau, ou les autres fluides, ou les gaz qui s'échappent des parois ou des interstices des puits artésiens ou d'huiles.*)

Peter Babcock, Oil Springs, and Charles O. Fairbank, Petrolia, Ont., 5th October, 1887; 5 years.

*Claim.*—The combination of the tubing A, and the reducer E, and the barrel D, and the guide or bush C with the rim F thereon and the apertures therein, and the tubing B, and the collar G, and the cup

X, and the tubing H, substantially as and for the purposes hereinbefore set forth.

**No. 27,747. Smoke Consuming Furnace.**

(*Foyer fumivore.*)

Joseph Vilas, Manitowoc, (assignee of John L. Peslin, Appleton), Wis., U.S., 5th October, 1887; 5 years.

*Claim.*—1st. The herein described method of consuming gases and smoke, which consists in generating said gases and smoke in a coking chamber by means of an auxiliary fire, causing the gases and smoke so generated to pass by way of a flue to a pit beneath the fire of the main combustion chamber, and thence through the fire and into the combustion chamber, substantially as described. 2nd. The herein described method of burning coal which consists in placing the coal in a coking chamber, generating the gases and smoke contained therein, and causing the gases so generated to pass through the main fire and into the main combustion-chamber, and in finally dumping the coke formed in the coking-chamber into the main combustion-chamber, substantially as described. 3rd. The herein described method of burning coal, which consists in starting combustion in a main and an auxiliary chamber through the body of the fire in the main combustion-chamber containing the operation until the fuel in the auxiliary chamber is partially coked, in then dumping the greater portion of the fuel from the auxiliary chamber into the main chamber leaving only a few glowing coals, in then adding fresh fuel to the auxiliary chamber, again driving off the gases and again dumping the greater portion of the mass, substantially as described. 4th. In a furnace, the combination with a main combustion chamber, of a coking-chamber, a flue leading from the coking chamber to a point beneath the grate of the main chamber, and a dumping mechanism arranged in connection with the grate of the coking chamber, substantially as described. 5th. In a furnace, the combination, with a main combustion-chamber, of a coking-chamber and its grate formed with a downwardly-extending flange, a partition arranged between the main combustion-chamber and the coking-chamber, ash pits or chambers arranged in connection with the main combustion-chamber and the coking chamber and separated from each other, and a flue leading from the coking-chamber to a point beneath the grate-bars of the main combustion-chamber, and a dumping mechanism arranged in connection with the grate of the coking-chamber, substantially as described. 6th. The combination, with a combustion-chamber, of two coking chambers, flues leading from the coking-chambers to points beneath the grate of the main combustion-chamber, and mechanism arranged in connection with the grates of the coking-chambers, whereby such grates may be dumped and their load delivered to the main combustion-chamber, substantially as described.

**No. 27,748. Machine for Straightening Metal Bars or Pipes.** (*Machine pour redresser les barres ou les tuyaux de métal.*)

Philip Medart and William Medart, St. Louis, Mo., U.S., 5th October, 1887; 15 years.

*Claim.*—1st. The combination of the draft and straightening rolls, with the chuck which carries and rotates the bar or shaft in contact with said rolls, the endwise relation of the straightening rolls and shaft being varied by the draft created by the contact of the shaft with the rolls, whereby all parts of the shaft are presented to the straightening rolls, and the shaft straightened throughout its entire length. 2nd. The combination of the draft and straightening rolls, with the chuck, which carries and rotates the bar or shaft in contact with said rolls, the organization being such that the relation of the straightening rolls and shaft-carrying and rotating device is varied longitudinally or endwise by the draft created by the contact of the shaft with the rolls, whereby all parts of the shaft are presented to the straightening rolls. 3rd. The combination of the longitudinally-travelling draft and straightening rolls, and the chuck which carries and rotates the bar or shaft in contact with said rolls, the relation of the straightening and draft rolls relatively to the shaft, and its carrying devices being varied by the draft created by the rotation of the shaft in contact with the rolls, whereby the shaft is straightened throughout its length. 4th. The combination of a positively-rotated chuck, which supports and rotates the shaft to be operated upon straightening rolls, in contact with which said shaft is positively rotated, and means for causing the straightening rolls to act on the shaft from end to end. 5th. The combination of the lower straightening devices, and mechanism for adjusting them towards or from each other, for the purpose set forth. 6th. The combination of the straightener frame or carriage, straightening and draft rolls on the frame, and adjusting devices for varying their obliquity or angle, with reference to the shafting to be operated upon. 7th. The combination of the lower parts, of straightening and draft rolls arranged obliquely with reference to the shafting acted upon the upper pair of straightening rolls, arranged between the lower pairs of rolls and transversely thereto, and mechanism for pressing the upper rolls down upon the shafting. 8th. The combination of the main frame, a rotating shaft-supporting device, which holds and rotates the shaft, being operated upon, straightening and drawing rolls, and means for raising and lowering the straightening and drawing rolls relatively to the shaft-support, for the purpose described. 9th. The combination of the straightener-frame, the plates sliding on ways thereon, the roller housings carried by said plates, the screw for adjusting the position of the plates and roller housings and the screw-sockets in which said screw works. 10th. The combination of the frame, the plates sliding on ways thereon, mechanism for adjusting the plates toward and from each other, roller-housings adjustably carried upon said plates, and devices for securing the roller-housings in any desired position. 11th. The combination of the straightener-frame, provided with ways and formed with a longitudinal slot between the ways, the plates which travel on said ways, the depending threaded lugs on the plates projecting downwardly through the central slots, the reversely-threaded adjusting screw which works in said lugs, and roller-housings carried by the plates. 12th. The combination of straightening and draft-rolls, their hous-

ing, its supporting plate, the hub and socket or swivelling connection between the housing and plate and the clamp-bolt. 13th. The combination of the straightener-frame, the lower rollers or straightening devices carried thereby, the uprights or standards also carried thereby, the upper housing carrying-plate through which said standards loosely pass, the housing and its straightening devices or rolls carried thereby, the socketed cross-piece which connects the standards and the screw K. 14th. The combination of a main frame, a rotating chuck, the driving gearing or devices by which the chuck may be driven in either direction, and straightening and draft rolls free to rotate in either direction, arranged obliquely to the shafting carried and rotated by said chuck, said straightening and draft-rolls being rotated by contact with the shafting with which they act, whereby the relation of the roll and chuck is varied by the draft of the rolls and the shaft straightened throughout its length.

### No. 27,749. Button-Hole Strip for Boots and Shoes. (*Oreille de chaussure.*)

George Valiant, Toronto, Ont., 5th October, 1887; 5 years.

*Claim.*—1st. A button-hole fly or strip, formed of a single strip of material, provided along its attaching-edge with a re-enforcing strip of material, substantially as and for the purpose specified. 2nd. A button-hole fly or strip, formed of a single strip of material, provided along its inner edge with a re-enforcing strip attached to and projecting beyond the edge of the main strip, substantially as and for the purpose shown. 3rd. A button-hole fly or strip, consisting of a single strip of material, skived thinner along its inner or attaching edge, and the strip attached to the under or inner side of the main strip and projecting beyond its skived edge, substantially as and for the purpose set forth. 4th. In combination with the main portion of a button-hole fly or strip, consisting of a single strip of material, skived or made thin along its inner or attaching edge, the strip attached to the under side of the thicker part of the main portion of the strip and projecting beyond the skived edge of the same, substantially as and for the purpose shown and described. 5th. In combination with the main portion of the button-hole fly or strip, the vamp or quarter of a boot or shoe stitching, fastening the margin of the main portion of the strip to the vamp or quarter edge, the strip attached to the under side of such main portion, and stitching attaching the vamp or quarter to such strip, substantially as and for the purpose specified. 6th. In combination with the main portion of the button-hole strip, and re-enforcing strip attached to the under side thereof, and projecting beyond its edge the quarter of a boot or shoe, stitching fastening the edge of the main portion of the strip to the quarter edge, and stitching fastening the edge of the re-enforcing strip to the quarter, substantially as and for the purpose shown. 7th. In combination with the main portion of the button-hole fly or strip, skived thin along its inner end, and having such edge folded under the re-enforcing strip attached to the under side of such main portion and projecting beyond its edge, the quarter of a boot or shoe, stitching fastening the folded edge of the main portion of the strip to the quarter edge, stitching fastening the re-enforcing strip to the quarter and a line of stitching passing through the two strips, substantially as and for the purpose set forth.

### No. 27,750. Button-Hole Strip for Boots and Shoes. (*Oreille de chaussure.*)

George Valiant, Toronto, Ont., 5th October, 1887; 5 years.

*Claim.*—1st. The method of forming a button-hole strip for boots or shoes, which consists in forming a series of separate button-hole pieces by folding suitable blanks, then crimping them so as to form the button-holes with thin folded edges, and then fastening such pieces together in a continuous strip, substantially as and for the purpose specified. 2nd. The method of forming a button-hole strip for boots or shoes, which consists in first making a series of separate button-hole pieces by folding suitable blanks and crimping them so as to bring their ends together, and then fastening the pieces together, side by side, by means of stitching joining their edges, substantially as and for the purpose shown. 3rd. The button-hole strip formed of a series of sections attached together, side by side, each section provided with an entire button-hole, substantially as and for the purpose set forth. 4th. The button-hole strip, formed of a series of attached sections, each section forming an entire button-hole and having its outer edge shaped to form a scallop of the strip, substantially as and for the purpose described. 5th. The button-hole strip, consisting of a series of pieces attached together, each one of which is formed of a piece of suitable material, folded and crimped to form a button-hole with its folded edge, substantially as and for the purpose specified. 6th. The button-hole strip, consisting of a series of sections, having button-holes, and provided with overlapping and interlocking parts fastened together by stitching, substantially as and for the purpose set forth. 7th. A button-hole piece or section for forming a button-hole strip, made of a piece of material folded and crimped, so as to form a button-hole with its folded edge, and having on each side a projection on one of its folds and a corresponding rabbit in the other fold, substantially as and for the purpose described.

### No. 27,751. Lock and Hasp.

(*Serrure et morraillon*)

George H. McFarland, Toronto, Ont., and Samuel B. Foster, Chicago, Ill., U.S. (assignees of Homer J. Moore, Chicago, aforesaid), 6th October, 1887; 5 years.

*Claim.*—1st. In a lock, a bolt formed in separate recessed layers of different lengths placed together and confined in the slotted bolt socket, a pin within the said socket to engage with recessed portion of the bolt, in combination with a receptacle K, and a receptacle L for the respective ends of the bolt, and with a key corresponding at one extremity with the lower surface of the end of the bolt, and provided with projections for a stop, substantially as and for the purposes set forth. 2nd. The combination of a hasp A, having a socket E, with a slot k, and provided with a pin R, a sliding-bolt D contained in said socket and composed of separate layers d, said layers being recessed in two places r and p, and having the bevel O on their

lower extremity, with the receptacles L and K, the piece G and a key M having its upper extremity provided with notches n to correspond with the recesses p of the layers d, and provided with projections N, N, substantially as set forth.

### No. 27,752. Horse Collar. (*Collier de cheval.*)

Ralph Brownson, St. Paul, Minn., U.S., 6th October, 1887; 5 years.

*Claim.*—1st. In a horse collar, the lower or throat portion thereof, constructed without the usual straw or fibrous filling, and provided with lining pieces D<sup>1</sup> of leather, and filling pieces D<sup>2</sup> of leather, substantially as described, whereby this part of the collar is rendered thin and flexible, for the purpose set forth.

### No. 27,753. Elevated Oven Cooking Stove.

(*Poêle de cuisine à fourneau élevé.*)

Alfred E. Peters, Moncton, N.B., 6th October, 1887; 5 years.

*Claim.*—1st. In a cooking stove, an elevated oven having a removable lining E, provided with a flange E<sup>1</sup>, and inserted through an opening closed by a door hung to the end wall, as set forth. 2nd. An elevated oven, having the shell or casing constructed of top and bottom sections I, J, secured to the end walls by rods H<sup>1</sup>, and intermediate sliding sections K, K<sup>1</sup> to give access to the smoke, as set forth. 3rd. The bars F, F, having one end engaging with indentation C<sup>1</sup> in flange Q, and the other end bent and entering a slot E<sup>1</sup> in the lining E to lock against the end wall of the oven for holding the lining in place in the casing, and to sustain an internal grating, as set forth.

### No. 27,754. Machinery for the Manufacture of Twines, etc. (*Machine pour la fabrication du cordonnnet, etc.*)

Walter H. Avis, Dovercourt, Ont., 6th October, 1887; 5 years.

*Claim.*—1st. In a twisting and laying machine for forming twine, rope, etc., a vertical twisting frame, having a series bearing pieces on which whirl-hooks are pivoted, arranged diagonally behind each other, so that the length of the sets of whirl-hooks decrease in a uniform manner, the speed of the whirl-hook being regulated by cone pulleys, vertical stakes, with arms having grooves formed thereon to receive and keep separate sets of strands after they have passed from a vertical guide-frame, which is adapted to move on a single track, and has arms carrying hooks to receive the strands before and after being twisted, in combination with a laying frame also adapted to move on a single track, with a drag to regulate the tension on the cord during the process of formation, and having arms carrying whirl-hooks, to which the strands of the cord to be formed are attached, and which derive motion from an endless rope driven from the end of the walk where the vertical twisting frame is located, the whole being arranged and operated to form twine, cord, rope, etc., substantially as specified. 2nd. The vertical twisting frame A, having vertical bearing-pieces 2, 3, 4 and 5, on which, and on front of frame, the whirl-hooks h are pivoted, the bearing-pieces being arranged in echelon, so as to permit the cord driven by the drum to actuate the cone-pulleys g, to which the whirl-hooks h are fixed, substantially as described and for the purpose specified. 3rd. The fixed vertical stake-head E, having arms E<sup>1</sup> formed thereon, so as to permit the arms C<sup>1</sup> of the guide-frame C to pass between them, and having grooves m between bridges k formed on said arms E<sup>1</sup>, substantially as described and for the purpose specified. 4th. The vertical guide-frame C, adapted to move in a single track B, and having arms C<sup>1</sup> and C<sup>2</sup>, and hooks n fixed to said arms C<sup>1</sup>, arranged and operated substantially as described and for the purpose specified. 5th. The vertical guide-frame C, adapted to move on a single track B, and having arm C<sup>1</sup> with hooks n, and arm C<sup>2</sup> with core-head q and spool p, the whole being arranged and operated substantially as described and for the purpose specified. 6th. The core-head q, fixed to the arm C<sup>2</sup> in guide-frame C, and having central opening q<sup>1</sup>, through which the core from the spool p is threaded, and having grooves formed therein to receive the twisted strands to be twisted round said core, substantially as described and specified. 7th. The combination of the vertical moveable laying frame D, with arms D<sup>1</sup>, adapted to move on a track B, with wheel L pivoted on said frame, endless cord i, pulley Li, cord s, guide-pulleys, drag M and whirl-hooks d driven by cone-pulleys K, substantially as described and for the purpose specified.

### No. 27,755. Hunting Watch Case.

(*Boîte de montre de chasse.*)

William J. Graham, Toronto, Ont., 6th October, 1887; 5 years.

*Claim.*—1st. A hunting watch-case, the front-back of which unlocks and opens by positive movement, operated through pressure upon the pendent-knob or stem-key, and automatically closing and being secured by a spring when the pressure on the stem-key is released, leaving the closing spring in its eased position. 2nd. In a hunting watch-case, the combination of the stem-key G with the catch H, push-arc F, lever E, closing-spring D, slotted sector c and hinge-piece C connected to and operating the front-back B, for the purpose of opening substantially as described and shown. 3rd. In a hunting watch-case, the hinge-piece C and slotted sector c, part thereof closing spring D, lever E, arc F and catch H thereon operating the front-back B for the purpose of closing and securing closed, substantially as described and shown. 4th. In a hunting watch-case, the closing spring D pressing outward below the hinge against the sector c of the hinge-piece C connected securely to the front-back B above the hinge, and retaining the said front-back closed and the closing-spring D at least tension, as described and shown.

### No. 27,756. Rotary Filtering Apparatus.

(*Appareil rotatoire de filtration.*)

John Howes, Worcester, Mass., U.S., 6th October, 1887; 5 years.

*Claim.*—1st. The filtering apparatus consisting of the exterior ey-

linder or casing A, provided with the inlet I, and the hollow revolvable core C having heads C<sub>1</sub>, annular flanges c<sub>2</sub>, radial flanges c<sub>3</sub> and openings c, the tubular filtering material F supported on said cover and connecting bands E, substantially as set forth. 2nd. The filtering apparatus consisting of the casing cylinder A, filtering cylinder F, supported and distended by flanges c<sub>2</sub> and c<sub>3</sub> on the revolvable core, having the axial discharge-passage c<sub>4</sub> through one end thereof, the driving arbor B having a pulley at the other end the tank T located above the level of the cylinder, and the pipe J connecting said tank and discharge passage, substantially as and for the purposes set forth. 3rd. In combination, substantially as hereinbefore described, the casing cylinder, the revolvable driving arbor B journaled in the head A<sub>1</sub>, and having an inward projecting end provided with the plate D keyed thereto, the filtering cylinder mounted on the revolvable hollow core-shaft C, one end of which is journaled in the head A<sub>2</sub>, the other end thereof being centered and supported by said arbor B, and detachably connected therewith by pipes e fixed in the head C<sub>1</sub>, and entering holes in plate D, in the manner and for the purpose set forth. 4th. The combination with the casing A, its head A<sub>2</sub> and revolvable filter cylinder, one end of which is journaled in said head and the other end detachably supported on the arbor B of a bearing bar G, for sustaining said filter cylinder when the head A<sub>2</sub> is removed, substantially as shown and described. 5th. In a filtering apparatus, the revolving arbor B carrying the pulley B<sub>1</sub> journaled in one of the heads A<sub>1</sub> of the outer casing, in combination with a revolvable filtering cylinder having a supporting core, one end of which is journaled in the opposite cylinder-head A<sub>2</sub>, and its other end centered on said arbor, and confined for rotation therewith by detachably engaging devices, whereby the filtering-cylinder can be withdrawn from the casing without disturbing said arbor, substantially as set forth.

### No. 27,757. Dress-Maker's Chart.

(*Meusure de modiste.*)

Elvira Baker, Mitchell, Ind., U.S., 6th October, 1887; 5 years.

*Claim.*—A dress-maker's chart and guide formed in one piece, and having the external straight edges B, C, the upper curved edge D, the oblique curved edge E, the vertically curved edge F, the upper transversely curved slotted portion K, and the vertically slotted portion G having edge-scale marks, and the whole provided with scales for the various curved and straight edges, substantially as specified.

### No. 27,758. Scale Stripper for Cleaning Fish. (*Grattoir à poisson.*)

William Clow and James Findlay, Toronto, Ont., 6th October, 1887; 5 years.

*Claim.*—A scale stripper A, composed of a curved blade with teeth in its under edge, the said blade sloping outwardly, and a handle with forked arms and shield secured thereon, constructed and arranged substantially as shown and described and for the purposes set forth.

### No. 27,759. Folding Stool Chair. (*Siege-pliant.*)

Hiram F. Henry, Gowanda, N.Y., U.S., 6th October, 1887; 5 years.

*Claim.*—1st. A folding stool-chair having the outside legs A pivoted to the inside legs B by the pivots a<sub>1</sub>, the seat C pivoted to the outside legs A<sub>1</sub>, and its front edge supported by a cross-bar E fixed in the inside legs B, and engaged in a groove formed in the under side of the seat, substantially as shown and described. 2nd. A folding stool-chair having the outside legs A pivoted to the inside legs B, and the seat C having its side edges reduced in thickness to the difference between the thickness of the outside and inside legs, so that the combined thickness of said reduced edge and that of the inside leg will not be greater than the outside leg, substantially as herein shown and described. 3rd. In a folding stool-chair having the outside legs A and inside legs B, the latter being only of such thickness that added to the thickness of the seat C which folds down upon them, is not greater than the thickness of the outside legs, substantially as herein shown and described. 4th. In a folding stool-chair having the outside legs A and inside legs B, the seat C pivoted to the legs A, and having its top surface of a width equal to the distance between the outside legs, and its under surface equal only to the distance between the inside legs B, substantially as herein shown and described. 5th. In a folding stool-chair, the combination of the legs A and B, and the seat C having the rib D and spring F, with a back composed of the side bars H, top bars G, girt straps G<sub>1</sub> and stop-bar A<sub>1</sub>, and pivoted to the legs A, all constructed and arranged substantially as herein shown and described. 6th. A combination of a number of the above described folding chairs, each of which has the outside legs A, inside legs B and seat C, and having a back common to and of sufficient length to cover all the chairs, substantially as herein set forth.

### No. 27,760. Automatic Feed Water Regulator for Steam Boilers. (*Régulateur automatique de l'eau d'alimentation des chaudières à vapeur.*)

James W. Weaver, Toronto, Ont., 6th October, 1887; 5 years.

*Claim.*—1st. A chamber A, provided with a pipe D for the admission of water, and a pipe C for its discharge, in combination with the cup or float E suspended from the head G, designed to form a toggle joint between the levers M, substantially as and for the purpose specified. 2nd. A chamber A, provided with a pipe D for the admission of water, a pipe C for its discharge, and a steam pipe B, in combination with the cup or float E suspended from the head G designed to form a toggle joint between the levers M, substantially as and for the purpose specified. 3rd. A chamber A, provided with a pipe D for the admission of water, and a pipe C for its discharge, the plungers N, O connected together by the levers M, which are centrally journaled, in combination with the cup or float E connected to the levers M and levers H, the latter of which are pivotally supported from the cross-bar L and support the weight J, substantially as and

for the purpose specified. 4th. A chamber A, provided with a pipe D for the admission of water, and a pipe C for its discharge, a plunger N forming a cut-off valve for the feed-pipe D, and connected by the toggle-jointed levers M to the plunger O, which butts against an adjustable cap e, in combination with the cup or float E suspended from the toggle-jointed levers M within the chamber A, substantially as and for the purpose specified. 5th. A chamber A, provided with a pipe D for the admission of water, and a pipe C for its discharge, a plunger N forming a cut-off valve for the feed-pipe D, and connected by the toggle-jointed levers M to the plunger O which butts against an adjustable cap e, in combination with the cup or float E suspended from the toggle-jointed levers M, connected to the pivoted levers H which are pivotally supported and connected to the counterpoise weight J, substantially as and for the purpose specified.

### No. 27,761. Fish-Holder for Cleaning Fish. (*Pince pour accommoder le poisson.*)

William Clow and James Findlay, Toronto, Ont., 8th October, 1887; 5 years.

*Claim.*—1st. A fish-holder B, composed of a spring b<sub>1</sub> bent over in the middle, and the ends thereof provided with corrugated jaws which mesh into each other and are closed by means of a clamp with pinching screw, and kept in position by a swivelled eye-bolt resting on the stand of a hold-fast or pin c, substantially as shown and described and for the purposes set forth. 2nd. In combination, a fish-holder B, constructed as shown and described, of the hold-fast c, as shown and described and for the purpose set forth.

### No. 27,762. Boot or Shoe. (*Chaussure.*)

George Valiant, Toronto, Ont., 8th October, 1887; 5 years.

*Claim.*—1st. A button-hole strip or lace-hole strip provided with button-holes or lace-holes, and having its inner edge split to form attaching flaps, substantially as and for the purpose specified. 2nd. A button-hole strip or lace-hole strip having attaching-flaps along its inner edge, one of which is wider than the other, substantially as and for the purposes shown. 3rd. A button-hole or lace-hole piece, or strip having its inner edge split to form flaps, the inner or rear one of which is wider than the other, substantially as and for the purpose set forth. 4th. In combination with the piece containing the button-holes or lace-holes, provided along its inner edge with attaching-flaps, the shoe-quarter and suitable stitching securing the flaps to the quarter, substantially as and for the purpose described. 5th. In combination with a button-hole or lace-hole strip, provided with two flaps along its inner edge, the quarter of a boot or shoe having its edge connected by stitching with the front flap, and a line of stitching fastening the rear flap to the quarter on the inner side thereof, substantially as and for the purpose specified. 6th. In combination with a button-hole or lace-hole strip, provided with two flaps along its inner edge, the front one being narrower than the other, the quarter of a boot or shoe having its edge connected by a seam with the front flap, and a line of stitching connecting the rear or inner flap to the quarter on the inner side thereof, substantially as and for the purpose shown. 7th. In combination with the quarter of a boot or shoe, the combined fly and button-hole or lace-hole strip having the narrow front flap and the wider rear flap along its inner edge, stitching joining the front flap to the edge of the quarter stitching passing through the quarter, and the flap projecting under the same, and stitching passing through the two flaps, substantially as and for the purpose set forth. 8th. In combination with the quarter of a boot or shoe, a button-hole or lace-hole strip having attaching-flaps along its inner edge, stitching fastening the front flap to the quarter-edge, and stitching fastening the rear flap to the quarter lining, substantially as and for the purpose described. 9th. In combination with the quarter of a boot or shoe, a lining and a button-hole or lace-hole strip split so as to have front and rear or inner flaps along its edge, stitching fastening the strip to the quarter edge, and stitching fastening the lining to the rear or inner flap of the strip between such flaps and the quarter edge, substantially as and for the purpose specified. 10th. In a boot or shoe, a button-hole or lace-hole strip having attaching flaps, along its inner edge stitching fastening the quarter-edge between these flaps, and stitching fastening the rear flap to the lining-edge, substantially as and for the purpose shown and described. 11th. A button-hole fly in one piece having its inner edge or margin split or divided longitudinally forming two flaps, in combination with a quarter or quarter and lining of a shoe, the front or outer flap on the finished side being united to the quarter or quarter and lining by a line of stitching forming a seam, which is afterwards turned in such a manner as to be covered by the rear or inner flap which forms a strengthening-stay and makes a smooth finish on the under side of said seam, substantially as and for the purpose shown and described. 12th. The method of attaching a button-hole or lace-hole strip to a boot or shoe quarter, which consists in providing the strip with two flaps along its inner edge with the inner or under flap wider than the other fastening, the narrow front flap to the quarter-edge and fastening the wider flap to the under or inner side of the quarter, substantially as and for the purpose shown.

### No. 27,763. Ejector for Automatic Grain Binders. (*Lance-gerbe pour lieuse à grain automatique.*)

The Massey Manufacturing Company, Toronto, Ont., (assignee of William N. Whiteley, Springfield, Mass., U.S.), 8th October, 1887; 5 years.

*Claim.*—1st. In an automatic binder, the ejector d jointed at one end to a radius-rod whose other end is pivoted to a fixed part of the machine, the ejector being also midway its length jointed to a crank carried on the main knotted-driving shaft, combined with a radial ejector e carried by said main shaft, whereby the initial movement of the bundle is produced by said ejector d, and the final discharge by said ejector e, as set forth. 2nd. The combination with the ejector d, of the radius-rod g, one end jointed to the frame at A, and the other end jointed to said ejector at the end, the crank f, shaft A and radial e carried directly by the shaft, substantially as set forth.

**No. 27,764. Die for Rolling Screw Threads.***(Coussinet pour fileter les vis.)*

The American Screw Company, (assignee of Charles D. Rogers), Providence, R.I., U.S., 8th October, 1887; 15 years.

*Claim.*—A die for rolling the thread on screws, having transversely the form to be given to that part of the body of the screw in the direction of its length on which the thread is formed, and having oblique V-shaped grooves presenting between them a series of bars or projections narrow at the end where they commence to form the thread, so that they may be forced at the commencement of their action into the metal to the depth required to form the body of the screw, and gradually increasing in width, act laterally upon the metal between them and force it into the grooves which give it the form required for the thread.

**No. 27,765. Flushing Cistern.***(Réservoir de latrine)*

Booth & Son, (assignees of John O. Parker), Toronto, Ont., 8th October, 1887; 5 years.

*Claim.*—1st. A tank or receptacle provided with a pipe leading from a point at or near its bottom, and having a water bucket pivoted within or above it, substantially as and for the purpose specified. 2nd. A tank or receptacle provided with a pipe projecting into it above its bottom, and having a hole made through the pipe, substantially flush with the bottom of the tank or receptacle, in combination with a water bucket pivoted within or above the said tank, substantially as and for the purpose specified. 3rd. A tank or receptacle provided with a pipe leading from a point at or near its bottom, and having a water bucket pivoted within or above it, in combination with water supply pipe provided with a ball-valve operated by the water admitted into the bucket, substantially as and for the purpose specified. 4th. A tank or receptacle, provided with a pipe leading from a point at or near its bottom, and having a water bucket pivoted within or above it, a water supply pipe provided with a ball-valve, in combination with a chamber connected to the pivoted bucket, and having a hole in it so located that when the bucket is in its normal position, water will flow through the hole but will not do so when the bucket is upset, substantially as and for the purpose specified.

**No. 27,766. Argand Lamp. (Lampe d'argand.)**

James P. Bixby and James N. Clarke, St. Stephen, N.B., 8th October, 1887; 5 years.

*Claim.*—1st. The combination, with the reservoir X having a central tube B, of the removable cover E, tube D, chimney-holder F and truncated cone S, as set forth for the purposes described. 2nd. The combination, with the tube B, of the adjustable rod A carrying disk L, and a perforated truncated cone G, as set forth for the purposes described. 3rd. The combination, with the reservoir X having tube B, of the wick-holder H having an arm J, and connected to a rod K passing out through the top of the reservoir to lift and depress the wick, as set forth. 4th. The reservoir X having an opening N around tube A, and a rim T surrounding the opening, in combination with a removable cover E and tube D, as and for the purposes set forth. 5th. An argand lamp consisting of the reservoir X, provided with a rim T and perforated base P, an air tube B passing through an enlarged opening N in the top of the reservoir, a tube D surrounding tube B and attached to a removable cover E seated on the reservoir, a chimney-holder F having a truncated cone S seated therein, wick-holder H raised by a rod K passing through the top of the reservoir, an adjustable rod A carrying a disk L to spread the flame, and a cone G supported in the air tube B, as set forth and described.

**No. 27,767. Die and Connection for Making Eye-Bars. (Etampe et raccordement pour faire les bords et à ceillet.)**

John F. Kingsley, Athens, Penn., U. S., 10th October, 1887; 5 years.

*Claim.*—1st. The combination of an upper and a lower die-section, triangular in cross-section as shown, the lower one of said sections having a recess at one end, and the upper one of said sections having a greater or sharper angle than that of the lower section, whereby the space between the die-sections when closed will increased or enlarged from its centre toward the sides thereof, substantially as and for the purpose set forth. 2nd. The combination of an upper and a lower die-section, having their faces or meeting sides of different angles, and the lower one of said sections having a recess at one end, and plates of the form substantially as described and shown, arranged upon each side thereof for the purpose specified. 3rd. The combination, with a lower die-section triangular in cross-section, and an upper die-section also triangular in section, and a platen arranged above it, of a frame provided with rollers and having dovetailed grooves upon its inner side to engage with similarly-formed tongues on the sides of the upper die-section, and platen, substantially as and for the purpose set forth. 4th. The combination, with a lower die-section and the upper die-section and platen having central grooves upon their inner sides, of the roller frame and rollers having enlarged portions to fit in the grooves of the upper die-section and platen, substantially as and for the purpose set forth. 5th. The combination, with the lower die-section and upper die-section having at one end recesses as shown, of a rammer having a bifurcated end adapted to engage therewith, whereby said upper die-section is operated, substantially as and for the purposes specified.

**No. 27,768. Domestic Fire Escape.***(Sauveteur d'incendie domestique.)*

Benjamin Burkin and Thompson Melville, London, Eng., 10th October, 1887; 10 years.

*Claim.*—In a domestic fire-escape, the combination of a grooved wheel A in which a length of suspension wire B is coiled, side-cheeks

E, E, crossed bars F, and F, F, brake rollers G, G, slip noose I, handles J, J, rollers K and stook L, all constructed and arranged substantially as shown and described.

**No. 27,769. Ice-Sawing Machine.***(Machine à scier la glace.)*

Godfroy Trahan, Brooklyn, N. Y., U. S., 10th October, 1887; 5 years.

*Claim.*—1st. The combination of a track-frame to rest upon the ice, a saw-carriage movable longitudinally on said track, a driving shaft on said carriage, a driving-chain passing around a sprocket-pulley on said shaft, a feed-mechanism for propelling the saw carriage longitudinally on said track, reversed gearing interposed between the driving-shaft and said feed, and adapted to drive the latter in either direction, and a control lever for causing the reversal of the feed, substantially as described. 2nd. The combination of a track-frame to rest upon the ice, a saw-carriage movable longitudinally on said track, a rack and pinion feed for so moving said carriage, a driving-shaft on said carriage, a driving-chain passing around a sprocket-pulley on said shaft, two sets of relatively reversed gearing interposed between said shaft and the feed, a clutch for connecting or disconnecting the respective seat of gearing, and a control lever for operating said clutch.

**No. 27,770. Toboggan. (Tobaganne.)**

George H. Chadeayne, Buffalo, N. Y., U. S., 10th October, 1887; 5 years.

*Claim.*—1st. The combination, with a toboggan provided on its underside with brackets C, of supporting rollers B journalled in said brackets, and guide-rollers E journalled in the brackets C at right angles to the supporting rollers, and projecting laterally from opposite sides of the toboggan, substantially as set forth. 2nd. In a toboggan, the brackets C, provided with vertical lugs c between which the rollers B are journalled, and with horizontal lugs g between which the guide-rollers E are journalled, substantially as set forth.

**No. 27,771. Lamp Wick. (Mèche de lampe.)**

Pomnée de Bondini and Theodore Tubini, Constantinople, Turkey, 10th October, 1887; 5 years.

*Claim.*—1st. The combination, with a lamp wick, of a reticulated or perforated metallic sheath closely embracing the top of the wick, substantially as and for the purpose specified. 2nd. The combination, with a lamp wick made of combustible fibrous material, of a tip made of fibrous incombustible material, and of a reticulated or perforated metallic sheath enclosing the incombustible tip and uniting it to the combustible wick, substantially as specified. 3rd. A lamp wick composed of two or more cotton wicks with intermediate metallic pieces, the whole being enclosed and bound together by a reticulated or perforated metallic sheath, substantially as specified.

**No. 27,772. Fire-Escape Ladder.***(Echelle de sauvetage d'incendie.)*

Atwill P. Wright, Syracuse, N. Y., U. S., 10th October, 1887; 5 years.

*Claim.*—1st. A fire-escape ladder consisting of the ladders A, B, hinged together and mounted upon wheels, and provided with stop-rollers, and an adjustable grapple mounted upon the ladders, substantially as described. 2nd. A grapple consisting of side rails, provided with hooks and hinged to slides fitting upon rods secured to the ladder-rails, substantially as described. 3rd. A fire-escape ladder, consisting of the ladders A, B, mounted upon wheels provided with stop-rollers, ropes connecting the ladders, and a windlass mounted thereon and a grapple mounted upon said ladders, substantially as described. 4th. The journalled shaft 2, having mounted thereon arms provided with stop-ladders, in combination with the wheels 1 secured upon said shaft, substantially as described. 5th. The combination, with the wheel 1 mounted upon an axle, of a stop-roller pivotally secured at the axis of said wheel, substantially as described and for the purposes set forth. 6th. The combination of the windlass mounted upon ladder A, ropes 8 connected thereto and to ladder B, and the ladders A, B of substantially equal length hinged together at one of their ends and provided with wheels and stop-rollers, substantially as described. 7th. In a fire-escape ladder, an adjustable grapple adapted to slide vertically upon a rod secured to the ladder rails, in combination with a spring 20 attached to the grapple and adapted to bear against the rod, substantially as described and for the purposes specified. 8th. The ladders A, B, provided with grapples and hinged together and mounted upon wheels, in combination with the adjustable brace 3 connecting the same, substantially as described. 9th. The ladders A, B, hinged together and provided with carrying wheels and stop-rollers, in combination with the side brace-bar C, substantially as shown and described.

**No. 27,773. Tackle Block. (Poulie de palan.)**

George A. Ford, Cleveland, Ohio, U. S., 10th October, 1887; 5 years.

*Claim.*—1st. In a metal tackle-block, a cheek-piece made of a single piece of sheet or wrought metal, and having an inwardly projecting rim, substantially as set forth. 2nd. In a metal tackle-block, a cheek-piece comprising one face of the block, and made of a single piece of metal having substantially flat side and inwardly projecting rim, substantially as set forth. 3rd. In a metal tackle-block, cheek-pieces each comprising one face of the block, and having substantially flat sides with inwardly projecting rims forming broad surfaces along the edges of the cheeks, the inner edges of the rims being curved inward beyond the edge or periphery of the sheave, substantially as set forth. 4th. In a metal tackle-block, the combination, with metal cheek-pieces having flat sides, and inwardly-projecting rims, substantially as described, of anti-friction rolls located inside the cheek-pieces, substantially as set forth. 5th. The combination, with cheek-pieces constructed from wrought metal having inwardly-projecting flanges thereon, and a sheave mounted therein, of metal

end plates having holes for the passage of the draft straps or strap, said end plates being made to extend from one cheek-piece to the other rod which latter they are attached, substantially as set forth. 6th. The combination, with cheek-pieces of wrought metal and a sheave mounted thereon, substantially as described, of end plates for connecting the cheek-pieces, said end plates being of wrought metal in pairs, and arranged respectively inside and outside the flanges of the cheek-pieces, said end plates having holes formed therein for the passage of the draft strap, substantially as set forth. 7th. The combination, with cheek-pieces, and plates securing the latter together, and a draft strap extending through slots in the end plates of a sheave, a sheave-axle mounted in the strap and cheek-pieces and a blocking mounted on the sheave-axle between the draft strap and cheek-pieces, substantially as set forth. 8th. The combination with cheek-pieces end plates, draft strap, sheave-axle and sheave mounted thereon, and blocking mounted on the axle, substantially as indicated, of a securing-bolt for fastening the axle and blocks together as against end movement of the axle, substantially as set forth. 9th. In a tackle-block, a suitable bolting device made to engage the sheave-axle, and located between the cheek-piece and draft strap to hold the axle endwise, substantially as set forth. 10th. The combination, with cheek-pieces, re-enforcing strips, draft-strap, sheave-axle and sheave, substantially as indicated, of a blocking mounted on the axle between the draft-strap and the re-enforcing strip, and made to embrace each and slide thereon, substantially as set forth.

### No. 27,774. Trunk Harness.

(*Courroie de coffre.*)

Charles H. Van Orden, Catskill, N. Y., U. S., 10th October, 1887; 5 years.

*Claim.*—The device herein shown and described, for binding trunks, etc., consisting of the two straps A, fastened around the ends of the trunk, and two longitudinal straps C connected to two straps A some distance apart, and the tightening strap D applied to two straps A between the junctures of the straps C with the straps A, as and for the purposes set forth.

### No. 27,775. Lantern. (*Lanterne.*)

Lewis F. Betts, New York, N. Y., U. S., 10th October, 1887; 5 years.

*Claim.*—1st. In combination with a casing, having an air-injector at top, a closed reflector fitting over the burner cone and located within said casing, forming therewith a space or chamber for the passage of the injected air-currents to the under side of the burner cone, the oil fount burner cone and smoke-tube, the parts being arranged substantially as explained, so that the air currents inside and outside the reflector, will be balanced or counterbalanced, substantially as shown and described. 2nd. The combination of the hinged casing, the oil fount burner, burner-cone, closed reflector, smoke-tube connected with the reflector, and an ejector applied upon the mouth of said tube, the parts being arranged, as explained, so as to compel the air to pass from the chamber between the reflector and casing, and up through the cone and reflector, substantially as and for the purposes set forth. 3rd. The combination of a hinged casing, an air-injector applied thereon, the oil fount burner cone, closed reflector, smoke-tube connected therewith, and an ejector applied upon the smoke-tube, the parts being arranged, as explained, so as to balance and direct the air-currents, substantially as shown and described. 4th. The oil fount, the closed reflector, the casing, the smoke-tube connected with the reflector, and having an ejector applied thereon, the upwardly-extending air-tube, having an injector applied upon its top, and having perforations in its side walls and the interior flaps, arranged and combined, substantially as shown and described. 5th. The combination, with the hinged casing, having the hinged door applied therein, of the wire loop secured upon the wall of said casing and extending above the bottom thereof, forming an abutment for the door to shut against, substantially as shown and described. 6th. combination, with the oil fount, of the inclined rim applied thereon, and the casing hinged to said rim and arranged to enter the same, substantially as and for the purposes set forth.

### No. 27,776. Sewing Machine.

(*Machine à coudre.*)

Robert S. Looker, Springfield, Ohio, U. S., 10th October, 1887; 5 years.

*Claim.*—1st. As an improvement in sewing machines, the divided arm having its entire forward end, with the head thereon, journaled to revolve in a vertical plane on the remaining portion or arm proper, as described and shown, whereby convenient access may be given to the needle, and an increased space afforded beneath the arm for the insertion of the fabric. 2nd. In combination with a sewing machine arm and a head journaled to revolve thereon, a needle-bar mounted on said head and a driving-shaft extended through the journal and connected with the needle-bar, substantially as described, whereby the head may be revolved around the driving-shaft to present the needle-bar in different positions, without disconnecting said bar from its actuating shaft. 3rd. In a sewing machine, the combination of the sustaining arm, the rotary head journaled thereon to turn forward at the lower side, the needle-bar mounted on the head, and means, substantially as described, to lock the head, when turned to present the needle toward the operator, whereby the needle may be secured in position to permit its convenient manipulation. 4th. In combination with the sewing machine arm, the rotary head thereon, the needle-bar mounted in the head, and means, substantially as described, for locking the head in its operative position, and also for locking it when turned to present the needle to the operator. 5th. As an improvement in sewing machines, the combination of the arm and the independent head, one of said parts provided with the horizontal journal, seated and arranged to rotate in a sleeve or bearing on the other part, as described. 6th. The combination of the arm and the rotary hollow head, united by the journal and head in rear of the head, as described, whereby the interior of the hub is left unobstructed. 7th. In a sewing machine, the combination of a

sustaining-arm, and a rotary head united by a journal secured to one of said parts, and a device engaging the journal to lock the parts together. 8th. In a sewing machine, the combination of a sustaining arm, a head journaled thereon, and guiding the needle-bar, a needle-bar operating shaft, and means for locking said shaft against rotation, whereby the needle may be fixed against reciprocation, so as to prevent injury thereto by the movement of the rotary head. 9th. In a sewing machine, the needle-bar operating shaft, in combination with the manual locking device, substantially as described, adapted to be adjusted and fixed at will in direct engagement with the shaft. 10th. In a sewing machine, the combination of a needle-bar operating shaft, and a set-screw acting directly against the same, whereby the shaft and needle may be secured in different positions. 11th. In a sewing machine, the combination of the arm having a journal projecting from the end thereof, the arm-head having a corresponding sleeve or journal-bearing, and means, substantially as described, for attaching and detaching the journal bearing. 12th. In a sewing machine, the combination of the arm and head to carry the needle-bar journaled on said arm, means for locking said parts together, and a needle-bar operating shaft passing through said journal and having free motion therein. 13th. The combination of the arm, the rotary head thereon, the spring-locking device to prevent the rotation of the head, and the independently rotating collar to operate the locking device. 14th. In a sewing machine, the arm and its rotary head, in combination with a spring-locking device and the rider to insure the action of said device. 15th. In combination with the arm and the rotary head thereon, the spring to stop the head automatically in operative position, and the screw to lock the parts firmly in position. 16th. The combination of the arm, the spring-locking device, the slotted rotary collar to release said device and the device to lock the collar. 17th. In a sewing machine, the combination of the shuttle-operating mechanism, the needle-operating mechanism, and an intermediate clutch, constructed substantially as described, in two parts, adapted to interlock in one position only, whereby the operator is enabled to disconnect the needle and shuttle and to reconnect them instantly in the exact relations required. 18th. The needle-operating shaft, and the shuttle-operating cam thereon, in combination with the clutch-pin and its operating collar, the ring A encircling the same, and the controlling handle extending through a slot to the exterior. 19th. In a sewing machine, an arm, a rotary head thereon, and a spring-latch to lock the head combined for joint operation, substantially as described.

### No. 27,777. Adjustable Oscillating Needle Clamp for Sewing Machines.

(*Porte-aiguille mobile et oscillant pour machines à coudre.*)

Robert S. Looker, Springfield, Ohio, U. S., 10th October, 1887; 5 years.

*Claim.*—1st. The combination of a needle-bar, with a bushing screw-threaded on its outer surface, a bolt passing through said bushing, and set-nuts by which the needle is held between the head of said bolt and the bushing, and the bushing is clamped to the needle bar, whereby the clamp may be loosened from the needle-bar without disengaging the needle of affecting the relation between the needle and the clamp, substantially as described. 2nd. In combination with a needle-bar, as described, a needle-clamp having grooves of various sizes, and adapted to hold the needles of different sizes adjustably to the bar, and to be disconnected from the bar without loosening the hold of the clamp upon the needle, as set forth. 3rd. In combination with the needle-bar, and needle-clamp, constructed as described, and with notches arranged upon the periphery of the said clamp, a spring-catch, as F, secured to the needle-bar, and serving to engage the clamp, as herein specified. 4th. The combination with the needle-bar A, having a socket a, of the sleeve B having plate C, with grooves c, c<sub>1</sub>, c<sub>2</sub> of various sizes, the thumb-nut D for movably securing the said sleeve to the needle-bar, and connections for securing the needle to the plate C, as set forth. 5th. The combination, with the needle-bar A, having socket a, of the sleeve B having plate or disk C, with grooves c, c<sub>1</sub>, c<sub>2</sub> of different sizes, and nut D, arranged as described, of the screw E and E<sub>1</sub> and spring-catch F, as and for the purposes specified.

### No. 27,778. Spool Box for Sewing Machines.

(*Porte-bobine pour machines à coudre.*)

Robert S. Looker, Springfield, Ohio, U. S., 10th October, 1887; 5 years.

*Claim.*—1st. A spool-holder for a sewing machine, formed with a series of troughs, within which the spools may rest and revolve, and a corresponding series of independently-adjustable tension devices to receive the thread from the spools, substantially as described. 2nd. The combination, with a sewing machine arm, of a spool-rack formed of a series of troughs, within which the spools may rest and revolve, said troughs being inclosed in a box having top and side lids, and series of independently-adjustable tension devices to receive the thread from the spools, substantially as described. 3rd. In a spool box, the combination of a series of spool-holders, and a series of tension devices arranged diagonally across the tier of spool-holders to direct the thread to openings at the end of the box, substantially as described. 4th. The combination, with a sewing machine arm E, of a spool-box C having hinged top and side C<sub>1</sub> and C<sub>2</sub>, a rack A inside of said box, independent tensions D for each thread, and the thread-throats c<sub>1</sub>, c<sub>2</sub>, c<sub>3</sub>, etc., in the end c<sub>3</sub> of the box, substantially as described.

### No. 27,779. Clipping and Shearing Machine, or Appliance for the Cutting of Hair, Grass, etc. (*Tondeuse mécanique pour le poil, l'herbe, etc.*)

Thomas L. Phipps and William Burnham, Birmingham, Eng., 10th October, 1887; 5 years.

*Claim.*—1st. The interposing between the under side of a loose

covering, cap, or caps, or the underside of the cap, of a combined cap and handle, and the plain upper side of the top, cutter plate rolling and loose working anti-friction balls or spheres, substantially as and for the purpose hereinbefore set forth. 2nd. Disposing the long sockets or recesses *p*, wherein the balls or spheres roll, and loosely work in the longer direction of the covering cap or cutter plates, or in the direction in which the top outer plate works, substantially as set forth. 3rd. Holding the anti-friction balls or spheres within their recesses, by making the open boundary edges of such recesses slightly overhang the balls or spheres, either by a closing or drawing in process, or partly drilling and partly closing (the ends) for the purposes and substantially as set forth.

### No. 27,780. Broom. (*Balai.*)

Leander Pelton, Herndon, Iowa, U.S., 10th October, 1887; 5 years.

*Claim.*—1st. The combination of tubular metal rivets, with a broom having a metal plate or cover on its opposite sides, for the purposes stated. 2nd. An improved broom, composed of a handle, broom, corn straw, fastened to the lower end of the handle, a metal cover and tubular rivets passing through the straw and fixed to the metal on the opposite sides of the straw, for the purposes stated.

### No. 27,781. Detachable Book Cover and Clasp. (*Converture mobile de livre et fermoir.*)

James L. Morrison, Toronto, Ont. (assignee of Walter O'Hara, Niagara Falls, N.Y., U.S.), 11th October, 1887; 5 years.

*Claim.*—1st. A roller, eccentrically journalled in a bracket rigidly attached to a book-cover, and adapted to permit the insertion of the stub end of a memorandum book between the roller and the bracket, and to clasp the same firmly in position when the roller is caused to rotate, substantially as described. 2nd. The combination of a detachable book-cover, with the sides thereof flexibly held together, and a roller eccentrically journalled in a bracket rigidly attached to one of the sides of said cover, and adapted to permit the insertion of the stub end of a book between the roller and the bracket, and to clasp the same firmly in position when the roller is caused to rotate, substantially as described. 3rd. The combination of the eccentric roller *E*, having spindles *e* formed eccentrically thereon, the bracket *D* rigidly attached to a book-cover with flexible back, the standards *a* and *b*, on which the eccentric roller *E* is journalled, and the tongue *F* rigidly attached to said roller, which is adapted to clasp and unclasp a paper-book *G*, substantially as described. 4th. The combination of the eccentric roller *E*, journalled on a bracket *D*, suitably attached to a detachable book-cover, the tongue *F*, having finger-hold *d* and the paper-book *G* perforated at *c*, substantially as specified.

### No. 27,782. Knotter for Automatic Grain Binders. (*Lieuse à grain automatique.*)

The Massey Manufacturing Company, Toronto, Ont. (assignee of William N. Whiteley, Springfield, Ohio, U.S.), 11th October, 1887; 5 years.

*Claim.*—1st. In a cord-knotter for a grain-binder, a revolving knotting-book *J* provided with a shield *v* to surround and protect the bearing, and the cam *N*, said shield being provided with an opening *n*, and combined with pivoted jaw *m* provided with a heel-extension *q* having parallel sides and width greater than its range of motion, and fitted accurately to said opening *n*, whereby said opening is never unclosed during the movement of said jaw. 2nd. The hook *J* provided with a shield *v* having an opening *n* in its side, combined with the jaw *n* provided with the heel-extension *q* having parallel sides, its outer end in width greater than its range of motion, and its end concentric with its pivot pin *t*, the whole of said extension accurately fitted to said opening *n*, as set forth, whereby said opening is at all times closed by said part *q* and obstructing matter excluded.

### No. 27,783. Harvesting Machine.

(*Moissonneuse.*)

The Massey Manufacturing Company, Toronto, Ont., (assignee of William N. Whiteley, Springfield, Ohio, U.S.), 11th October, 1887; 5 years.

*Claim.*—A harvesting-machine constructed with a main frame having the main driving wheel fixedly journalled thereon, and supporting the gearing which operates the knife and rake properly attached thereto, in combination with an intermediate supplemental frame attached to the main frame, but having a vertical adjustment independent of said main frame, and supporting and carrying the raking and reeling mechanisms, and to which the platform and cutting apparatus is flexibly connected, and the platform carrying the cutting apparatus and divider being supported at the outer end by a carrying-wheel, while its inner end is hinged or jointed to the supplemental frame in such a manner that the platform and cutting apparatus may be folded to a vertical position for transportation, or returned to its horizontal position for cutting, and the said joint rendered rigid at will, all constructed and arranged substantially for the purposes shown and described.

### No. 27,784. Automatic Binder.

(*Lieuse automatique.*)

The Massey Manufacturing Company, Toronto, Ont., (assignee of William N. Whiteley, Springfield, Ohio, U.S.), 11th October, 1887; 5 years.

*Claim.*—1st. A deck-cleaner, arranged at the upper edge of the binder-receptacle, and between the receptacle-deck and the elevating-belts, and having a transverse reciprocation thereto for the purpose of agitating the grain, and moving the clogging straws crosswise and freeing them from the belt, as set forth. 2nd. A deck-cleaner, provided with a serrated surface, or with an equivalent thereof arranged between the elevating-belts and the binder-receptacle, and

having a movement transverse to that of the elevating-belts, in combination with a fixed holding-surface lying across the line of movement of the belts, for the purpose of holding the straws lying lengthwise that the deck-cleaner may move in one direction without carrying the cross-straws with it, substantially as shown and described and for the purpose specified. 3rd. A deck-cleaner between the elevating-belts and deck of the binder-receptacle, constructed with teeth or other equivalent devices, and having a reciprocating movement imparted to it for the purpose of moving forward the straw that is drawn down between elevating-belts and upper edge of the binder-receptacle, in combination with a rake or other suitable mechanism at the forward end of the receptacle, that will draw down or clear away the straw that is moved forward by the deck-cleaner, substantially as shown and described and for the purpose specified.

### No. 27,785. Harvester. (*Moissonneuse.*)

The Massey Manufacturing Company, Toronto, Ont., (assignee of William N. Whiteley, Springfield, Ohio, U.S.), 11th October, 1887; 5 years.

*Claim.*—1st. In combination in a grain-harvesting machine, an elevator-frame and two endless elevator-belts, a butting device for forcibly moving the grain downward and inward from said elevator-belts, and a detachable clover or flax bundling attachment provided with a receiving-platform and retaining-fingers, as set forth. 2nd. In combination in a grain-harvesting machine, the elevator-frame and elevator belts, the rollers whereof are mounted on said frame, loops *a* and forked standard *b*, and a clover or flax bundling attachment provided with retaining-fingers, and adapted to be attached by said loops and standard and a reciprocating butting-board to forcibly remove the cut grain or grass from the elevator downward and inward on the platform, as set forth. 3rd. A clover-bundling attachment for a harvesting-machine, having bearings whereby it is adapted to seat in the same supports which hold the automatic binder, provided with retaining-fingers depending from a shaft which is journalled on the frame above the incoming grass, combined with an operating hand-rod attached to said shaft at a point below its axis, and a suitable latch on said rod to retain the parts in operative position, whereby all the strains upon said hand-rod are tensile. 4th. The elevator and receptacle platform of a harvester and binder, a butter whereof end is carried by a crank in a circular path, combined with a swinging fulcrum-plate *K*, a joint-rod to connect one end of the same with the free end of the butter, and an endwise-moving controlling hand-rod *O*, whereby the angular position of said butter and its field of motion may be changed at will, and whereby the cut grass is forcibly removed from the elevator-belts, as set forth. 5th. The butter *L* carried at one end by the crank *N*, and at the other end by the swinging joint-rod *M*, combined with the pivoted fulcrum-plate *K* jointed to the permanent standard *J*, and the endwise moving controlling hand-rod *O*, whereby the angular position of the butter may be changed by the attendant at will.

### No. 27,786. Harvester Frame, etc.

(*Bâti, etc., de moissonneuse.*)

The Massey Manufacturing Company, Toronto, Ont., (assignee of William N. Whiteley, Springfield, Ohio, U.S.), 11th October, 1887; 5 years.

*Claim.*—1st. A main or gear frame adapted to surround the main wheel separate from and independent of the frame by which the cutting apparatus and binder are supported, combined with said main wheel counter-shaft, and the operative gearing of the machine driven by said wheel and bearing-boxes for the same attached to said frame, whereby all the primary operative gearing may be set up and adjusted on said frame at the factory and shipped entire, as and for the purpose set forth. 2nd. In combination, the main or gear frame, the main driving and supporting wheels mounted upon a stationary axle rigidly connected at its ends to the opposite sides of the gear-frame, and the angle-plate *7* which comprises a bearing-box for the main-wheel pinion-shaft, and a clamp *8*, whereby the driving-wheel axle is rigidly clamped and held for the purpose of holding the master-wheel and its pinion firmly in gear. 3rd. The main frame provided with the clamping-boxes *8, 9*, combined with the stationary axle *6* for the main driving-wheel rigidly clamped at each of its ends in said boxes, and thereby rigidly connected with the main frame on each side of the driving-wheel, whereby rigidity is given to the main frame as well as a support to the main-wheel. 4th. The combination, with the main-frame side bars *1, 1*, and end bars *2*, of the angle-plate *7*, lapping and bolted to two sides of the outer one of side bars *1*, provided with the clamp-box *8*, and the pinion-shaft box having the removable cap *12*, whereby the main-axle *6* of the main-wheel *3* is firmly clamped to strengthen the frame, and the counter-shaft *13* supported in permanent position as to the axle. 5th. The stationary axle *6* of the main driving-wheel, provided with a screw-nut at its extremity, the face-gear *4* upon the main-wheel, and the adjustable box *9* upon the opposite end of the axle *6*, for the purpose of setting the face-gear and keeping the same in proper adjustment against the pinion. 6th. The combination, with the main-wheel frame, of the angle-box plate *16* fitted to the angle of the frame, lapping over the top of the frame, and provided with boxes *17* and *18* for retaining said boxes in place relatively, and to hold the main frame square and to stiffen the same.

### No. 27,787. Fastener for Frame Joints.

(*Echarpe pour coins de cadres.*)

William G. Rawbone and Joseph L. Rawbone, Toronto, Ont., 11th October, 1887; 5 years.

*Claim.*—1st. A joint-fastener bridged between the arms, which are adapted to spread under the influence of blows on said bridge, substantially as specified. 2nd. A joint-fastener formed of a single piece of metal, and having a circular or angular bridge formed at its centre, and between the arms thereof, which are adapted to spread under the influence of blows on the said bridge, substantially as specified. 3rd. A joint-fastener *C* having arms *a* and *b*, and a circular or angular bridge *c* between said arms, in combination with a frame



A held together by nails *e*, substantially as described and for the purpose specified. 4th. The combination of a joint-fastener C applied to the frame A at the corners thereof, and having a bridge *c* formed between its arms *a* and *b*, which are perforated to receive nails to attach it to the frame A, substantially as described and for the purpose specified. 5th. The combination of a joint-fastener C rigidly attached at the joints to the inner sides of the frame A, and below the plane of the back surface thereof, and having an angular or circular bridge *c* between its arms *a* and *b* at the angle of the joint-fastener adapted to cause the sides of frame to spread as desired, and the covering material B attached to the outer edges of the sides of said frame, substantially as specified. 6th. A fastener for joints rigidly secured to the edges of the frame, and at the corners thereof the arms of the said fastener to which the sides of the frame are attached being adapted to spread under blow or pressure applied to an angular or circular bridge between the arms, and carry with them the sides of the frame so as to stretch the covering material secured on said frame, substantially as specified. 7th. An adjustable joint-fastener rigidly secured to the inner corners of a frame, and so formed that it may be caused to spread as desired, carrying with it and retaining in position when spread the sides of the frame to the outer edges of which a covering has been secured, substantially as specified. 8th. An adjustable joint-fastener rigidly secured to the inner corners of a frame, and below the plane of the back surface thereof, in combination with the sides of a frame, the inner edges of which are sprung slightly back from the covering material when the joint-fastener is caused to spread, so as to stretch the covering material secured to the outer edges of the sides of frame, substantially as specified. 9th. The combination of a joint C, rigidly attached at the joints to the back sides of the frame A, and having an angular or circular bridge *c* between its arms *a* and *b* which are in the same plane, and are adapted to cause the sides of the frame to spread as desired, and the covering material M attached to the side of said frame, substantially as specified.

### No. 27,788. Die for Making Auger Bits.

(*Étampe pour faire les mèches des tarières.*)

The Irwin Auger Bit Company, Wilmington, (assignee of Charles H. Irwin, Martinville, (the assignee of William C. Johnson, Wilmington), Ohio, U.S., 11th October, 1887; 5 years.

*Claim.*—1st. The herein-described dies for forging auger bits, consisting of two parts A, B, the one constructed with a longitudinal groove *a*, corresponding substantially to one-half the central spindle of the bit, and with a cavity *b* obliquely across said groove *a* and corresponding in shape to one-half of a single convolution of the spiral rib, the other part constructed with a groove *d* corresponding to the groove *a* in the other part, and the said second part constructed with a cheek *e* at each end of said groove, corresponding to the adjacent surfaces of said convolution, substantially as described.

### No. 27,789. Locomotive Brake.

(*Frein de locomotive.*)

Jane M. Guernsey, (assignee of William B. Guernsey and Ebenezer Beals, Norwich, N.Y., U.S., 11th October, 1887; 5 years.

*Claim.*—1st. The combination, with the vertical levers C fulcrumed against each other, of the floating levers G pivoted thereto, and fulcrumed against each other, substantially as set forth. 2nd. In a brake series, the combination, with the vertical levers C, C, arranged between the wheel and having fulcrums *c*, of the floating levers G pivoted to said levers C and fulcrumed against each other, and tie-rods H connecting the levers G, substantially as set forth. 3rd. In a brake series, the combination, with the vertical levers C, C, arranged in pairs and having their fulcrums in the same plate or piece, the floating levers G pivoted to levers C, C and fulcrumed again each other in pairs, and tie-rods H connecting one lever G of one pair with one lever G of the other pair, substantially as set forth. 4th. The combination, with the vertical lever C having fulcrum *c*, of the floating lever G pivoted to lever C and the tie-rod H, substantially as set forth. 5th. The combination, with the floating levers G fulcrumed against each other, of the slotted tie rods H connected to the opposite levers, substantially as set forth. 6th. The combination, with the frame, of the locomotive, of a plate D secured thereto, vertical levers fulcrumed to said plate, floating levers G fulcrumed against each other and pivoted to said vertical levers, and tie-rods H secured to said levers G, substantially as set forth. 7th. The combination, with the brake mechanism, substantially as described, having tie-rods H connected thereto, of the oblique levers N<sub>1</sub> connected with said rods H, and a motor M connected with said levers N<sub>1</sub>, substantially as described and shown. 8th. The combination, with the plate D, the levers C having fulcrums *c*, the floating levers G fulcrumed to link *g*, and the tie-rods H connecting the levers G, in the manner described and for the purposes set forth. 9th. In a locomotive brake, the combination of the motor M for operating the same, arranged in front and preferably to one side of the locomotive, and brake shoes F having pivotal bearings in the rock-arms or supporting-arms C, with the lateral connections G, H passing behind the wheels and below their axles, substantially as shown and described.

### No. 27,790. Combined Muff, Satchel and Pocket.

(*Manchon, sac et poche combinés.*)

Abraham Brahadi, Montreal, Que, 11th October, 1887; 5 years.

*Claim.*—As a new article of manufacture, the combination, with a satchel provided with fastenings and a handle, of a muff interposed between it and a handkerchief pocket, all substantially as herein shown and described.

### No. 27,791. Stock Car.

(*Char à bestiaux.*)

George Grossman, Lancaster, Penn., U. S., 11th October, 1887; 5 years.

*Claim.*—1st. In a stock car, the combination, with rods secured near the top of the car, and extending from the side toward the

centre thereof, of rigid partitions attached to said rods by connections constructed to slide along said rods with the partitions, and to permit the same to be folded back against the side of the car, substantially as and for the purpose specified. 2nd. The combination in a stock car, with rods secured near the top of the car, and having depressions therein in which to receive connections for supporting partitions, of partitions movably connected with said rods, and supported by them and adapted to be moved back along said rods against the side of the car, or out into the body thereof to form stalls, substantially as specified. 3rd. The combination in a stock car, with rods secured near the top of the car, and having depressions therein in which to receive connections for supporting partitions, of partitions connected with said rods and stays movably secured above said depressions to retain said connections in place, substantially as specified. 4th. The combination in a stock car, with the body thereof, of partitions secured at the top and bottom, so as to extend diagonally upward from the bottom and from stalls, substantially as specified. 5th. The combination, in a stock car, with the body thereof, of partitions secured at top and bottom, so as to form stalls, and rising diagonally from the bottom toward the heads of the stalls, substantially as specified. 6th. The combination in a stock car, with the feed trough, of a water reservoir extending longitudinally under the same, and secured to the bottom thereof, so as to be elevated above the car floor, the reservoir, having an opening in it to receive water, and means whereby water may be drawn therefrom, substantially as specified. 7th. The combination, in a stock car, with the feed trough, of a water reservoir extending longitudinally under the same, and secured to the bottom thereof, so as to be elevated above the car floor, one end projecting outside of the car and constructed to receive water, and the other having means whereby water can be drawn therefrom, substantially as specified. 8th. The combination in a stock car, of a water reservoir suspended beneath the roof and extending diagonally across said car, from one end to the centre thereof, the extremity of the reservoir at the end of the car projecting to the outside thereof, and being constructed to receive water, and the other being arranged to have water drawn therefrom, substantially as and for the purpose specified.

### No. 27,792. Soap Dish.

(*Botte à savon.*)

George H. Laxton, Chicago, Ill., U.S., 12th October, 1887; 5 years.

*Claim.*—As an improved article of manufacture, a soap-dish, having an inclined bottom A, and provided with corrugations *a* and apertures *b* in the said bottom ribs *c*, and apertures *d* in its front B, slots *e* in its back D and legs projecting from the under surface of the bottom, as specified.

### No. 27,793. Registering and Recording Device.

(*Appareil pour compter et enregistrer.*)

Joseph B. Dutton, Detroit, Mich., U.S., 12th October, 1887; 5 years.

*Claim.*—1st. In a registering and recording device, two or more ratchet-wheels carrying independent index fingers, arranged to be operated by a spring click, common to such wheels, substantially as and for the purposes set forth. 2nd. In a registering and recording device, two or more ratchet-wheels carrying independent index fingers, a spring click adapted to actuate the ratchet-wheels separately or simultaneously, substantially as and for the purposes described. 3rd. In a registering and recording device, two or more ratchet-wheels carrying independent index fingers, and provided with registering deep notches, in combination with a spring click actuated by a sliding bar for rotating such wheels upon their respective shafts separately or simultaneously, substantially as and for the purposes specified.

### No. 27,794. Washing Machine.

(*Machine à blanchir.*)

Thomas Oliver, Dyersville, Iowa, U.S., 12th October, 1887; 5 years.

*Claim.*—1st. In a washing machine, the combination of the vertical shaft G, bearings H on the upper end, rock-shaft I journaled in the said bearings, lateral arms K, vertical rods L secured to the extremities of the said arms, and the semicircular perforated discs M secured to the lower ends of the rods L, and having the flanges P on the upper side, substantially as described. 2nd. In a washing machine, the vertical movable rod G, rock-shaft I journaled on the upper end, lateral arms K, rods L and the discs M, combined with the cam lever to clamp the bar G in any desired position, substantially as described. 3rd. In a washing machine, the bar G, arms K pivoted thereon, rods L and the discs M, the said bar G being vertically adjustable, substantially as described. 4th. In a washing machine, the combination of the tub A, having the lid B, central opening *d*, plate D, having the guide flanges E, E, bar G to operate in the said flanges, rock-shaft S journaled in the upper end thereof, handle N secured thereto, lateral arms K, vertical rods L secured to ends thereof, discs M on the lower ends of the said rods, and the lever F having the cam thereon to operate against the said vertical bars G and bind it in the desired position, substantially as described. 5th. In a washing machine, the combination of the vertical bar G, rock shaft I having extended down to the extremity of the motion of the said discs to serve as a guide therefor, substantially as described. 6th. In a washing machine, the rocking arms K and the rods L secured thereto combined with the discs M having perforations O therein, flanges P around the said perforations, having pins *p* passing through the discs and bent laterally on the upper side thereof, substantially as and for the purpose set forth.

### No. 27,795. Machine for Rolling Metal Articles to Form.

(*Machine à laminier les articles en métal en ébauche.*)

Charles F. Tebbets, Fitchburg, Mass., U. S., 12th October, 1887; 5 years.

*Claim.*—1st. In a machine for making articles, as described, the combination of curved dies mounted on platens and working in

curved paths, substantially as set forth. 2nd. Curved dies, substantially as described. 3rd. Two dies, having forming surfaces, substantially as set forth, the dies being arranged with their forming surfaces opposed and registering with each other in a cross-sectional plane, and divergent and non-registering on both sides of said plane, combined with a mechanism for moving the dies in opposite directions, and bringing the successive cross-sectional surfaces of the dies into the registering plane simultaneously, substantially as and for the purposes described. 4th. The combination of the curved dies, their supporting platens and the described rack and pinion mechanisms for moving the dies, substantially as described.

**No. 27,796. Machine for Rolling Seamless Tubes, Pipes, and other Hollow Articles from Hollow Ingots.** (*Laminoir à tuyaux cylindrés.*)

Charles Kellogg, Buffalo (assignee of William H. Appleton, New York), N. Y., U. S., 12th October, 1887; 5 years.

*Claim.*—1st. The combination, with the pair of vertical and the pair of horizontal rolls, of a universal rolling mill, and devices for adjusting each of said rolls toward and away from its fellow-roll, of mechanism for connecting such adjusting devices, whereby the adjustment of all of said rolls may be simultaneously effected and to the same extent, substantially as described. 2nd. The combination, with the pair of vertical and the pair of horizontal rolls, and bearings and screw for each of said rolls, of mechanism for connecting such screws, whereby the rolls of both of said pairs may be adjusted simultaneously toward and away from its fellow roll, substantially as described. 3rd. The combination, with the pair of vertical and the pair of horizontal rolls, the bearings and screws for each of said rolls, the housings in which such rolls, bearings and screws are mounted, a shaft arranged upon each side of the housing, and devices for connecting said screws with the shaft on the respective side of the housing, of mechanism for rotating said shafts in unison to cause the simultaneous adjustment of all the rolls, substantially as described. 4th. The combination, with the pair of vertical and the pair of horizontal reducing rolls, the bearings and screws for each of said rolls, the housings in which said rolls, bearings and screws are mounted, a shaft arranged upon each side of the housing, devices for connecting said screws with the shafts, or their respective side of the housing, of a cylinder provided with induction and eduction pipes, a piston and a piston rod, a rack, gears mounted on said shafts and meshing with such rack, and suitable valves for the induction and eduction pipes, substantially as described. 5th. The combination, with the screws D, D', E, E', the gears F, F', the shaft I provided with the gears H, H', P, P', the gear G, the sprocket-wheels G', K, the chain L and the shaft N, provided with the gears M, O, of the cylinder T provided with induction pipes K, K', eduction pipes L, L', etc., the piston rod S and the piston thereon, the rack E and suitable valves for the induction and eduction pipes, substantially as described. 6th. The combination, with the mandrel F<sub>2</sub>, the holder P and the stock or bar n<sub>1</sub>, of the arm n<sub>2</sub>, the roll V journalled in its upper end, the segmentally-shaped cam r<sub>1</sub> and the spring r, substantially as described. 7th. The combination, with the horizontal rolls, of a rolling mill, and mechanism for adjusting each of said rolls toward and away from the other, of devices for supporting the article being rolled, and means for rendering these devices vertically adjustable, whereby said devices may be adjusted with relation to the under of such horizontal rolls, as it is raised or lowered, substantially as described. 8th. The combination, with the pair of vertical and the pair of horizontal reducing rolls, of a universal rolling mill, and mechanism for adjusting each of the rolls of said pairs toward and away from its fellow roll, of devices for supporting the article being rolled, and mechanism for rendering these devices vertically adjustable whereby said devices may be adjusted with respect to the reducing roll s, as they are adjusted toward and away from each other, substantially as described. 9th. The combination, with the pair of vertical and the pair of horizontal reducing rolls, and mechanism for simultaneously adjusting the rolls of each of said pairs toward and away from its fellow-roll, and rolls for supporting the article being rolled, and mechanism for vertically adjusting these latter rolls, whereby to bring them into proper relation with respect to the reducing rolls as they are adjusted toward and away from each other, substantially as described. 10th. The combination, with the pair of vertical and the pair of horizontal reducing rolls, of a universal rolling mill, and mechanism for simultaneously adjusting the rolls of each of said pairs toward and away from its fellow-roll, of rolls for supporting the article being rolled, stands in which these latter-mentioned rolls are mounted, and mechanism for vertically adjusting said rolls whereby to bring them into proper relation with respect to the reducing rolls, as they are adjusted toward and away from each other, substantially as described. 11th. The combination, with the stands X<sub>1</sub>, X<sub>2</sub>, the supporting rolls X, X', the bearings s, s', the screw rods t<sub>1</sub>, t<sub>2</sub>, having the gear u on each of their lower ends, and the shafts v, v' provided with the gears u<sub>1</sub>, u<sub>2</sub> of the cylinder Y, provided with the induction pipes z, z', and eduction pipes z<sub>2</sub>, z<sub>3</sub>, etc., the piston-rod Y<sub>1</sub> and piston thereon, and the rack Z, whereby the supporting rolls of either set may all be adjusted simultaneously and by power, substantially as described. 12th. The combination, with the mandrel, of devices for acting against the same at different points around its circumference to prevent it from flexure or bending in any direction, substantially as described. 13th. The combination, with the mandrel F<sub>2</sub> and the stand X<sub>1</sub>, having the guide-way 5 secured thereto, of the stock or bar 6, the hinged arm 7 and the wheel 8, as and for the purpose set forth.

**No. 27,797. Hub for Vehicle Wheels.**

(*Moyeu de roue de voiture.*)

The American Axle and Wheel Company (assignee of Joseph N. Harris), New York, N. Y., U. S., 12th October, 1887; 5 years.

*Claim.*—1st. A vehicle hub, consisting of the tubular axle-box of gray iron casting, or equivalent rigid-bearing metal cylindrical upon its exterior, and a tubular mortise-ring of malleable metal, formed with mortises for the spokes, with its bore cylindrical and fitting the

exterior of said box, and united directly thereto by being forced or shrunk thereon, whereby the two parts are intimately united in practically permanent manner, as described, and may be separated and replaced without disturbing the remainder of the wheel. 2nd. A vehicle hub, consisting of the combination of a tubular axle-box of gray-iron casting, or equivalent rigid-bearing metal cylindrical upon its exterior, and a tubular mortise-ring of malleable metal made shorter than said box formed with mortises for the spokes, and with its bore cylindrical, and a tight fit with the exterior of said box, and united directly to the latter by being shrunk or forced thereon, with the ends of the box projecting beyond the mortise-ring at one or both ends of the hub, substantially as set forth.

**No. 27,798. Retort Gas Burner.** (*Bec à gaz.*)

George H. Gregory, Brooklyn, N. Y., U. S., 12th October, 1887; 5 years.

*Claim.*—1st. A gas-burner adapted for use with a horizontally extending arm of a gas-fixture to be detachably secured thereto, comprising a pipe having an upwardly-extending portion, and a portion extending in a horizontal direction therefrom, a pipe extending downwardly from the last-mentioned portion with a pipe at the lower extremity of the downwardly-extending portion, an upwardly-extending burner-tip attached to the last-named pipe, a shade surrounding the downwardly-extending pipe, and a support for the same. 2nd. A gas-burner adapted for use with a horizontally-extending arm of a gas-fixture, and to be detachably secured to same, comprising a pipe, as A having an upwardly extending portion, and a portion extending in a horizontal direction therefrom, a pipe, as C, extending downwardly from the last-mentioned portion, a pipe, as D, near the lower extremity of the pipe C, an upwardly-extending tip, as d, and a shade surrounding the pipe and supported thereby above the burner-tip, substantially as specified.

**No. 27,799. Process for Manufacturing from Wood, Excelsior and Material for Making Wood Pulp, etc.** (*Procédé de fabrication des fibres et matières de pâte de bois, etc.*)

John E. Goodwin, Nashville, Tenn., U. S., 12th October, 1887; 5 years.

*Claim.*—1st. The herein-described process or method of reducing wood to excelsior or material for wood pulp and kindred products of wood fibre, consisting in simultaneously cutting the timber along its entire length, and in a plane parallel or nearly so with the fibres or grain of the wood without making a kerf, substantially as herein described. 2nd. The herein-described process or method of reducing wood to excelsior and material for wood pulp and kindred products of wood fibre, the same consisting in revolving the wood in a direction at a right angle to the direction of the motion of the saw, substantially in the manner herein set forth. 3rd. The herein-described process of making excelsior and material for wood pulp from the wood and kindred products of wood fibre, by cutting the timber parallel or nearly so with the fibre or grain of the wood by revolving the timber at right angles to the direction of the motion of the saw and without cutting a kerf, substantially as set forth.

**No. 27,800. Means for Preventing the Derailment of Cars.** (*Moyens pour empêcher le déraillement des chars.*)

Frank D. Knight, Hudson, Mass., U. S., 12th October, 1887; 5 years.

*Claim.*—1st. A safety-catch runner for railway-trucks, having a slot through which the wheel projects downward, of less size than a section of the wheel below the centre, and on each side of said slot guiding-surfaces curved upward at their ends, and provided with edge flanges extending upward and outward along the arms, said runner being provided with standards of unequal height, one outside of and the other back of the wheel, where it is adapted to fit under the box-frame and under the timbers of the truck, substantially as specified. 2nd. A safety-catch runner for a railway-truck, having a slot through which the wheel projects downward, bearing-surfaces on each side of said slot having edge flanges and standards of unequal length, one adapted to fit under the box-frame, and the other having a vertically extended shaft slot or opening under the timbers of the truck, substantially as specified. 3rd. The combination, with a slotted flanged safety-runner having a short outer pedestal standard or bearing, and a long inner standard formed with a vertically extended axle, slot or opening of the wheel, its shaft, the boxing-frame casting and the attachment thereof, substantially as specified. 4th. The combination, with the car-truck, and a vertically movable axle in connection therewith carrying the wheels of a safety-runner attachment rigidly connected to the truck, and slotted for the wheels to project through and to allow play for the axle, substantially as specified.

**No. 27,801. Spindle and Flier employed in Spinning Rope Yarn, etc.** (*Broche et ailette employées dans le filage du fil de caret, etc.*)

John Good, Brooklyn, N. Y., U. S., 12th October, 1887; 5 years.

*Claim.*—1st. The combination with a spindle and flier, of a pulley on the flier journal for driving the flier, a loose pulley concentric with the spindle for driving it, and a friction device or drag interposed between the spindle pulley and the spindle itself, substantially as herein described. 2nd. The combination, with a spindle and flier having a tubular journal at its driving head, and a driving-pulley fast thereon, of a spindle-driving pulley having a long sleeve fitting and capable of turning in the tubular journal of the flier, and receiving the spindle through it, substantially as herein described. 3rd. The combination, with a spindle and a flier having a tubular journal at its driving-head, and a driving-pulley fast thereon, of a spindle-

driving pulley having a long sleeve fitting and capable of turning in said tubular fier-journal and receiving the spindle through it, and a friction device or drag interposed between the spindle-driving pulley and spindle, substantially as herein described. 4th. The combination, with a spindle and fier having a tubular journal at its driving-head, and a driving-pulley fast thereon, of a spindle-driving pulley having a long sleeve fitting and capable of turning in the tubular fier-journal, and recessed or counterbored from its outer end inward, and a friction disk or drag locked to the spindle having a tubular sleeve fitting the recess or counterbore in the sleeve of the spindle-driving pulley and bearing against a friction face on said pulley, substantially as herein described. 5th. The combination, with the closed fier, fixed bearings for the journals thereof, and a hollow slotted spindle fitting bearings at opposite ends of the fier and adapted to receive upon it a sliding bobbin, of means substantially as described for driving the fier and spindle, a bobbin-coupling fitted to slide on the spindle, and a traverse rod sliding loosely in the hollow spindle and having a head projecting through the slot in the spindle and permanently connected with the bobbin-coupling, substantially as set forth.

### No. 27,802. Flexible or Spring Heel for Boots and Shoes. (*Talon flexible pour chaussures.*)

George E. Swan, Beaver Dam, Wis., U. S., 12th October, 1887; 5 years.

*Claim.*—1st. An elastic or spring device, adapted for application to the heels of boots and shoes, and comprising a spring plate having an upper and lower section, substantially as described, flexibly connected and corresponding in outline to the heel, an elastic cushion secured between the said sections, and corresponding in outline to one of the layers of the heel, and a wearing-surface secured against the lower section and carried thereby, the said device being adapted to be secured to and against the bottom of the heel proper, substantially in the manner set forth. 2nd. An elastic or spring device, adapted for application to the heels of boots and shoes, and comprising a spring-plate having an upper and lower section flexibly connected at their front edges, the upper section being adapted to be rigidly secured to the bottom of the heel proper, so that the lower portion has a spring movement with relation to the plate, a retaining bolt or rivet rigidly secured to the upper section and projecting through the cushion and lower section, and a wearing-surface corresponding to and secured against the lower section, substantially as set forth. 3rd. An elastic or spring device adapted for application to the heels of boots and shoes, and comprising a spring plate bent up from a single piece forming an upper and lower section flexibly connected at their front edges, the upper section being adapted to be rigidly secured to the bottom of the heel proper, so that the lower portion of the device has a spring movement with relation to the heel and upper section, an intermediate cushion secured between the sections of the plate and retained against lateral displacement by the said connection, a central rivet or bolt secured to the upper section and passing down through the cushion and lower section, and provided with the retaining head, a layer of leather forming the wearing-surface, and devices connecting this wearing layer to the bottom of the lower section, substantially as set forth. 4th. In an elastic or spring device adapted for application to the heels of boots and shoes, a spring-plate comprising an upper and lower section corresponding in outline to the heel, and flexibly connected at the front edges of the sections, said connection extending a portion of the length of the front edge, thus leaving a free open portion, substantially as set forth, the upper section being adapted to be rigidly secured to the bottom of the heel-portion, and the lower section having a spring movement with relation to the upper section, and a forward spring movement upon the connection, and towards the free portion of the front edges of the sections and an intermediate cushion, substantially as and for the purpose set forth. 5th. In an elastic or spring device adapted for application to the heels of boots and shoes, the combination, with a spring plate comprising an upper and lower section flexibly connected, the lower section having an enlarged opening  $\sigma$ , and with a corresponding cushion having an eye of a central retaining-bolt or rivet secured to the upper section, and passing down through the eye of the cushion through enlarged opening  $\sigma$ , and provided with a head by which the sections and retained together, whereby the lower portion of the device has a spring movement with relation to the rigid upper section, substantially as and for the purpose set forth. 6th. As an improved article of manufacture, the herein-described elastic or spring device adapted for application to the bottom of the heel of boots and shoes, comprising a spring plate bent up from a single piece, and forming an upper and lower section connected by a bend, a corresponding intermediate cushion, a bolt or rivet connecting the sections of the plate and securing the cushion in position, and a leather wearing-surface secured against the under face of the lower section, the whole being adapted to be detachably secured to the heel by means of screws or equivalent devices as described, substantially as and for the purpose set forth. 7th. The combination, with the heel of a boot or shoe, of an elastic or spring device comprising an upper section having perforations  $l$ , a lower section having an enlarged opening  $\sigma$  and connected with the upper section by a bend, an intermediate cushion, a bolt or rivet secured to the upper section and passing through the cushion and opening  $\sigma$ , and provided with a retaining-head, a wearing-surface secured to the bottom of the lower section and having an enlarged opening  $M$ , openings  $S$  in the wearing-surface lower section, and cushion and screws passing through the upper section, substantially as and for the purpose set forth.

### No. 27,803. Churn. (*Baratte.*)

Frank B. Fargo, Lake Mills, Wis., U. S., 13th October, 1887; 5 years.

*Claim.*—1st. In a cream-testing churn, the combination, with the supporting frame, of a body pivotally supported on said frame, and provided with the independent compartment removable cases  $D$ , each having the side strips  $d$ , end strips  $d_1$  and cross strips  $d_2$ , springs  $e$ , removable end section, and adjusting bolts connecting the re-

movable end section to the body of the case, a shaft journaled in the frame, eccentrics thereon, and bifurcated castings secured to and depending from the under side of the body to engage the eccentrics, substantially as set forth. 2nd. In a cream-testing churn, the combination, with a horizontal oscillating body  $C$  comprising the side-bars  $C_2$ , the bottom cross-bars  $C_1$  and the transverse cross-bars  $C_3$ , the latter dividing the frame or body into compartments, the base  $A$  upon which the said body is mounted, the bars  $B$  hinged to the corners of the oscillating body, and to the base, and the removable cases  $D$  fitted in the compartments, and each comprising the side strips  $d$  united by an end strips strip  $d_1$ , the cross strips  $d_2$  adjusting bolts  $d_6$ , the screw hooks and nuts and the removable end section  $D_1$  resting directly against the heads of the bottles or jars, substantially as described. 3rd. The combination, with the body  $C$ , of the base comprising the side-bars  $A$  having their highest point at the central part of the churn, and cross-bars  $A_1$  connecting said bars, the shafts  $B$  hinged to the corners of the body  $C$ , and the base-frame, the shaft  $B_1$  having bearings in boxes secured to the top of the side-bars  $A$  at the centre, and provided with an eccentric portion, and the bifurcated casting  $b_3$  adapted to be engaged by said eccentric, substantially as described. 4th. In a cream-testing churn, the combination, with the oscillating body  $C$  having the compartments, as described, the removable cases  $D$  to fit in the compartments, each comprising the side strips  $d$ , the rigid end strip  $d_1$ , the perforated cross strips  $d_2$  between the side strips  $d$ , and through the perforations of which cross strips the bottles pass, the springs  $e$  seated on the end strip  $d_1$ , and against the bottoms of the bottles, the removable end section  $D_1$  fitting between the side strips  $d$  and against the tops or corks of the bottles, and the adjusting bolts  $d_6$  passing through the case and having nuts which bind on the removable section  $D_1$  to hold it in place, as set forth.

### No. 27,804. Machine for Making Wood Screws. (*Machine à faire les vis à bois.*)

The American Screw Company (assignee of Charles D. Rogers, Providence, R. I., U. S., 13th October, 1887; 15 years.

*Claim.*—1st. A blank carrier or holder to receive the blank from a feeding mechanism, and present and hold it to the threading dies in the proper position to be acted upon by the dies, and provided with movable jaws which are closed to hold the blank vertically, and which are opened to release the blank to the control of the dies or to allow it to drop from the machine when the dies have completed their work. 2nd. The combination of duplicate mechanisms, side by side, but reversed in their action, and connected with the same actuating bars or shafts, so as to form a screw during the movement of the shaft in each direction.

### No. 27,805. Stump Puller. (*Arrache-souche.*)

Charles Krueger, Wansan, Wis., U. S., 13th October, 1887; 5 years.

*Claim.*—1st. The combination of the supporting legs, the sweep, the vertical shaft extending through the top of the legs and the sweep, and adapted to rise therethrough when rotated thereby, the rope having one end secured to the shaft and its other end to the rear side of one of the legs, its intermediate portion passing around a pulley  $O$  secured to said leg, and a hook  $R$  carried by a pulley loosely mounted on the rope, substantially as set forth. 2nd. The combination of the supporting legs, the plate  $E$  at the top of the same, having the depending sleeve  $F$ , the sweep, the casting  $H$  to which the sweep is secured, and the plates secured to the casting and engaging the edge of the plate  $E$  and the shaft  $K$  and operating-rope, as set forth. 3rd. The combination of the supporting legs, the cross-beam having a sleeve  $L$  therein, the sweep, the casting  $H$  at the top of the legs to which the sweep is secured, provided with an angular opening, and the shaft  $K$  having an upper angular end passing through the angular opening in the casting  $H$ , and a lower screw-threaded end working in the screw-threaded sleeve  $L$ , substantially as described.

### No. 27,806. Tree Felling Machine.

(*Machine à abattre les arbres.*)

William E. Rickard, London, Eng., 13th October, 1887; 5 years.

*Claim.*—1st. The combination of the base  $a$ , frame  $b$ , sliding longitudinally on guides  $d$ , and carrying bearings  $m$ ,  $m_1$ ,  $p$ ,  $p_1$ , driving shaft  $o$ , toothed bevelled wheels  $s$ ,  $s_1$ , vertical shaft  $r$ , eccentric  $u$  and crank-pin  $v$  with the saw-frame  $g$ , sliding transversely upon guides  $e$  and  $f$ , and connecting rod  $x$ , by which the saw-frame  $g$  is made to reciprocate, all substantially as set forth and shown. 2nd. The combination, with the driving-shaft  $o$ , of the drums  $t$ ,  $t_1$ , wire ropes, cords or chains  $v$ ,  $v_1$ , and pulleys  $R$ , substantially as and for the purposes set forth and shown. 3rd. In combination, with the base  $a$  and sliding frame  $b$ , the feed-screw  $B$  passing through the nut  $N$  and turning freely in the frame  $b$ , the grooved disc  $C$ , strap  $D$ , recess  $L$ , roller  $M$ , slotted arm  $E$ , adjustable pin  $F$ , jointed connecting rod  $H$ , eccentric  $u$  and eccentric strap  $K$ , all substantially as set forth and shown. 4th. In combination, with the base  $a$ , sliding frame  $b$  and feed screw  $B$ , the nut  $N$  opening and closing, so as to release or hold the screw  $B$ , substantially as set forth and shown.

### No. 27,807. Scaffold Clamp. (*Boulin d'échafaud.*)

Charles Whittingham, Toledo, Ohio, U. S., 13th October, 1887; 5 years.

*Claim.*—1st. The combination in a scaffold clamp, and with a post  $C$ , of a yoke  $A$  provided with a cross-pin and roller, as at  $E$ ,  $D$ , and a block  $B$  having an inclined slot  $b$  through which the pin and roller pass, and said slot made wider than the diameter of the pin and roller, substantially as shown and described, whereby the pressure of the pin and roller on the clamp-block will come only at the inner wall of the slot  $b$ , as set forth. 2nd. The combination, in a scaffold-clamp, and with a post  $C$ , of a yoke  $A$ , having spurs  $\dagger$  on its cross-bar, and provided with a cross-pin and roller, as at  $E$ ,  $D$ , and a block  $B$ , having an inclined slot  $b$ , through which the pin and roller  $E$ ,  $D$  pass, and said slot, made wider than the diameter of the pin and roller, substantially as described for the purposes set forth. 3rd.

The combination in a scaffold-clamp and with a post C, of a yoke A, having spurs G on its cross-bar, and tied or braced at its outer ends by a pin F, and provided with a cross-pin and roller, as at E, D, and a block B, having an inclined slot *b*, through which the pin and roller E, D pass, and said slot made wider than the diameter of the pin and roller, substantially as shown and described.

### No. 27,808. Nut Lock. (*Arrête-écrou.*)

George W. Roberts, Walla-Walla, W. T., U. S., 13th October, 1887; 5 years.

*Claim.*—1st. The combination, with the slotted bolt and nut, of the locking piece E, having the shank E<sub>1</sub>, and the oblong eye E<sub>2</sub> having the ridge E<sub>4</sub> and shoulder E<sub>3</sub>, substantially as shown and described. 2nd. The combination, with the bolt having an inclined slot, and the nut of a locking-piece having a weighted shank, an oblong interiorly-flaring eye, and a ridge starting with a shoulder E<sub>3</sub>, and extending with an incline E<sub>4</sub> around the edge of the eye, substantially as shown and described. 3rd. As an improved article of manufacture, the formed with the weighted shank E<sub>1</sub>, the oblong interiorly-flaring eye E<sub>2</sub>, and the inclined ridge E<sub>4</sub> starting a short distance from the junction of the eye and shank, and continuing around the edge of the eye, substantially as shown and described.

### No. 27,809. Injector. (*Injecteur.*)

William B. Mack, Boston, Mass., U. S., 13th October, 1887; 5 years.

*Claim.*—1st. The combination, with the casing *a* and the cone-operating screw or shaft *b*, of the screw-threaded bushing *c* detachably secured to the casing and formed to engage the thread of the shaft *b*, as set forth. 2nd. The casing *a*, having the water inlet, combined with the rotary plug-valve controlling said inlet, and composed of a cylinder cut away at one side, so as to form a segment Z, one edge of which is curved, as shown and described. 3rd. The overflow passage having the yielding spring closed valve *d*, and the rotary plug valve *e*, as set forth.

### No. 27,810. Wrench. (*Clé à écrou.*)

Charles A. Bowen & Co. (assignees of Walter E. Taft), Providence, R. I., U. S., 13th October, 1887; 5 years.

*Claim.*—In combination, the stationary jaw C, movable jaw E, operating screw F, the supplemental screw G, provided with the lever H, and the ferrule B, provided with the screw-threaded socket *a* adapted to receive the supplemental screw, substantially as described.

### No. 27,811. Spring Back and Vehicle Seat.

(*Dos de siège et siège de voiture élastiques.*)

Alexander C. Biggs, Belleville, Ont., 13th October, 1887; 5 years.

*Claim.*—1st. In a flexible vehicle seat, two or more springs fixed to the base, and having a curvature at or near the front portion of the seat, and under it, and extending rearwardly and upwardly to support the said seat, and absorbing bent upwardly at the rear portion of the base, and having their free ends passing through staples, which are secured to the seat back, as and for the purpose set forth. 2nd. The combination, in a vehicle seat, with the seat portion, of the back portion hinged thereto at their adjoining edges, substantially as described, said flat springs forming the supports and braces for the back, and being secured to the base at their lower portions, and having their free upper ends bearing against the face of the back, substantially as and for the purpose set forth. 3rd. The combination, in a flexible vehicle seat, with the section D, of the seat portion hinged thereto and resting upon the springs, curving rearwardly and upwardly on its underside, near the seat back, as and for the purpose set forth.

### No. 27,812. Office File for Letters, Papers, etc. (*Serre papier.*)

Frederick Gazeley, Montreal, Que., 13th October, 1887; 5 years.

*Claim.*—1st. In a letter file, the combination, with the back of the cover, and means for holding the same automatically pressed down on contents of file, substantially as herein set forth. 2nd. In a letter file, the combination, with a back plate and cover, of a bent lever with short arm resting on and pivoted to cover, and long arm pivoted to back and held to it by springs, all as herein set forth and for the purposes described. 3rd. In a letter file, the combination, with the back plate, of a metal plate on same carrying arched wires, a loose bar held in place by arms from such plate, and wires projecting from same, and a spring projecting from plate, bearing against projection on bar and holding it at any angle, all substantially as herein set forth. 4th. The combination, with the bar D, carrying wires E, E and spring *d*, of receiving tubes F, F, mounted on bar F<sub>1</sub> and slipped over wires E, E, all as and for the purposes set forth. 5th. In a letter file, the combination, with the arched wires and receiving wires or tubes, of a spring holding said receiving tubes vertically in contact with the arched wires, substantially as herein set forth.

### No. 27,813. Boiler Injector.

(*Injecteur de chaudière.*)

Elmer P. Howe, Boston, Mass., U. S., 13th October, 1887; 5 years.

*Claim.*—1st. An injector, which contains a restarting force, provided with an overflow valve to prevent the draft of air into its overflow chamber, and which contains also a lifter, which continuously supplies water to the forcer, and is provided with a valve on its overflow chamber, when the overflow valves are arranged relatively to each other, as described, so that when the forcer overflow valve is open the lifter overflow valve shall also be open, substantially as and for the purpose described. 2nd. An injector, which contains a restarting forcer, provided with an overflow chamber M, and a lifter which continuously supplies water thereto, provided with a valve on its overflow conduit K<sub>1</sub>, adapted to be closed by pressure within that

conduit, and to be opened by pressure in the overflow chamber of the forcer, substantially as and for the purpose specified. 3rd. An injector, which contains a restarting forcer, provided with an overflow valve Q, having a piston extension Q<sub>2</sub>, and which contains also a lifter, which continuously supplies water to the forcer, and is provided with a valve on its overflow chamber, when the overflow valves are arranged relatively to each other, as described, so that whenever the forcer overflow valve is opened, the lifter overflow valve shall be held wide open, substantially as and for the purpose described. 4th. An injector, which contains a forcer, having relief openings *e* and *f*, and overflow chamber M, into which the openings *e* and *f* lead, a lifter which continuously supplies water to the forcer, the intermediate chamber K, the common overflow chamber O and valves P and Q on opposite sides of the chamber O, operating automatically to open and close both overflows, substantially as described and for the purpose specified. 5th. An injector, which contains a restarting forcer, provided with an overflow valve Q, and a lifter which continuously supplies water to the forcer, provided with an overflow valve P, the forcer and lifter being arranged relatively to each other, as described, and the valve R opening outwardly from the chamber O, substantially as and for the purpose described.

### No. 27,814. Truck for Transplanting Trees.

(*Efforceau.*)

William A. Estes, Vasselborough, Me., U. S., 13th October, 1887; 5 years.

*Claim.*—1st. In a truck for the purpose described, the combination, with the detachable rear truck, of a loading apparatus consisting of a rearwardly extending arm carried by said rear truck, and adapted to operate as a lever, as described, a roller suspended below the axle, and a platform adapted to be supported upon the roller and provided with seams for securing it to the rear and front truck, substantially as and for the purposes described. 2nd. In a truck for the purpose described, the combination of a front truck, a rear truck, a rolling bolster carried upon an axle, a rearwardly extending arm or lever secured to that bolster, a roller or its equivalents suspended below the rear axle, and a platform provided with a forwardly extending reach, and with chains near its rear end for securing it to the head truck, all arranged to operate substantially as and for the purposes described. 3rd. In a truck for the purpose described, the combination, with the front truck A, or the rear truck consisting of the axle B detachably secured thereto, of the wheels C, the rolling bolster D, arm E, roller F, platform H, reach I formed on the front end of the platform, wheels J at the rear end of the platform, and the chains G, substantially as and for the purposes set forth.

### No. 27,815. Fire-Alarm. (*Avertisseur d'incendie.*)

John H. Earles, Denver, Col., U. S., 13th October, 1887; 5 years.

*Claim.*—1st. In a fire-alarm, the combination of receptacle *a* containing mercury, said receptacle being provided with a neck *a*<sub>1</sub>, piston *b* fashioned to work within neck *a*<sub>1</sub>, lever *c* provided with fulcrum *c*<sub>1</sub> and attached to piston *b*, as shown, lever *d* provided with fulcrum *d*<sub>1</sub> and connected with lever *c*, as shown, weight *e* hung upon lever *c*, lever *g* provided with fulcrum *g*<sub>1</sub> and notch *g*<sub>2</sub>, the outer extremity of said lever being placed directly beneath weight *e*, lever *h* provided with fulcrum *h*<sub>1</sub> and connected with lever *g*, as shown, weight *i* hung upon lever *h*, and wire *j* attached to weight *i* at one extremity, the other extremity being connected with suitable mechanism for sounding the alarm, substantially as described. 2nd. In a fire-alarm, the combination of a motor consisting of a receptacle *a* containing mercury, and provided with a neck or tube *a*<sub>1</sub>, piston *b* fashioned to fit within said neck *a*<sub>1</sub>, and provided with holes *b*<sub>1</sub> in its upper portion, lever *c* provided with fulcrum *c*<sub>1</sub> and attached to piston *b*, as shown, lever *d* provided with fulcrum *d*<sub>1</sub> and connected with lever *c*, as shown, weight *e* hung upon lever *d*, lever *g* provided with fulcrum *g*<sub>1</sub> and *g*<sub>2</sub>, its outer arm being placed directly beneath weight *e*, lever *h* provided with fulcrum *h*<sub>1</sub> and connected with lever *g*, as shown, weight *i* hung upon lever *h*, and an alarm consisting of pawl *k* to which is attached one extremity of wire *j*, as shown, ratchet wheel *n* connected with pawl *k* and working upon shaft *l*, gear wheels *m* and *p* working upon shafts *l* and *o* respectively, escapement wheel *r* working upon shaft *o*, and escapement, *s* connected with said wheel *r* and working upon shaft *s*<sub>1</sub>, said escapement being provided with hammer *s*<sub>2</sub> and gong *t*, substantially as described and for the purpose set forth.

### No. 27,816. Shirt Front and Attaching Collars to Shirts. (*Devant de chemise et manière de poser les faux-cols sur les chemises.*)

William Husband, Edinburgh, Scotland, 13th October, 1887; 15 years.

*Claim.*—The improvements in shirt fronts, and in attaching collars to shirts, consisting in the bands A, B receiving the ends C, D and also the opening E, substantially as described.

### No. 27,817. Machine for Reducing Cereals, etc. (*Machine à moudre les céréales, etc.*)

Joseph S. Hall, (assignee of Nathalie T. Ryerson, Administratrix of Van Buren Ryerson), New York, N. Y., U. S., 13th October, 1887; 5 years.

*Claim.*—1st. The combination, with a series of casings B, C, D, each having ports *f*, and provided with semicircular extensions, of annular slides *g* having toothed sections *l*, and provided with openings which may be caused to register with the ports *f*, the gear-wheels *h* mounted in the extensions of the casings, and meshing with said toothed sections *l* of the slides *g* and chambers G communicating with the ports *f*, substantially as described. 2nd. The combination, with the case B having ports *f* in its end walls, and provided with an extension upon one side of the disk B having beaters *d*, the annular slides *g* having openings which may be made to register with the ports *f*, and provided with toothed sections *l*, the gears *h* mounted on a shaft lying in the extension of the casing B, and meshing with said

toothed sections *l*, and the index finger *j* mounted in the projecting end of the said shaft, a graduated arc being provided on the end of the annular chamber *G* over which the end of the finger travels, substantially as described.

### No. 27,818. Black Board. (*Tableau noir.*)

Stephen C. Sassions, Louisville, Ky., U. S., 14th October, 1887; 5 years.

*Claim.*—1st. The combination, with the easement and the pulleys *b* near the upper edge thereof, of the blackboard having the blocks or offsets *d* on the ends, the cleats *E* to fit over the ends of the board and the blocks, and secured thereon, and the cords attached to the said cleats passing over the pulleys *b*, and having counterbalancing weights on the ends, substantially as specified. 2nd. The blackboard having the small blocks *d*, *d* on the ends, the cleats *E* having the L-shaped longitudinal grooves therein to be placed on the said ends, and the pins *e* to engage said cleats, and board to prevent the cleats from being displaced longitudinally, substantially as and for the purpose set forth.

### No. 27,819. Treatment of Ores and Materials Containing Sulphur for the Extraction of Metals, etc. (*Traitement des minerais et matières contenant du soufre pour l'extraction des métaux, etc.*)

Robert Oxland, Plymouth, and Charles Oxland, Sydenham, Eng., 14th October, 1887; 15 years.

*Claim.*—1st. The process, substantially as described, for the treatment of ores and materials consisting in mixing the same in a finely powdered state with strong sulphuric acid, or an acid sulphate to a semi-fluid consistency and exposing the same to a high heat, thereby separating sulphur and sulphurous acid, and rendering the metallic constituents or some of them soluble in water. 2nd. The treatment of copper ores, containing sulphur and iron pyrites, as herein described, first by heating the ore with strong sulphuric acid or an acid sulphate, and then dissolving out the resulting copper salt with water thereby separating the copper from the iron pyrites which remains with the residue. 3rd. The treatment of copper ores, containing sulphur and iron pyrites by the aid of strong sulphuric acid or an acid sulphate and heat, as herein described, the said treatment being conducted in a closed vessel connected with a chamber in which the resulting acid vapours are condensed, whereby sulphuric acid is obtained and the copper in the ore and more or less of the iron present in it is rendered soluble in water. 4th. The treatment of sulphuret ores or materials containing gold, such as the residuary matters from the treatment of gold quartz, as herein described, first by heating the ore or material with strong sulphuric acid or an acid sulphate, and then dissolving out the resulting salts with water. 5th. The treatment of ores or materials, containing sulphur by heating the same with strong sulphuric acid, or an acid sulphate then dissolving out the resulting salts in water, and afterwards successively precipitating the several metals which the solution contains, substantially as described.

### No. 27,820. Finger Nail Cleaner. (*Cure-ongle.*)

George O. Eaton, Gardener, M. T., U. S., 14th October, 1887; 5 years.

*Claim.*—The combination, with the handle *A*, of the nail-blade *A* having body or file-portion *b*, and the knife-portion *c* which in the back thereof is provided with the recess or concavity *d* to accommodate the finger, as and for the purposes specified.

### No. 27,821, Cigar Bunching Machine.

(*Machine à botteletier les cigares.*)

John R. Williams, Newark, N. Y., U. S., 14th October, 1887; 5 years.

*Claim.*—1st. In a cigar bunching machine, the rolling table having the mould, the apron resting on said table, and the reciprocating roller combined with the hinged section, the matrix plunger and chute attached thereto, an elevated hopper and suitable mechanism for elevating the said section, substantially as set forth. 2nd. In a cigar bunching machine, the table, the apron resting on said table, the reciprocating roller and the mould in said table, combined with the hinged section carrying the matrix and plunger, the latter being connected with vertical rods and having a spring tension upward, and suitable mechanism for raising the funnel, substantially as set forth. 3rd. In a cigar bunching machine, the table having the mould, the apron resting on said table and the reciprocating roller, combined with the hinged section, the matrix on the front end of said section, and adapted when depressed to enter said mould, the counterbalance on the rear end of same, a plunger for the matrix and suitable mechanism for raising said matrix, substantially as set forth. 4th. In a cigar bunching machine, the table apron and reciprocating roller, combined with the mould in said table, the sliding plate between said mould and end of the table, and having a tension toward said mould, the hinged section whose front portion when depressed comes into contact with said plate; the matrix on the front end of said section, a plunger for the funnel and suitable mechanism for raising said section, substantially as set forth. 5th. In a cigar bunching machine, the table apron mould and reciprocating roller, combined with the sliding plate *J* having rollers *K* and springs *O*, the hinged sections having cam arms *d*, the matrix on the front end of said sections the plunger for said matrix and suitable mechanism for raising the section, substantially as set forth. 6th. In a cigar bunching machine, the table having the mould, the apron and the reciprocating roller, combined with an elevated hopper, the matrix and plunger, a chute leading from said hopper to said matrix, the hinged section, and suitable mechanism for raising the matrix from the apron, the lower end of the chute having wings at opposite sides capable of lateral adjustment, substantially as set forth. 7th. In a cigar bunching machine, the table having the mould therein provided with laterally adjustable ends for regulating the length of the mould according to the character of the bunch to be produced, combined with the

apron resting upon said table, and the roller between said apron and table, substantially as set forth. 8th. In a cigar bunching machine, the table having the mould therein, the laterally adjustable ends *F* in said mould, and carrying the grooved plates *G* and the screws *H* combined with the apron resting upon said table and the roller between said table and apron, substantially as set forth.

### No. 27,822. Cigar Bunching Machine.

(*Machine à botteletier les cigares.*)

John R. Williams, Newark, N. Y., U. S., 14th October, 1887; 5 years.

*Claim.*—1st. In a cigar machine, the rolling table and apron, combined with the roller, the mould composed of hinged sectional plates, forming between their meeting edges, which when in use rest upon said apron, the matrix for the cigar filler, and suitable mechanism whereby the mould may be elevated from the apron, the said matrix having substantially vertical sides and being open above and below to receive the tobacco at its top and permit its escape through its bottom, substantially as set forth. 2nd. In a cigar machine, the rolling table and apron, combined with the roller, and the mould composed of hinged sectional plates extending over the table and apron, and forming between their meeting edges, which when in use rest upon said apron, the matrix for the cigar-filler, and one of said plates being adjustable as to its length, substantially as and for the purposes set forth. 3rd. In a bunching machine, the rolling table, the apron resting on said table, a mould composed of hinged sectional plates and the roller, combined with the elevated hopper intermittent feed mechanism for the tobacco, the pivoted incline *C* and suitable connecting mechanism, substantially as and for the purposes set forth. 4th. In a bunching machine, the rolling table, apron roller and stops for the apron, one end of the apron being firmly held, and the other end carrying a rod whose ends are below the said stops, substantially as set forth. 5th. The base-plate having at opposite sides the ways *Y* and inverted racks *d*, combined with the rod *Z* carrying pinions *e* and roller *P*, the table *B*, apron *D* and hinged sections *L*, *M* forming the matrix between their meeting ends, substantially as set forth. 6th. In a bunching machine, the table *B*, apron *D* and roller *P*, combined with the sections *L*, *M*, rock-shaft *I*, *J* to which the sections are secured, the rocking segment *T* and draw-rods *V*, *W*, secured eccentrically at one end to the segment and at the other to the crank ends of the shafts *I*, *J*, substantially as set forth. 7th. In a bunching machine, the rolling table, the apron on said table, the mould composed of hinged sectional plates extending over the apron and the roller, combined with the elevated hopper, intermittent feed mechanism for the tobacco, and the pivoted incline *C* located over and arranged to be actuated by one of the hinged plates of the mould to either close the opening from the hopper or to direct the tobacco to the matrix of the mould, substantially as set forth. 8th. In a bunching machine, the hopper having the discharge *m*, of a size adapted to hold a sufficient quantity of tobacco for a bunch, and the shaft *i* carrying pins *j* with the hopper above said discharge, combined with the matrix formed of vertical sides and open at its top and bottom, an apron beneath said matrix, a reciprocating roller for forming the bunch, and mechanism for raising and lowering the two parts of the matrix, substantially as set forth. 9th. In a bunching machine, the table and the apron resting upon said table, combined with the reciprocating roller between said table and apron, the matrix resting upon said table to receive the filler, tobacco, and mechanism for raising and lowering the two parts of the matrix, said matrix being composed of the vertical sides *N*, *O* in the outline of a cigar, and having a permanently open top and a permanently open bottom, the former to receive the tobacco while the matrix rests upon the table, and the latter to permit its escape when the matrix is elevated therefrom, substantially as set forth.

### No. 27,823. Adjustable Saw Buck.

(*Chevalet à crémaillère.*)

Henry E. Moriarty, Westerly, R. I., U. S., 14th October, 1887; 5 years.

*Claim.*—1st. The combination, as hereinbefore set forth, with the outer and the inner frames having curved jaws provided with the toothed strips, and the said frames hinged together and forming the saw-buck proper of the spring-acted racker-bar hinged to one of the said frames, a strip secured to the other said frame and engaged by the racker bar, and the movable foot-rest pivoted upon one of said frames, substantially as and for the purpose herein described. 2nd. In a saw-horse, in combination, a pair of frames, each one consisting of two side supports curved at their upper portions, and provided on the concave faces with a set of holding teeth, said supports fastened in parallel position by means of cross-rounds, one of said frames constructed of smaller width than the other and lying within the side supports of said other frame, said frames loosely jointed to each other near the centres of their side supports, whereby said frames may be opened and closed on each other, one of said frames provided with a spring-acted racker-bar and the other with a strip engaged by said bar, all substantially as described. 3rd. In combination, the outer frame *5* provided with the racker-bar *11*, the frame *14* provided with the movable foot-rest *17*, and the strip *20* engaged by said racker-bar, both of said frames having their upper portions, curved and provided on the concave surfaces with toothed strips *21*, and said frames journalled on the axle *8*, whereby they may be adjusted relatively to one another, substantially as described.

### No. 27,824. Belting. (*Courroie.*)

George Meacom, Chelsea, Mass., U. S., 14th October, 1887; 5 years.

*Claim.*—1st. A machine belt having at the exterior of each edge a row or series of projecting metallic wearing pieces closely arranged, and each attached to the belt independently of the others, the said pieces protecting the outer surfaces of the belt at its edges against wear or abrasion, as set forth. 2nd. A machine belt having at the exterior of each edge a row or series of rivets, each attached to the belt independently of the others, the heads of said rivets being in close proximity to each other, and extending across the edges of the

belt so as to protect said edges against wear, as set forth. 3rd. A machine belt having two parallel rows of rivets, the prongs of which are inserted and clinched in the material of the belt, while the heads of said rivets extend across the outer surfaces of the folded edges of the belt and protect said edges from wear. 4th. A machine belt having two parallel rows of rivets presenting a row for each edge, the prongs of which rivets are inserted and clinched in the material of the belt, while the heads of said rivets project, as described, and extend across the outer surfaces of the folded edges of the belt and protect said edges from wear, substantially as set forth.

**No. 27,825. Stain and Preservative for Brickwork.** (*Peinture pour la conservation de la brique.*)

Frederick Newton, Waterloo, Que., 14th October, 1887; 5 years.

*Claim.*—A compound of vinegar and muriatic and nitric acids with colouring matter, substantially in the proportions set forth.

**No. 27,826. Construction of Compound Structural Bars.** (*Fabrication des barres de bâtis composées.*)

James S. Heath and Edwin C. Waters, Brantford Ont., 14th October, 1887; 5 years.

*Claim.*—1st. The combination of the laterally convergent bars A, A', and means for connecting them apart at intervals, whereby they will be held rigidly together throughout their length, as described for the purpose set forth. 2nd. The combination of the laterally inclined convergent bars A, A', plates B and B' at intervals along their length, and having ribs B', B' resisting the divergent edge of the bars, washers C and C' resisting the convergent edge of the bars, and having a lug c' and a rivet or bolt D connecting the plate and washer, as set forth.

**No. 27,827. Device for Let-off Motions for Looms.** (*Engrenage d'ensouple pour métiers à tisser.*)

Robert Brown and John B. Gordon, Springfield, Mo., U. S., 14th October 1887; 5 years.

*Claim.*—1st. A warp beam having a worm *a* with gudgeons, combined with a movable traverse F, rack D, cog wheels C, C', the shaft c and shaft B having a worm *b* and cog wheel *b*, substantially as and for the purpose set forth. 2nd. A let-off motion for looms comprising a lathe sword, a vibratory lever, a movable traverse, a ratchet wheel J, a rod H, lever *i*, catch *i*, shaft *j*, which has a worm *j*, shaft K having the cog wheel *k*, *o*3, shaft *o*4 having wheels *o*2, F, a warp beam having a toothed flange A and a worm *a* on the gudgeon kerf shaft B having cog-wheel *b* and worm *b*3, wheels C, C', shaft c and rack D, substantially as and for the purpose set forth. 3rd. A let-off motion for looms composed of a lathe sword having a slotted piece M, a traverse F, a lever G, a rod H, ratchet J, lever *i* having a catch *i*, ratchet shaft having a worm *j*, wheels *k*, P and bevelled gears *o*2, *o*3, shafts K, *o*4, a warp beam having a toothed flange A and a worm *a* on its gudgeon shaft B having wheel *b* and a worm *b*3, shaft c having cog wheel C, C' and rack D, all substantially as shown and described. 4th. The combinations of a warp beam having a toothed flange, and a worm on the gudgeon thereof, a horizontal shaft having a cog wheel *b* and a worm *b*3, shaft c having cog wheel C, C', a rack D and attached traverse F, and a lathe sword with a lever, a rod, a ratchet wheel catch and lever carrying said catch, a shaft having a worm shafts having wheels and bevelled gears, substantially as shown and described.

**No. 27,828. Motor.** (*Moteur.*)

Obediah Smith, Bloomington, Ill., U. S., 15th October, 1887; 5 years.

*Claim.*—1st. The combination of the wheel, the stops thereon, the loaded boxes loosely connected to the rim or body of the wheel, and pivoted to the hub and the springs, substantially as set forth. 2nd. The combination, with the wheel having stops, the boxes pivoted to the hub and limited in oscillating movement by the stops, the springs under the boxes, the inclined rear sides and the loose weights in the boxes, substantially as set forth. 3rd. In combination with a wheel, the boxes pivoted to the hub, and provided with springs at the hub and with stops at the rim, the boxes containing shifting weights, substantially as set forth. 4th. The combination, with the shaft of a motor, a governor consisting of a wheel having boxes pivoted to the hub, said boxes loaded with shifting weights, the heel of said boxes supported by springs, and the outer ends guided by a wheel rim having adjustable stops, substantially as set forth. 5th. The combination of the boxes I, hub H rim I', arms L', hinge lugs *l*, loop guides *g*, stops *g*1 and *g*2, springs *g*3 and weights L', substantially as set forth. 6th. The combination of a box, a shifting load contained therein, means of connecting same pivotally with a hub at its lower end, and slidingly with a ram or guide at its outer end, substantially as set forth.

**No. 27,829. Trunk Strap.** (*Courroie de coffre.*)

George A. Berry, Colorado Springs, Col., U. S., 15th October, 1887; 5 years.

*Claim.*—1st. The trunk strap A, having the loop B fastened to one of its ends, and the loop D and buckle E fastened at its opposite end, in combination with the short strap C fastened to the loop B, substantially as described. 2nd. The looped D formed integral with the plate G by which the loop is attached to the strap A, and formed also with the loops *g*, *g*1, the former holding the buckle E, the latter the billet loop F, whereby the loop D, buckle E and loop F are combined, and all united to the strap A by a single fastening plate, substantially as described.

**No. 27,830. Damper for Stoves or Rangers.**

(*Clé de poêle ou de landier.*)

William Buck, Brantford, Ont., 15th October, 1887; 5 years.

*Claim.*—1st. The vertical unobstructable damper A, having stem C and snugs B and D, substantially as and for the purposes hereinbefore set forth. 2nd. In a vertical unobstructable damper stem C attached to damper A at snug D, and sliding between snugs on oven top, said stem being formed in two parts 1 and 2 and hinged together by screw E, so that part 2 may be folded under top of range when the damper is open, substantially as set forth.

**No. 27,831. Method of Conveying Speech to Telephonic Transmitters, and Apparatus therefor.** (*Mode de transmettre les sons aux transmetteurs téléphoniques, et appareil pour cet objet.*)

J. Frank Lee, New York, N. Y., U. S., 15th October, 1887; 5 years.

*Claim.*—1st. The method, substantially as herein described, of preventing the voice from being heard when speaking to a telephone, which consists in first permitting a gradual expansion of the sound-waves within a conical tube, and then condensing the same within a second conical tube whose base is attached to the enlarged end of the first, and causing them to issue through a comparatively small orifice brought into proximity to the diaphragm. 2nd. A hush-tube or speaking trumpet for telephones, constructed of two hollow cones of unequal length, perforated at their apices, and united at their larger ends, substantially in the manner and for the purpose herein set forth. 3rd. A hush-tube or speaking trumpet for telephones, constructed of two conical tubes of unequal length, united at their larger ends with an annular radial flange encircling the outer open end of the smaller cone, substantially in the manner and for the purpose herein set forth.

**No. 27,832. Pump.** (*Pompe.*)

Mark E. Colver, Simcoe, Ont., 15th October, 1887; 5 years.

*Claim.*—1st. A pump consisting of the lower chamber A, connected to the well tube cylinder B having inlet valve B', suction chamber C having an inlet valve C', and discharging into the cylinder chamber E having inlet valves E, E', and connected to the pump tube piston F having valve F' and discharge aperture F<sup>2</sup>, and connected to the pump rod, the whole arranged and operating as set forth. 2nd. The combination, with the cylinder B provided with inlet valve B', and chamber E having inlet valves E, E', of the hollow piston F having inlet valve F' and apertures E<sub>2</sub>, as and for the purpose set forth.

**No. 27,833. Baggage Check.**

(*Bulletin de bagage.*)

Charles M. Drinker, Bloomsburg, Penn., U. S., 15th October, 1887; 5 years.

*Claim.*—1st. In a baggage check, the body constructed to receive two checks, and provided with locking mechanism, in combination with the said two checks to be inserted into the body and actuate the locking mechanism, the insertion of one check in the body causing the releasing of the other check, as set forth. 2nd. In a baggage check, the combination of a body having openings, locking mechanism housed within the body, and the two checks adapted to be inserted in the openings in the body to alternately actuate the locking mechanism, one of said checks being normally locked within the body by the locking mechanism, as and for the purpose set forth. 3rd. In a baggage check, the combination of a body having the openings, the movable locking bolts housed within the body, and the two checks adapted to be inserted into the openings of the body and between the bolts, one of said checks being normally engaged by the bolt and released therefrom when the other check is inserted into the body and actuates the bolts, the latter check being in turn locked in the body when the first-named check is released, as and for the purpose described. 4th. In a baggage check, the combination of the body having openings in opposite ends thereof, the movable locking bolts housed within the body, the springs for normally forcing the bolts towards each other, a check fitted in one end of the body and locked therein by the bolts, and another check fitted in the opposite end of the body to release the first-named check, and be in turn locked in the body by the bolts, as and for the purpose described. 5th. In a baggage check, the combination of the movable locking bolts normally forced toward each other by springs, the articulated dogs for holding the bolts separated, and the two checks adapted to be inserted between the locking bolts at opposite ends thereof, as and for the purpose described. 6th. In a baggage check, the combination of the pivoted locking bolts having the inwardly extending arms G, G', the articulated dogs intermediate the bolts and adapted to engage the shorter arms G thereof, and the springs engaging the dogs and the arms G of the bolts to normally draw one end of the bolts together, and hold the dogs out of engagement with the arms G, as and for the purpose described. 7th. In a baggage check, the combination of a body, the pivoted locking bolts therein having the extended arms G, the articulated dogs, the springs engaging the dogs, and the locking bolts to normally force one end thereof together, a check adapted to be inserted into the body to press the locking bolts apart, and another check adapted to be inserted into the opposite end of the body to impinge on the arms thereof, and thereby operate the locking bolts, and the dogs to release the first-named check and lock the last-named check in the body, as and for the purpose described. 8th. In a baggage check, the body having the locking mechanism, the check to be held to the body by locking mechanism, another check to operate the latter and release the first-named check, the destination-card to be fitted to the body and held thereto by the first-named check, whereby the card cannot be withdrawn until the first-named check is released, as set forth. 9th. In a baggage check, a body having locking mechanism housed therein, and with the fixed guides on one of its outer sides, a destination-card fitted in the

guides and thereby exposed to view, and the two checks adapted to be inserted in the body to alternately actuate the locking mechanism, one of said checks having means for locking the destination-card in the guides, as and for the purpose described.

**No. 27,834. Metallic Roofing Plate or Shingle.** (*Feuille à toiture ou bardeau métalliques.*)

Lewis D. Cortright, Hyde Park, Ill., and Stephen P. Darlington, West Chester, Penn., U.S., 15th October, 1887; 5 years.

*Claim.*—1st. A metallic shingle, having a projection E struck up to the level of the vertical seams on the line where the overlapping bottom edge of a similar shingle rest upon it. 2nd. A metallic shingle, having a projection E struck up to the level of the vertical seams on the line where the overlapping bottom edge of a similar shingle rests upon it, said projection having an abrupt shoulder *e* adapted to come close to and form a joint with the high seam on an adjacent interlocked shingle, all substantially as and for the purpose specified. 3rd. A metallic shingle having a projection E struck up to the level of the vertical seams on the line where the overlapping bottom edge of a similar shingle rests upon it, and one or more elevated serrations or corrugations struck up from the top of the shingle above said projection. 4th. A metallic shingle having a projection E struck up to the level of the vertical seams on the line where the overlapping bottom edge of a similar shingle rests upon it, two or more serrations *c* of gradually-decreasing elevation above the plane of the roof struck up from the top of the shingle above the projection E, and a downwardly-bent lower edge D adapted to rest on the projection E while the plane of the shingle passes over the serrations *c*. 5th. A metallic shingle having a projection E struck up to the level of the vertical seam on the line where the bottom edge of an overlapping shingle rests upon it, and having its bottom edge D bent at *d*<sub>1</sub>, *d*<sub>2</sub>, substantially as and for the purpose specified. 6th. A metallic shingle having a projection E struck up to the level of the vertical seam on the line where the bottom edge of an overlapping shingle rests upon it having serrations *c* of gradually-decreasing height above the plane of the roof struck up on its upper end above the projection E and having its bottom edge D bent at *d*<sub>1</sub>, *d*<sub>2</sub>, substantially as and for the purpose specified. 7th. A metallic shingle having its edges F and G bent and flanged as shown and described, so as to interlock with similar shingles and a projection E struck up to the level of the top of the hook I of edge G and terminating at the edge F in a shoulder *e* adapted to rest against the hook I on a similar interlocked shingle. 8th. A metallic shingle having its edges F and G bent and flanged as shown and described, so as to interlock with similar shingles the edge F being bent downward at O and the edge G cut off at P, and a projection E struck up to the level of the top of the hook I of edge C and terminating at the edge F in a shoulder *e* adapted to rest against the hook I of a similar interlocked shingle.

**No. 27,835. Household Lamp Stove.**

(*Fourneau-lampe de ménage.*)

William C. Patching and Samuel Terrell, Guelph, Ont., 15th October, 1887; 5 years.

*Claim.*—1st. The top C, in combination with the sliding rods B, substantially as and for the purpose hereinbefore set forth. 2nd. The combination of the top C, screws D, sliding rods B and lower stands A, substantially as and for the purpose hereinbefore set forth.

**No. 27,836. Vehicle Axle Lubricator and Hub.** (*Boîte à graisse et moyeu*)

The American Axle and Wheel Company, (assignees of Joseph N. Harris), New York, N.Y., U.S., 15th October, 1887; 5 years.

*Claim.*—1st. A vehicle-axle, formed with a chamber in its arm for containing a lubricant, and with a passage extending from said chamber to the exterior of the arm, in combination with a screw-propelled piston working in said chamber, and adapted when advanced to expel the lubricant onto the bearing-surface, substantially as set forth. 2nd. A vehicle-axle formed with a chamber in its arm for containing a lubricant, with a groove traversing its bearing-surface, and with a passage extending from said chamber to the exterior of the arm and entering said groove, in combination with a screw-propelled piston working in said chamber, and adapted when advanced to expel the lubricant through said passage and groove onto the bearing-surface, substantially as set forth. 3rd. A vehicle-axle formed with a chamber G in its arm for containing a lubricant, with a longitudinal groove *i* traversing its bearing-surface, and with a passage *h* extending from the inner end of said chamber to said chamber to said groove at an angle, thereby directing the issuing lubricant toward the outer end of the arm, in combination with a screw-propelled piston working in said chamber, substantially as set forth. 4th. A vehicle-axle formed with a chamber G in its arm for containing a lubricant, with a passage extending thence to the exterior of the arm, in combination with a screw-propelled piston J working in said chamber, with a key for turning said piston, and with a plug H closing the end of the chamber and formed with an axial hole *k* for the passage of the key, substantially as set forth. 5th. A vehicle-axle formed with a chamber G in its arm for containing a lubricant, with a screw-thread traversing the wall of said chamber, and a passage leading from said chamber to the exterior of the arm, in combination with a piston J having screw-threads on its periphery and adapted to screw into said chamber, substantially as set forth. 6th. A vehicle-axle formed with an enlarged arm, and a cylindrical neck between the arm and bed of less diameter than the arm, and a sand-collar fixed on said neck, substantially as set forth. 7th. A vehicle-axle and hub, with a sand-collar fixed on the neck of the axle against the inner end of the hub-box, combined to form an annular grease-chamber at the junction of and bounded by said axle-box and sand-collar, substantially as set forth. 8th. A vehicle-axle having an enlarged arm, and a neck of less diameter, a sand-collar fixed on said neck, and a hub with its box overhanging said arm and extending to said roller, whereby an annular grease chamber is formed within the overhanging end of said box, substantially as set

forth. 9th. An axle having an enlarged arm and a neck of less diameter, a sand-collar on said neck with a flange projecting outwardly, and a hub with its box overhanging said arm and with an annular groove formed in its inner end to receive said flange, substantially as set forth, whereby an annular grease-chamber is formed within the overhanging end of said box with a tortuous angular passage leading thence to the exterior. 10th. A hub consisting of a metal box, a wooden mortise-ring driven thereon, a flanged ring screwed on the outer end of said box against the wooden mortise-ring to hold the latter in place, a packing-washer in said ring against the end of the box, and an end cap screwing into said flanged ring against said washer, whereby the escape of oil is prevented, combined substantially as set forth.

**No. 27,837. Boot Tongue.** (*Langue de chaussure.*)

James W. Anderson and Richard M. Butler, Barrie, Ont., 15th October, 1887; 5 years.

*Claim.*—1st. The combination of the stud *a*, with the tongue B, and the edges of the uppers D, D, substantially as and for the purpose hereinbefore set forth. 2nd. The combination of the stud *a*, with the lace E, substantially as and for the purpose hereinbefore set forth. 3rd. The combination of the head of the stud *a*, with the faces of the uppers D, D, substantially as and for the purpose hereinbefore set forth. 4th. The combination of the stud *a*, with the lace G, and the loop formed in the same, substantially as and for the purpose hereinbefore set forth.

**No. 27,838. Harrow.** (*Herse.*)

George M. Clark, Higganum, Conn., U.S., 17th October, 1887; 15 years.

*Claim.*—1st. In a harrow, the combination of angularly arranged gangs of bladed disks, each disk having a circular central earth-working face, and also cutting-blades each having a formed or front cutting edge tangential to said central working face, and a cutting-edge at its outer end in a line concentric to the axis of the disk, substantially as described. 2nd. A harrow disk having a central circular earth-working face, and blades having front cutting-edges which are tangential to said central face, substantially as described. 3rd. A harrow disk having a central circular concave earth-working face, blades having front cutting-edges which are tangential to said face, and cutting-edges at their outer ends which occupy a line concentric with the axis of the disk, substantially as described. 4th. A harrow disk provided with blades having tangential front cutting edges, cutting edges at their outer ends in a line concentric to the axis, and a rear edge which is substantially radial to said axis.

**No. 27,839. Speculum for the Throat.**

(*Spéculum pour la gorge.*)

James J. Cole and Thomas A. Cole, Indianapolis, Ind., U.S., 17th October, 1887; 5 years.

*Claim.*—1st. In a throat speculum, the combination of the following elements, namely: an upper curved plate, having side wings adapted to engage the molar teeth of an upper jaw, and a lower curved plate extended to form a tongue-spatula and pivoted to said upper plate, said plates being arranged to co-operate substantially as and for the purpose specified. 2nd. In a throat speculum, the combination, with a pair of curved plates arranged to form together a hollow support for the jaws, of the side wings *f, f*, arranged substantially as and for the purpose specified.

**No. 27,840. Device for Attaching Straps.**

(*Appareil pour joindre les courroies.*)

Josiah B. Gathright, Louisville, Ky., U.S., 17th October, 1887; 5 years.

*Claim.*—1st. In an attaching and looping device for straps, the combination of the side bars *d*, and *d*<sub>1</sub>, cross-bar B connecting said bars at one end, and adapted for securing a strap end thereto, and the lips K and K<sub>1</sub> partially connecting the said bars at the other end, but sufficiently parted from each other and spaced from bar B to permit the strap to be passed edgewise between said lips and turned into proper position, all as shown and described. 2nd. In an attaching and looping device for straps, the combination of side-bars *d* and *d*<sub>1</sub>, terminating at one end in a bushing-hook C, and at the other end in a pair of inwardly-turned lips K and K<sub>1</sub>, approximating but not meeting each other, and an intermediate cross-bar B adapted for securing a strap end thereto, and spaced from lips K and K<sub>1</sub> sufficiently to permit the strap to be passed in edgewise through the opening between said lips and turned into proper position, substantially as and for the purpose shown and described. 3rd. In a looping device, the combination of the side-bars *d* and *d*<sub>1</sub>, terminating at one end in a bushing-hook C, and at the other end in a pair of inwardly-turned lips, approximating, but not meeting each other, a cross-bar B provided with fastening devices for securing a strap end thereto, and a limiting cross-bar or partition *g* immediately behind cross-bar B, as and for the purposes shown.

**No. 27,841. Incubator.** (*Incubateur.*)

John F. Carr, Tiverton, R.I., U.S., 17th October, 1887; 5 years.

*Claim.*—1st. In an incubator of the character described, the combination of the body A, having the chambers *m*, the A-shaped boiler B disposed in a chamber near one end of said body, the induction pipes C and induction pipes H leading from and into said boiler and connected by the pipes *p*, the flue N, chimney E, horizontal smoke-pipe D leading from the interior of the boiler to said flue, the partitions *g*, *h*, lamp L and means for automatically regulating the flame of said lamp, all being constructed and arranged to operate substantially as described. 2nd. In an incubator, the hollow ball G pivoted at *l* to the partition *g*, the rod *q* connected with said ball and provided with the cup *b*, the pipe *p* connecting said ball with the boiler B, the lamp L having its tube provided with its sleeve *z*, the pivoted lever *i* connected with said sleeve, and the rod J connecting the rod *i* and

tube *w*, all combined and arranged to operate substantially as set forth. 3rd. In an incubator, the evaporating pan *H*, provided with the sliding cover *d* for regulating the amount of vapor or moisture discharged, in combination with the body *A*, boiler *B* and pipes *C*, *H*, *D*, *r*, substantially as described.

### No. 27,842. Lantern. (*Lanterne.*)

James A. Blankley and Charles H. Tallman, (Bellair, Ohio, U.S., 17th October, 1887; 5 years.

*Claim.*—1st. The combination, with a tubular lantern provided with a vertical movable globe, canopy or bell, and a central tube, as shown, of the spring catch *H* secured to one side of the centre tube, and bent down within the same and provided with a detent and a thumb-piece extending through the walls of such tube, substantially as described. 2nd. In combination with a tubular lantern, the movable slotted globe support, the springs *C*, *C*, each rigidly secured directly to a side tube with each free end curved against and under the globe support, substantially as described. 3rd. In a tubular lantern, and in combination with the globe support and the side tubes, the curved springs *C*, *C* secured to said side tubes, and passing through openings in said globe support, provided with friction rollers, substantially as described. 4th. The combination, with a tubular lantern, provided with a vertical movable canopy or bell, a centre tube and a globe support, as shown, of the spring catch *H* provided with a detent stud, and a thumb-piece and the springs *C*, *C*, each rigidly secured to a side tube, with each free end curved inwardly through and under the globe support, substantially as described.

### No. 27,843. Car Brake. (*Frein de char.*)

John D. Stowall, Greenville, Texas, U.S., 17th October, 1887; 5 years.

*Claim.*—1st. The combination of the transverse shafts, arranged in suitable bearings or trunks, brake-shoes *B*, *B*, on the opposite ends of the shafts, the radial arms *B* attached to the shafts, longitudinal operating rods *C* extending the entire length of the car and pivotally attached to all of the arms *B*, whereby when the said rod is turned longitudinally, all of the brake-shoes on the car will be operated to pass against the wheels, and hooks *C*, *C* on the ends of the rod, whereby the same may be connected automatically with the corresponding hooks on the connecting rods of the adjoining cars, all arranged substantially as specified. 2nd. The combination, with the coupling-hooks *A*, *A*, of the brake-shoes *B*, *B*, secured on the ends of the shaft extending transversely across the car arms *B*, brake-rod *C* connected to the said rod, the shanks of which are adapted to slide in keepers on the under sides of the said links *A*, *A*, in such a position that when the said links couple, the hooks *C* will couple, and when the said hooks uncouple, the hooks will uncouple, substantially as specified. 3rd. The combination, with the brake-shoes and the brake-rod *C*, connected substantially as described, with the said shoes, whereby when the said rod is drawn upon the shoes are operated, of the drum *E* having ratchet or gear wheels on the ends, gear wheels *f* to mesh with the latter, gear-wheels *g* to mesh with the wheels *f*, crank-arms to rotate the gear-wheels *g*, pulley *l*, *l*, under the car and the chain *H* attached to the drum *E*, and passing through the said pulleys, one of which is attached to the front end of the brake-rod, substantially as specified. 4th. The combination, with the brake-rods to operate the same, and connect together the entire length of the train, of the operating device having the drum *E*, having gear-wheels on the ends, shaft *F*, having the gear-wheels *f* on the ends to mesh with the wheels *e*, and the ratchet-wheel *K* on the said shaft *F*, gear-wheels *g* meshing with the wheels *f*, and having an operating crank attached thereto, pawl or dog to engage in the said ratchet-wheel *K*, and the chain *H* connected with the said brake-rod and adapted to be wound on the said drum *E*, substantially as specified.

### No. 27,844. Manufacture of Wire Mats.

(*Fabrication des nattes en fil de fer.*)

William R. Pitt, Brooklyn, N. Y., U.S., 17th October, 1887; 5 years.

*Claim.*—1st. A mat, composed of a body fabric *A*, of connected wire coils extending parallel with each other, and with opposite edges or margins of the mat, and a frame formed of side bars, or portions *B* extending through all the convolutions of the side coils, parallel with their axes, and end bars or portions extending directly transverse to the length of the coils and to which the ends of the coils are secured, substantially as herein described. 2nd. A mat, composed of a body fabric *A*, of connected wire coils extending parallel with each other, and with opposite edges or margins of the mat, the coils *C*, which from such edges or margins being formed of two or more parallel wires constituting multiple coils, and a frame consisting of side bars or portions *B* extending through all the convolutions of the multiple coils, and ends, bars, or portions to which the ends of the coils are secured, substantially as herein described. 3rd. A mat, composed of a body fabric *A*, of connected wire coils extending parallel with each other, and with opposite edges or margins of the mat, and a frame consisting of side bars or portions *B* extending through all the convolutions of the side coils parallel with the axes thereof, and double end bars or portions *B*, *B*, in which the end portions of the coils are secured, substantially as herein described.

### No. 27,845. Sectional Boiler.

(*Chaudière en sections.*)

Frank H. Pulsifer, Jr., and Jeremiah Harrington, Auburn, N.Y., U.S.

*Claim.*—1st. In a cast-iron boiler, the combination of a supporting section and a top section, with intermediate horizontal sections, each consisting of concentric hollow segmental rings, united by hollow extensions formed integral therewith, substantially as and for the purpose described. 2nd. The combination of a supporting section and a top section, with intermediate horizontal sections, each consisting of concentric hollow segmental rings, united by hollow extensions formed integral therewith, the inner segmental rings located

one above the other, and retained by interlocking projections upon each one, and forming a central magazine, substantially as and for the purpose described. 3rd. The combination of a hollow supporting section, a top section provided with a central opening forming the upper end of a magazine, and a hood over the same with intermediate horizontal sections, each consisting of concentric hollow segmental rings, united by hollow extensions formed integral therewith, the inner segmental rings located one above the other, and forming a central magazine, directly under the central opening in the top section, substantially as and for the purpose described. 4th. In a cast-iron boiler, the combination of a supporting and a top section with intermediate horizontal sections, each consisting of concentric hollow segmental rings, united by hollow extensions, one of said segmental rings being provided with an opening *f* in the top and bottom thereof, and an inclined partition *h* between said openings, substantially as and for the purpose described.

### No. 27,846. Ear and Mouth Protector.

(*Oreillon et cache-nez.*)

I. Levison & Co. (assignees of Louis Nehemias), New York, N. Y., U.S., 17th October, 1887; 5 years.

*Claim.*—An ear and mouth protector, consisting of a band, an elastic piece connecting the ends of said band, and a mouth-flap at the front edge of the band, and adapted to be folded on the inside of the same, substantially as herein shown and described.

### No. 27,847. Combined Cane and Cigar and Cigarette Case. (*Canne-étui à cigares et à cigarettes.*)

William A. Wolff, New York (assignee of George B. Fowler, Brooklyn, N. Y., U.S., 17th October, 1887; 5 years.

*Claim.*—1st. The combination, with a hollow case, of a semi-cylindrical receptacle fitting therein, the said receptacle, having a number of division plates provided with a perforation adapted to receive the end of a cigar, as set forth. 2nd. The combination, with a hollow case, of semi-cylindrical receptacle divided into compartments, having perforated cylindrical ends, as set forth. 3rd. The combination, with the cane *A*, receptacle *C* and handle *B*, of the recess *f* and pivoted plate *b*, having a cutting edge, as and for the purpose set forth.

### No. 27,848. Machine for Forming Hollow Articles from Pulp. (*Machine à former les objets creux de pâte à papier*)

The Indurated Fibre Company, Portland, (assignee of Newel P. Hanson, Waterville, Me., U.S., 17th October, 1887; 5 years.

*Claim.*—In a machine for forming hollow articles from pulp, a perivious former on the exterior surface of which the pulp is deposited, an elastic diaphragm outside of said former, and having attached to it a rigid section or head, an exterior dome or case, means for applying hydrostatic or pneumatic pressure outside of said diaphragm, and means for introducing the pulp, substantially as described.

### No. 27,849. Compound Wound Dynamo.

(*Dynamo composé enroulé.*)

The Royal Electric Company, Montreal, Que., (assignee of Elihu Thomson, Lynn, Mass., U.S., 17th October, 1887; 5 years.

*Claim.*—1st. The combination, in a compound wound dynamo-machine, of a direct circuit coil of proper power to give a considerable increase of potential in passing from light to full load, and shunting devices whereby the exciting power of said coil may be lessened to adapt the machine for use in conditions where a lesser increase of potential is required, as and for the purpose set forth. 2nd. The combination, with the direct circuit field-coil in a compound wound dynamo, of shunt connections from the same to a set of clamping devices, and a set of attachable resistances of graduated amounts each adapted for connection to the clamping devices.

### No. 27,850. Switch Board for Electric Light Station. (*Commulateur pour stations de lumière électrique.*)

The Royal Electric Company, (assignee of Frederick Thomson), Montreal, Que., 18th October, 1887; 5 years.

*Claim.*—1st. A switch board for electric light stations, consisting of a number of spring contacts secured to frame adapted to receive plugs carrying the terminals of generators and terminals of the lamps circuit, and connect the same together, and levers and contacts and springs for coupling such contacts together, as shown and described for the purpose set forth. 2nd. A switch-board for electric light stations, consisting of eight or more spring contacts *B*, *C*, adapted to receive plugs carrying the terminals of the generators, and terminals of the lamp circuit arranged in pairs and secured to frame *A*, four or more contacts *d*, and two or more levers actuated by spring to connect the spring contacts of each pair with each other, two or more connecting strips *R*, *R*, two or more contacts *F*, *H*, two or more levers *J*, *K*, and insulated bars *Q*, provided with handles for connecting levers *J* and *K* together, all as shown and described for the purposes set forth. 3rd. A plug for electric light station switch-boards, constructed of a body of wood or other insulating material, with one wedge-shaped end, and carrying on such end strips of metal with which the terminals passed through handle end from generation or lamp circuit are connected by binding screws, all as herein set forth. 4th. The combination, with the terminals of the lamp circuit, and generator and plug herein described, of binding posts secured on the frame to which such terminals are attached, and insulated conductors held at one end by said binding posts and at the other by binding screws in the plug, substantially as and for the purpose described.



**No. 27,851. Axle Skein.** (*Boîte d'essieu.*)

Henry W. Nott and Martin B. Morris, Cameron, Texas, U. S., 18th October, 1887; 5 years.

*Claim.*—1st. The combination of the axle-spindle grooved longitudinally, and the bushing entirely surrounding the axle-spindle, and ribbed longitudinally to engage the same, the said bushing being shrunk on the axle-spindle, substantially as set forth. 2nd. The combination of the axle-spindle having a collar at its inner end, and provided with a longitudinal groove at its outer end, and a notch in the collar at its inner end, and the bushing having a rib which engages the groove and a projection which engages the notch in the collar, substantially as specified.

**No. 27,852. Shirt.** (*Chemise.*)

Andrew L. Crawford and Laura F. Turner, (assignee of Isaac P. Turner), Troy, N. Y., U. S., 18th October, 1887; 5 years.

*Claim.*—1st. The combination, with a shirt having a loose edge on a body ply forming one side of the neck-opening, and extending from said opening laterally to a terminal seam beyond the opposite side of the neck-opening, of an overlapping piece having a loose edge forming the opposite side of the neck-opening, and extending from the opening laterally across the loose edge of the body ply to a terminal seam beyond the first-mentioned side of the neck-opening, the other edges of the piece being secured to the contiguous portion of the shirt, substantially as described and for the purposes set forth. 2nd. The combination, with a shirt having one of the shoulder parts, of a body ply cut away on a diagonal line extending from the deck-opening downwardly and sidewise, of an overlapping piece similar in form to the remaining upper part of the cut ply superimposed upon said part, and stitched thereto along its lower edge with their diagonal edges unstitched and about right angular to each other the upper portion of the piece partly occupying the place of the cut out section and secured to the contiguous portions of the shirt, substantially as described and for the purpose set forth.

**No. 27,853. Thrust Bearing Journal Box.**

(*Coussinet de tourillon à rotule.*)

George M. Clark, Higganum, Conn., U. S., 18th October, 1887; 15 years.

*Claim.* 1st. The combination, substantially as hereinbefore described, of a ball, a journal-box inclosing said ball, a cup-shaped bearing seat within said box, and a cup-shaped thrust bearing which is fitted to said ball, whereby regardless of variations in the direction of thrusting force said ball will afford shifting contacts to both of said cup-shaped seats. 2nd. The combination, substantially as hereinbefore described, of a journal box, a pair of revolving shafts each provided with a cup-shaped seat and occupying portions of said box, and a ball interposed between said shaft seats and within said box, whereby thrusting strains upon said shafts or either of them toward said box is borne by said ball and the contact surfaces of said ball constantly shifted. 3rd. The combination, with a journal box, of a pair of interior concave or cup-shaped seats, and an interposed hollow perforated ball substantially as described, whereby said ball may be charged with a lubricant for gradual delivery.

**No. 27,854. Bottle Jacket.** (*Bouteille classée.*)

Henry Lightwardt, jr., Philadelphia, Penn., U. S., 18th October, 1887; 5 years.

*Claim.*—1st. In a bottle jacket, the combination, with the lower cup-shaped portion, the upwardly extended frame secured thereto, and the lugs on said frame, of the cap or upper portion provided with recesses into which the lugs on the frame enter to lock the cap to the frame, as specified. 2nd. In a bottle jacket, the lower cup-shaped portion, the upwardly extended secured thereto, the upper part of said frame consisting of a band or ring and the lugs on said band, combined with the upper portion or cap adapted to fit snugly over the shoulder and upper part of the body of the bottle, and being enlarged at its lower end to fit over said band or ring the said enlarged portion having recesses into which the lugs on the band enter to lock the cap to the frame, as specified.

**No. 27,855. Steam Trap.** (*Trappe de vapeur.*)

Edward E. Gold, New York, N. Y., U. S., 18th October, 1887; 5 years.

*Claim.*—1st. The combination, with the external case or body of the steam-trap, the valve K containing volatile liquid and adjusting screw R, of a valve-seat N provided with a face of elastic material or composition P, such face being arranged to bear directly and flatly against the side of the hollow valve K when the latter closes upon said face, substantially as and for the purpose herein set forth. 2nd. The combination, with the body of a steam-trap, a hollow valve K containing volatile liquid valve-seat N and adjusting-screw R, of a disk or cap of non-metallic elastic material or composition P attached to said screw, for protecting the rear valve-face of said valve from abrasion, substantially as and for the purpose herein set forth. 3rd. The combination of the body of the trap valve K, containing volatile liquid L, valve seat N provided with the annular valve-face P of non-metallic elastic material or composition, and the set-screw R armed with non-metallic elastic material P<sub>1</sub> at its inner end, substantially as and for the purposes herein set forth. 4th. The combination of the body of the trap valve K, containing volatile liquid L, valve-seat N, provided with the valve-face P of non-metallic elastic material or composition, the shallow cup S inserted through the bonnet D of said body, and the disk of non-metallic elastic material or composition inserted in said cup, substantially as and for the purpose herein specified. 5th. The combination of the body of the trap valve K containing volatile liquid L, valve-seat N provided with the valve-face P of non-metallic elastic material or composition, the set-screw R inserted through the bonnet D of said body, the shallow cup

S formed on or attached to the inner end of said set-screw, the disk of non-metallic elastic material or composition inserted in said cup, and the combined jam-nut or screw-cap U fitted to the outwardly projecting end of said set-screw, substantially as and for the purpose herein set forth.

**No. 27,856. Railway Switch.**

(*Aiguille de chemin de fer.*)

Charles L. Cooke, Syracuse, N. Y., U. S., 18th October, 1887; 5 years.

*Claim.*—1st. The combination, with the main rails and side rails of a movable switch provided on one side with a safety attachment which registers with the adjacent main rail when the switch is set for the siding, and having on the opposite side a switch rail which breaks joint with the adjacent side rail and leaves the latter open when the switch is set for the main track, substantially as set forth. 2nd. The combination, with the switch rails C, C<sub>1</sub>, of the pointed rail F and guard rail G attached on the inner side of one of said switch rails, and a wing rail D and flange-supporting block E arranged on the outer side of the opposite switch rail, substantially as set forth. 3rd. The combination, with a switch rail C, of a wing rail D arranged on the outer side of the switch-rail, and a flange-supporting block E fitted against the rear end of the wing rail, and forming a continuation thereof, and constructed with an inclined front portion E depressed below the treads of the wing and switch rails, substantially as set forth.

**No. 27,857. Electric Battery.**

(*Pile Electrique.*)

Edmond Julien, Brussels, Belgium, 18th October, 1887; 5 years.

*Reclame.*—1<sup>o</sup>. Une lame-support pour électrode de pile électrique constituée par une composition métallique, formée de plomb d'antimoine et de mercure. 2<sup>o</sup>. Une lame-support pour électrode de pile électrique constituée par une composition métallique, formée de 94 parties de plomb, 4 $\frac{1}{2}$  parties d'antimoine, et 1 $\frac{1}{2}$  parties de mercure sur 100 parties en poids, cette proportion pouvant varier dans des limites restreintes en substance comme il est décrit. 3<sup>o</sup>. Une électrode de pile secondaire constituée par une composition métallique de plomb d'antimoine et de mercure, en combinaison avec les matières actives. 4<sup>o</sup>. Dans une électrode, une matière active constituée par un mélange de minium et de litharge, avec addition de mercure. 5<sup>o</sup>. Un accumulateur constitué par des électrodes, consistant dans un support formé d'une composition métallique de plomb d'antimoine et de mercure, et dans des matières actives, en combinaison avec un liquide conducteur. 6<sup>o</sup>. Dans une pile électrique, un liquide conducteur contenant en proportion variable du bi-oxyde d'hydrogène. 7<sup>o</sup>. Une lame de pile électrique constituant deux électrodes, l'une négative et l'autre positive. 8<sup>o</sup>. Une plaque d'accumulateur formée d'un support métallique à âme pleine garnie de matières actives, et constituant sous l'action d'un courant deux électrodes de nom contraire par leur combinaison avec le liquide conducteur. 9<sup>o</sup>. Une pile secondaire formée de plaques séparées, chacune constituant deux électrodes de nom contraire, ces plaques n'ayant entre elles aucune connection solide autre que les bornes extrêmes du circuit de la pile, et formant entre elles des compartiments étanches à liquide conducteur. 10<sup>o</sup>. Une pile primaire formée de lames laissant entre elles des compartiments étanches à liquide conducteur, chaque lame portant deux électrodes constituées par des corps donnant naissance à des réactions chimiques. 11<sup>o</sup>. Une plaque de pile électrique en forme de cône ou de pyramide creux, et trouée ou non. 12<sup>o</sup>. Une lame-support d'électrode à âme pleine évidée sur ses faces de manière à présenter des rainures circulaires parallèles pour y loger les matières actives. 13<sup>o</sup>. Une lame-support d'électrode à âme pleine creusée sur ses faces de manière à présenter des alvéoles pour y loger les matières actives. 14<sup>o</sup>. Une lame-support d'électrode à âme pleine plissée ou ondulée de manière à pouvoir loger la matière active dans ses plis ou ondulations. 15<sup>o</sup>. Dans une lame-support perforée d'outre en outre, les conducteurs formant les alvéoles disposés de la manière figurée pour éviter les arrêts vives. 16<sup>o</sup>. Une forme de batterie en colonne constituée par des éléments superposés et séparés par des isolants. 17<sup>o</sup>. Une caisse d'accumulateur formée de panneaux en bois assemblés avec un revêtement ou chemise intérieure, constituée par une composition métallique de plomb, d'antimoine et de mercure. 18<sup>o</sup>. Dans la construction et les applications des batteries électriques une disposition permettant la suppression des vases réceptifs. 19<sup>o</sup>. Dans une batterie électrique la suppression des connexions solides pour réunir les éléments en tension. 20<sup>o</sup>. Dans un accumulateur la réunion des plaques de même nom au moyen d'une barre rigide formée par une composition de plomb, d'antimoine et de mercure, ou des deux premiers métaux seulement, en connexion avec les bornes de ces plaques. 21<sup>o</sup>. Une plaque conoïdale à électrode double rainurée verticalement sur une face et horizontalement sur l'autre, de manière que ces rainures soient normales entre elles. 22<sup>o</sup>. Dans une batterie, la connexion des éléments au moyen de barres rigides formée par une composition de plomb, d'antimoine et de mercure, ou des deux premiers métaux seulement. 23<sup>o</sup>. Dans un accumulateur les lames supports des électrodes constituées par un alliage de plomb et d'antimoine pour réaliser l'objet décrit.

**No. 27,858. Manufacture of Gas and Apparatus Therefor.** (*Fabrication du gaz et appareil pour cet objet.*)

Arthur G. Meeze, Redhill Eng., 20th October, 1887; 5 years.

*Claim.*—1st. The improved method or process of manufacturing a fixed illuminating gas from steam and fluid hydrocarbons, by injecting their vapours into suitable retorts, and therein subjecting them to gaseous thermolysis under a partial vacuum or reduced pressure, as described herein and for the purposes set forth. 2nd. The above claimed method or process of manufacturing oil gas under a partial vacuum or reduced pressure, maintained and controlled as hereinabove described and for the purposes set forth. 3rd. The method or

process, as above defined, and modified by the admission of an induced current of air, hydrogen or water gas, for the purposes of dilution or of chemically influencing the gas in process of manufacture, substantially as described and set forth herein. 4th. In apparatus for making gas from steam and fluid hydrocarbons, the combination of a retort R, an ingression pipe I, a complement of deflectors *a, d, a, d*, a superheater *c*, an air hydrogen or water gas induction pipe *t*, and exhaustor E and motor C and a governor G, all arranged and operating substantially as herein described and for the purpose set forth. 5th. In apparatus for the manufacture of gas from fluid hydrocarbons, the combination of a double-mouthed retort R, and a pair of ingression pipes, arranged as described, with reference to Fig. 3. 6th. In apparatus for the manufacture of gas from fluid hydrocarbons, the combination of a retort R, an ingression pipe I and a complement of deflectors *ad, ad*, arranged as described herein and for the purposes set forth. 7th. In apparatus for the manufacture of gas from fluid hydrocarbons, the combination of a retort R, an ingression pipe I and a superheater C, as described herein, for the purposes set forth. 8th. In apparatus for the manufacture of gas from fluid hydrocarbons, the combination of a retort R, with deflectors, consisting of a large number of auxiliary surfaces, systematically disposed and arranged, so as to repeatedly break up the passing current of fluid, and at the same time suffer continuous molar and molecular bombardment by the particles of the vapours present, substantially as described herein. 9th. The combination of apparatus, consisting of a retort R, fitted with deflectors *ad, ad*, and injector J, as and for the purposes set forth. 10th. The combination of an ingression pipe I, and deflecting devices *at, dt, at, dt*, as and for the purposes set forth herein. 11th. The combination of an ingression pipe I, fitted with deflecting devices *at, dt, at, dt*, and an injector J, substantially as described and for the purposes set forth herein. 12th. The element of apparatus, consisting of an ingression pipe I, and an injector J, in combination with a superheater *c*, substantially as described herein. 13th. The element of apparatus, consisting of an injector J, and an inlet or induction pipe *t* or *t<sub>1</sub>*, in combination with an exhaustor E and motor, as and for the purposes herein described. 14th. The element of apparatus, consisting of an injector J, and an exhaustor E and motor, in combination with a governor G, as described herein and for the purposes set forth. 15th. The combination of an exhaustor E, and motor, with an inlet or induction pipe *t* or *t<sub>1</sub>*, substantially as described herein and for the purposes set forth. 16th. The element of apparatus, consisting of an inlet or inlet or induction pipe *t* or *t<sub>1</sub>*, and an exhaustor E and motor, in combination with a governor G, substantially as and for the purposes herein described. 17th. In apparatus for the manufacture of gas from fluid hydrocarbons, the combination of a retort R, fitted with deflecting devices *a, d, a, d*, and an exhaustor E and motor, substantially as described herein and for the purposes set forth. 18th. The element of apparatus, consisting of a retort R, fitted with deflecting devices, in combination with an exhaustor E, and motor and a governor G, substantially as herein described and for the purposes set forth.

### No. 27,859. Hand Fence Machine.

(Machine à clôture à main.)

Matthew F. Connett, Jr., Peoria, Ill., U. S., 20th October, 1887; 5 years.

*Claim.*—1st. A fence machine, comprising one or more curved frames, and a wire carrier attached thereto and capable of carrying the wires from the outside to the inside or vice versa, substantially as described. 2nd. A fence machine, comprising one or more frames, each in the form of an involute, and a wire carrier attached to each of said involutes, substantially as described, whereby by the curvilinear movement of the frames, each carrier is caused to travel around the corresponding involute and the wires are twisted. 3rd. A fence machine, comprising one or more guide frames, each in the form of an involute, having an inwardly bent end, and wire-carriers pivotally attached to the extremities of said inwardly bent ends respectively, and each provided with wire-retaining devices, substantially as described. 4th. A fence machine, made up of one or more guide frames, each in the form of an involute, having an inwardly bent end, and wire carriers pivoted to said inwardly bent ends respectively, and each provided with the shifting head, having notches for the reception of the wires, substantially as described. 5th. The tension device, consisting of a fixed stud, about which the fence wires may be wound with any whole or fractional number of turns, combined with means for preventing their unwinding, but not their motion, in the direction of their length, whereby tension may cause the wires to slip, but only when the tensile force is sufficient to flex the wires about said stud, to again straighten them, and to overcome their friction against the surfaces over which they slide, substantially as described. 6th. A fence machine, consisting of the guide-frames made in the form of involutes, and having the inward projecting ends, the arms pivoted thereto, and having the slots and the cross-heads provided with notches for the reception of the wires, and the pins projecting from the cross-heads and sliding in the slots, substantially as described. 7th. As a tension device in machines of the class described, the combination, with devices for twisting the fence wires, of the plate *a*, stud *c*, projections *e* upon said plate, drum *b* mounted upon said plate for winding attaching wire *o*, and means for rotating said drum and for preventing reverse rotation, substantially as set forth. 8th. In machines of the class described, a device for grasping the ends of the fence wires, a wire or cord for attaching said device to a fixed post, a drum attached to said device and adapted to wind by its own rotation said wire or cord, a ratchet fixed upon said drum shaft, and a lever slotted to pass over the end of the drum-shaft, and having a lip adapted to engage and disengage said ratchet, when the slotted lever is moved in the direction of its own length upon the said drum shaft, substantially as and for the purpose set forth. 9th. In a tension device for fence machines, the combination, of a drum to wind a wire or wires attached to said device, a ratchet rotating with said drum, and a lever adapted to use the drum-shaft as a fulcrum, and to engage and rotate said ratchet, said lever being further adapted to slide in the direction of its own length upon said drum-shaft and thus to alternately engage and disengage said ratchet-teeth, substantially as and for the purpose set forth.

### No. 27,860. Pencil Sharpener. (Taille-crayon.)

Edgar A. Gay, Minneapolis, Minn., U.S., 20th October, 1887; 5 years.

*Claim.*—1st. As a new article of manufacture, a pencil-sharpener, having the series of blades and base piece of a casing thereof against which said blades abut, extending up over the ends thereof, and having the relatively small central apertures, substantially as described. 2nd. As a new article of manufacture, a pencil sharpener having the series of blades supported in transverse grooves in the base-piece of a casing against which said blades abut, extending up over the ends thereof, having the relatively small central aperture and the inwardly projecting flange around said aperture, substantially as described. 3rd. As a new article of manufacture, a pencil-sharpener provided with a series of blades, and a base-piece having the annular grooves and transverse slots for the cutters of a casing, the lower edge of which fits into said grooves in the base piece, substantially as described. 4th. As a new article of manufacture, a pencil sharpener provided with the series of blades, and base piece having the annular groove and corrugated flange of a casing, the lower edge of which fits into said groove in the base piece, as set forth. 5th. As a new article of manufacture, a pencil sharpener provided with the base piece and casing, as described, of the series of radial blades, two of which meet in the centre and serve as a sharpener for the tip of the pencil, and as a stop against which the other blades abut, substantially as and for the purpose set forth. 6th. As a new article of manufacture, a pencil sharpener, provided with the base piece and casing, as described, of the series of radial blades, two of which are formed in one piece, serving as a sharpener for the tip of the pencil, and a stop against which the other blades abut, substantially as described. 7th. As a new article of manufacture, a pencil sharpener, provided with the casing and series of radial blades, the base piece having grooves or slots therein, extending straight across from side to side thereof through the centre, and in which said blades are mounted, substantially as described. 8th. In a pencil sharpener, such as described, the combination, with the transversely slotted base and the casing fitted thereto, of the series of blades, two of said blades serving as stops, against which the remaining blades abut, substantially as described. 9th. The combination in a pencil sharpener, such as described, of the transversely slotted base, the blades fitted therein and the removable casing surrounding the blades and fitted to the base, substantially as described. 10th. As a new article of manufacture, a pencil sharpener, having the series of blades, the base piece in which the blades are secured, of a removable casing against which said blades abut, extending up over the ends thereof, having the relatively small central aperture, substantially as described. 11th. In a pencil sharpener, such as described, the combination, with the base having the blades secured therein, and roughened or corrugated on its periphery, of the casing secured to said bar above said corrugated portion, substantially as described.

### No. 27,861. Nail Making Machine.

(Machine à clou.)

Louis Goddu, Winchester, Mass., U.S., 20th October, 1887; 5 years.

*Claim.*—1st. In a nail-making machine, a spindle to carry a metal strip or plate to be cut into nail blanks, combined with cutters to sever the said strip or plate, and the clamp or hook co-operating with one of the said cutters to clamp the end of the strip or plate in the direction of its thickness, and hold it while the cutters operate to sever a blank from the strip or plate, substantially as described. 2nd. A rotating spindle to carry a metal strip or plate, the cutters to sever the strip or plate to form blanks, and a hook or clamp co-operating with one of the said cutters to hold the blank, as described, combined with the jaws to take the blank from the cutter and hook or clamp holding it, substantially as described. 3rd. A rotating spindle to carry a metal strip or plate, the cutters to sever the strip or plate to form blanks, and a hook or clamp co-operating with one of the said cutters to hold the blank, as described, combined with the jaws to take the blank from the cutter and hook or clamp holding it, and with dies *e, e<sub>1</sub>* into the grooves of which the blank is delivered, substantially as described. 4th. A rotating spindle to carry a metal strip or plate, the cutters to sever the strip or plate to form blanks, and a hook or clamp co-operating with one of the said cutters to hold the blank, as described, combined with the jaws to take the blank from the cutters, and hook or clamp holding it, and with dies *e, e<sub>1</sub>* into the grooves of which the blank is delivered, and with a header to strike and upset the head of the said blank, substantially as described. 5th. In a nail-making machine, a spindle to carry a metal strip or plate to be cut to form blanks, and cutters to sever the said strip, combined with means, substantially as described, to rotate the spindle continuously but at a varying speed during each rotation, substantially as described. 6th. In a nail-making machine, the continuous rotary spindle to carry a metal strip or plate, the feed rolls connected by it to feed the strip or plate from the said spindle, a pivoted lever or carrier to support the bearings for the said spindle and means, substantially as described, to vibrate the said lever or carrier and rotate the spindle in its bearings, combined with cutters to cut the said strip or plate, substantially as described. 7th. In a nail-making machine, two cutters to sever a strip or plate, a hook-shaped clamp *g<sub>1</sub>* co-operating with the movable member of the cutters to hold the end of the strip or plate at its opposite side while it is being cut, and to hold the blank, combined with the rotating spindle and with feeding mechanism carried by the spindle to move the strip or plate in the spindle, substantially as described. 8th. In a nail-making machine, two cutters to sever a strip or plate, a clamp co-operating with the movable member of the cutters to hold the end of the strip or plate while it is being cut, and to hold the blank combined with a spindle, a vibrating lever to carry the bearings for the spindle, and with feeding mechanism, and with mechanism to rotate the spindle and vibrate the yoke, substantially as described. 9th. The spindle to rotate the nail strip or plate, the cutter member *c* and the movable cutter member *d*, combined with a hook or clamp, and with means, substantially as described, to reciprocate the cutter member *d*, and hook or clamp and to also move the said hook or clamp longitudinally, with relation to the cutter member *d*, to grasp the end of the strip or plate and to thereafter release the blank, sub-

stantially as described. 10th. The rotating spindle, its extensions B<sub>2</sub> to hold the metal strip or plate in reel form, suitable bearings for the said spindle, the feed rolls having attached ratchet wheels C<sub>2</sub> carried by the spindle, and the cam hub B<sub>3</sub> attached thereto, and means co-operating with the said cam hub to move the spindle longitudinally as it is being rotated, combined with the sleeve C<sub>3</sub> and frame and pawls to rotate the feed rolls, substantially as described. 11th. The rotating spindle, its attached gear B<sub>2</sub>, the vibrating lever B<sub>2</sub>, and the yoke B<sub>2</sub> attached to the said lever, and the shaft D<sub>2</sub> and gear D<sub>1</sub>, combined with the gear B<sub>3</sub>, the universal joint mechanism between the shaft D<sub>2</sub> and the said gear D<sub>1</sub>, and with a gear D<sub>4</sub> to rotate the gear B<sub>3</sub> and with mechanism to vibrate the lever B<sub>2</sub>, substantially as described. 12th. In a nail-making machine, the cutter member c, the cutter member d and the hook or clamp co-operating with it to hold the nail blank, means to move the said cutter member, and hook or clamp and jaws to grasp the head of the blank held between the cutter member d, and the hook or clamp combined with the die e into the groove of which the jaws carry the blank, and a die e co-operating with the die e and with means substantially as described, for operating the said jaws independently, whereby the jaws release the head of the blank after the blank has been caught between the dies and whereby one of the jaws the dies having been separated is rotated, substantially as described. 13th. In a nail-making machine, two dies e, e' to shape the blank and a header combined with the clamp g' and cutter member d to grasp the blank near its head end, and place the body of the blank in position in the stationary die, substantially as described. 14th. In a nail-making machine, two dies e, e' to shape the blanks and a header, combined with a pair of jaws to grasp the blank near its head end, and place the body of the blank in position in the stationary die, the said jaw having cavities 15 to partly round the end of the blank, preparatory to placing the said blank in the said dies, substantially as described. 15th. In a nail-making machine, dies to shape the body of the nail, and a header combined with the clamp g' and cutter member d constituting jaws to grasp the blank near its head and centre, the blank in the grooves of the dies, and with means substantially as described to move the said jaws, each independently of the other to grasp and release the blank at the proper time, substantially as described. 16th. In a nail-making machine, dies to hold the blank to be headed, combined with the header, its toothed carrying bar n, the rock-shaft toothed at u, the arm n', link n<sup>s</sup>, lever n<sup>o</sup> and cam to move it, substantially as described. 17th. The die e' and the toothed slide E to which it is attached, combined with the sector lever e<sup>s</sup>, provided with a pin or stud e<sup>s</sup> extended each side of it, and with two cams to operate the said sector lever, substantially as described. 18th. In a nail-making machine, the combination, with cutters, of a spindle provided with an extension to secure and sustain, a spool or reel containing a flat metal strip or plate wound thereon, and with feeding mechanism to feed the said strip or plate longitudinally to the said spindle, substantially as described. 19th. In a nail-making machine, two cutters to sever a strip or plate, a clamp co-operating with the movable members of the cutters to hold the end of the strip or plate while it is being cut, and to hold the blank, combined with a spindle having its axis of rotation placed diagonally to the edges of the cutters, a vibrating lever to carry the bearings for the spindle and with feeding mechanism, and with mechanism to rotate the spindle and vibrate the yoke, substantially as described.

## No. 27,862. Fire Extinguishing Apparatus.

(*Extincteur d'incendie.*)

Frederick Grinnell, Providence, R. I., U. S., 20th October, 1887; 5 years.

*Claim.*—1st. The combination, substantially as hereinbefore described, of a water supply pipe, and a distributing pipe capable of holding air under pressure, and normally charged with a light air pressure with a valve held closed against the water pressure, directly by the lighter air pressure in the distributing pipes made effective through the devices, substantially as set forth. 2nd. The combination of a water pipe, a distributing pipe charged with light air pressure, and an intermediate chamber or casing under a less pressure than that in the distributing pipe, with a valve closing the water supply pipe, and held closed directly by devices acted upon by the pressure in the distributing pipe. 3rd. The combination of the distributing pipe containing light air pressure, and the supply pipe containing a greater water pressure, with a valve casing between them, within which are completely contained a water valve for holding the water in check, and a device closing an opening to the distributing pipe and acted upon by the pressure therein to hold the water valve closed. 4th. The combination of a water supply pipe, a distributing pipe charged with air under less pressure than the water, and an intermediate chamber or casing communicating normally with the atmosphere with a valve closing the water supply pipe, and held closed against the water pressure, directly by a device located between the said chamber and distributing pipe and movable under the action of the pressure in the said pipe. 5th. The combination of a water supply pipe, with a distributing pipe charged with air under a pressure less than that of the water, an intermediate chamber or casing between the two pipes normally open to the atmosphere, a water valve closing an opening between the supply pipe and said chamber, and a movable member closing a larger opening between the distributing pipe and said chamber, and operating to hold the water valve to its closed position by the direct action of the pressure in the distributing pipes. 6th. The combination, with the water supply pipe connected with a source of water under pressure, and the distributing pipe charged with air under a less pressure of an intermediate chamber having about atmospheric pressure and a differential check-valve, the smaller valve closing a port into the water supply pipe from the intermediate chamber, and the lower valve closing a larger port into the distributing pipe from said chamber. 7th. The combination of the water supply pipe, and a distributing pipe charged with light air pressure, a valve closing the water supply pipe, and held closed directly by means acted upon by the pressure in the distributing pipes, with a check or stop for holding the valve open after it has operated. 8th. The combination of a water supply pipe, a distributing pipe charged with light air pressure, an intermediate chamber opening into both of said pipes, and having a

pressure less than that in the distributing pipe, a water check valve closing the opening 8, the water supply pipe and the check valve closing the opening between the valve, and the distributing pipe to prevent the escape of fluid from said pipe with means acted upon by the air pressure in the distributing pipe for directly holding the water valve to its seat. 9th. The combination of water supply pipe and distributing pipe, the latter charged with light air pressure with means for checking the flow of water from the supply pipe controlled by the air pressure, and independent means for checking of the compressed air. 10th. The combination of the water supply pipe charged with water under pressure, the distributing pipes and sprinklers charged with light air pressure, an intermediate chamber or casing communicating normally with the atmosphere, a check valve preventing the escape of fluid from the distributing pipe to the intermediate chamber, a water valve preventing the flow of water from the water supply pipe to said chamber, and means acted upon by the pressure in the distributing pipe operating directly upon the water valve only to hold it in its closed position. 11th. The combination, substantially as hereinbefore set forth, of a double valve with seats facing in opposite directions, a valve seat appropriate to one face of the double valve to close the opening in the supply pipe, a second valve seat appropriate to the other face of the double valve, and mounted on a movable diaphragm, and a stop to limit the movement of the double valve when the pressure in the supply pipe is paramount, and to permit under such pressure, the movable valve seat to move away from its valve and give entrance for the water into the distributing pipes. 12th. The combination, substantially as hereinbefore set forth, of two pipes or chambers, each containing fluid under pressure, an intermediate chamber having ports into both pipes, and normally under a pressure less than that in either of the pipes, a movable diaphragm carrying one of the said ports, a valve or valves held against both ports by the action of the fluid pressure on the diaphragm, and a stop for limiting the play of said valve or valves. 13th. The combination of pipe 1 charged with light air pressure, pipe 3 charged with heavier water pressure, intermediate chamber 4 under pressure less than either pipe, valve 5 closing port between said chamber 4 and pipe 3, diaphragm 6, closing pipe 1 and valve 7 closing a port through diaphragm 6, the said valve 7 having a more limited play than the said diaphragm, and the combined area of said valve 7 and diaphragm 6 being more in excess of the area of the valve 5 than the pressure in the pipe 3 is in excess of that in pipe 1.

## No. 27,863. Process of Treating Vegetable Substances for Making Paper Stock.

(*Procédé de traitement des matières végétales pour faire la pâte à papier.*)

John D. Tompkins, Nassau, N. Y., U. S., 21st October, 1887; 5 years.

*Claim.*—1st. In the manufacture of paper stock or fibre, the process above described of dissolving the gums, acids and other water-soluble matters, associated with the cellulose of wood, straw and other vegetable materials, which consists in confining the material within a chamber which is between two adjoining and oppositely located chambers, and separated from each by a perforated diaphragm then subjecting this confined mass of material to the action of highly heated water, which is repeatedly circulated through all of said chambers, and the confined mass in alternating reversed directions by means of reversely operating pumps which are operated at alternate times, substantially as described. 2nd. In the manufacture of paper stock or fibre, the process above described of disintegrating wood, straw or other vegetable substances, and dissolving the gums, acids and other matters not soluble in water, and associated with the cellulose in said material which consists in confining a mass of said material within a chamber situated between two adjoining and oppositely located liquid chambers, which are separated from the former by perforated diaphragms, then subjecting this confined mass of material to the action of a chemical liquor, which is capable of dissolving the said gums and other matters when heated under pressure of steam, and repeatedly circulating the same through the confined mass in alternating reversed directions by means of reversely operating pumps which are operated at alternate times, substantially as described. 3rd. In the manufacture of paper stock or fibre from wood, straw and other vegetable materials, the process above described of gathering and depositing below the mass of previously-disintegrated cellulose, the dissolved gums, acids and other matters associated with said cellulose, which consists in drawing for a suitable length of time by means of a pump, the cooking liquor from the upper end of the chamber, containing the mass, and again introducing the same liquor by means of the same pump into the said chamber at its lower end and below the mass to circulate upwardly while the disintegrating cellulose operates as a strainer, substantially as described. 4th. In the manufacture of paper stock or fibre, the process above described of bleaching in bulk, the cleaned disintegrated cellulose or fibre which consists in confining the mass of fibre within a chamber situated between two adjoining and oppositely located liquid chambers, and separated from each by a perforated diaphragm then subjecting this confined mass of cleaned fibre to the action of a bleaching liquor, which is repeatedly circulated through all said chambers, and through the said confined mass of fibre in alternating reversed directions by means of reversely operating pumps which are operated at alternate times, substantially as described. 5th. In the manufacture of paper stock, or pulp, or fibre, the process above described of washing, rinsing and clearing the disintegrated fibre from the dissolved matters, and chemicals adhering to and associated with the fibre after the withdrawal of the previously-treating liquids or liquors, which consists in subjecting the mass of fibre when confined within a chamber situated between two neighbouring and oppositely-located chambers, and separate therefrom by perforated diaphragms to the action of repeated circulations of pure water by the force of reversely operating pumps, which are operated at alternate times through all said chambers, and the confined mass in alternating reversed directions with suitable durations of circulation in each direction, substantially as described. 6th. In the manufacture of paper stock, or fibre, the process above described of treating wood, straw and other vegetable materials for reduction to pulp or fibre, which consists in confining the material within a digesting

chamber, which is separated by perforated diaphragms from liquid chambers which adjoin the respective opposite ends of the digesting chamber, then filling all the chambers with cooking liquid or liquor, and heating the same under pressure of strain, then holding the material in suspension in the cooking-liquid by the alternate operations of reversely operating pumps, and co-acting pipes provided with suitable cocks and having connection with both said liquid chambers, and repeatedly circulating the cooking liquid in alternating reversed directions by means of the same, pumps operated at alternate times through this suspended mass of material with suitable durations of circulation in each direction for preserving such suspension, substantially as described. 7th. In the manufacture of paper fibre or stock from wood, straw, grasses or other known equivalent material, the continued progressive process above described, which consists in circulating the differing and respective cooking liquid is above described through the material in the digester in alternating reversed directions with that of the hot water cooking, followed by the hot water washing and rinsing and preceding the alkaline cooking, substantially as described. 8th. In the manufacture of paper stock or fibre from wood, straw, grasses or other equivalent material, the continuous and progressive process above described, which consists in circulating in the order, substantially as above described, the respective treating liquids, set forth, through the mass of material contained in the digester in alternating reversed directions, with the alkaline cooking following the hot water washing, and rinsing preceded by the water cooking and followed by the alternating reversed circulations of the bleaching liquor through the same mass after the alkali has been washed and rinsed therefrom, the material being retained within the digester all the while it is being treated with the respective treating-liquids and liquors, all substantially as and for the purposes set forth.

### No. 27,864. Apparatus for Making Paper Stock. (*Appareil pour faire la pâte à papier.*)

John D. Tompkins, Nassau, N.Y., U.S., 21st October, 1887; 5 years.

*Claim.*—1st. In an apparatus for making paper stock from wood, straw, grasse, or other material, the combination and arrangement, with a digesting chamber, of two oppositely heated anti-chambers, which are separated from the former by perforated walls, and have communication with each other by means of draught and discharge pipes and pumps, whereby the circulation of liquids or liquors through said digesting chamber can be reversed at will, substantially in the manner set forth for the operations and purposes described. 2nd. In an apparatus for making paper stock, a shell which contains two oppositely located anti-chambers, and a digesting chamber between, and the perforated walls between said digesting chamber, and each of the respective neighbouring anti-chambers, the latter having openings for communication with each other by means of pipes for the draft, and discharge of the treating liquids from one of said anti-chambers to the other in alternating reversed directions, substantially as and for the purposes set forth. 3rd. In an apparatus for making paper stock from vegetable substances, the combination and arrangement, with a digesting chamber having its two opposite ends walls perforated with small holes, of anti-chambers C<sub>1</sub> C<sub>2</sub> partly formed by said perforated walls, pipes e, e<sub>1</sub> communicating from one of said anti-chambers to the other, with pump E intermediate and pipes f, f<sub>1</sub> having reversed communication between said anti-chambers, with pump F between these latter pipes, and valves for controlling the draughts and discharges of said pipes, all substantially as and for the purpose and operations set forth. 4th. The stationary vertical digester having a chamber at each end, and a perforated wall between each of said end chambers, and the intermediate digestive chamber, in combination with pumps E and F and their respective co-acting pipes e, e<sub>1</sub> and f, f<sub>1</sub>, provided with suitable valves, and communicating respectively with said end chambers, and steam pipes provided with valves and also communicating with said end chambers, substantially as and for the purposes and operations set forth. 5th. The combination, with a digester provided with a material holding chamber, and oppositely located end chambers, which are each separated from the former by a perforated wall, of liquor circulating pipes f, f<sub>1</sub> communicating with both said end chambers, and connecting a series of two or more branch liquor pipes with the lower end chamber of the digester, and a pump operating with said liquor circulating pipes, substantially as and for the purposes set forth. 6th. The combination, with a digesting chamber having at each of its ends a perforated wall, separating it from an adjoining end chamber of draught pipe f, leading from the upper end chamber to a pump and pipe f<sub>1</sub>, leading from the said pump to the lower end chamber, whereby the liquors will be made to circulate in an upwardly direction, through the mass of material within the digesting chamber, and caused the lowermost portions of the material being heated to operate to strain the circulating liquors in their upwardly passage, and leave the thickened dissolved matters between the lower side of the mass of material and the discharge opening at the lower end of the digesting chamber, substantially as and for the purposes set forth. 7th. The combination, with pipes e, e<sub>1</sub>, intermediate pump E, and valves between said pump and respective opposite ends of the digester of the perforated diaphragms B, B<sub>1</sub>, separating end chambers C, C<sub>1</sub> respectively from digesting chamber A<sub>1</sub>, substantially as set forth. 8th. The combination, with digesting chamber A<sub>1</sub>, and chamber C which are separated from each other by a perforated diaphragm or wall, of pipe e, pump E, pipe e<sub>1</sub>, and two or more liquid supply pipes, and suitable valves for controlling the discharge from said supply pipes, substantially as and for the purposes set forth. 9th. The combination, with digesting chamber A, oppositely located chambers C, C<sub>1</sub>, each respectively adjoining said digesting chamber, but communicating with the same through numerous small perforations made in a separating plate between, of the two series of pipes e, e<sub>1</sub> and f, f<sub>1</sub>, each provided with valves, and communicating with the said oppositely located chambers, and independently operating pumps E and F, which are operated at will, substantially as and for the purposes set forth. 11th. In a vertical stationary digester, the combination, with digesting chamber A<sub>1</sub>, of the anti-chamber C<sub>1</sub> adjoining the upper end of the former, and communicating with it through a series of small perforations made in division plate B<sub>1</sub>, of

two series of pipes which are provided with valves and communicate above with chamber C<sub>1</sub>, and below with the lower end of the digesting chamber through chamber C, and pumps E and F operated at will for alternate reversals of the draught of liquids through said pipes, and to and from said digesting chamber, substantially as and for the purposes set forth.

### No. 27,865. Wire Door Mat.

(*Natte de porte en fil de fer.*)

Samuel O. Greening Hamilton, Ont., 21st October, 1887; 5 years.

*Claim.*—The combination of the metallic frame A, provided with the concave and convex wires B, running parallel with each other, the ends of which are hooked to the side of said frame, and the extra concave and convex wires c running parallel with each other, and at right angles to the wires B hooked to the sides of said frame, thus forming a mesh, substantially as and for the purpose hereinbefore set forth.

### No. 27,866. Electric Light Danger Signal.

(*Signal à lumière électrique.*)

Peter Milroy Hopkinton, Iowa, U.S., 27th October, 1887; 5 year

*Claim.*—1st. A danger signalling system for railroads and the like, consisting of a constantly closed grounded circuit, charged by opposing batteries at each end of the line, as described, extending from station to station, a second circuit in sections normally grounded extending between stations with one or more electric lamps therein located at different points of the route, and a switch-board with ground connections at the stations for completing the circuit of the oppositely charged line through any desired lamp or series of lamps, as and for the purpose set forth. 2nd. An electrical danger signalling system for railroads and the like, consisting of a charged circuit grounded at each end of the line, a grounded switch-board, as A, B, D, E, F, made and constructed as shown and described, a line Q extending between stations normally grounded at the switch-boards A, B, D, E, F, containing electric lights therein at suitable distances apart, substantially as and for the purpose described.

### No. 27,867. Revolving Extension Table.

(*Table à rallonge tournante.*)

David Fauber and William H. H. Fauber, Marshfield, Ind., U.S., 27th October, 1887; 5 years.

*Claim.*—1st. A table, having a revolving centre portion, and a series of extension leaves mounted, to be slid in and out under said centre portion, substantially as set forth. 2nd. In a table, the combination of the pedestal, a circular rim supported thereon, tangential bars extending to said rim from a central support, leaves mounted to slide on said bars, and a top mounted above said leaves to revolve independently thereof. 3rd. In a table, the combination of the pedestal, a circular frame supported thereon, tangential bars extending from a central support to said frame, and leaves mounted to slide on said bars and to tilt to one side, and a revolving top above said leaves. 4th. In a revolving extension table, the combination with the pedestal and the tangential bars, which tangential bars are secured upon a support around the pedestal, and to the rim of the table of the leaves secured upon sliding bars, provided with clips which engage with the tangential bars, substantially as and for the purposes specified. 5th. In a revolving extension table, the combination, with the pedestal and the tangential bars, which tangential bars are secured upon a support around the pedestal, and to the rim of the table, of the leaves secured upon sliding bars, provided with clips engaging the tangential bars, said clips being longer on one side than the other, substantially as and for the purpose set forth. 6th. In a revolving extension table, the combination, with the rim C connected with the pedestal by the bars C<sub>1</sub> and plate C<sub>2</sub>, and the leaves D connected with the bars C<sub>1</sub> by the bars D<sub>1</sub> and clips d, of shouldered stop-blocks e<sub>2</sub>, the blocks e<sub>1</sub> and the pivoted latches d<sub>2</sub>, substantially as herein shown and described, whereby the leaves will be firmly supported when drawn out, and will be guided in their inward and outward movements, as set forth. 7th. In a revolving extension table, the combination, with the pedestal and the tangential bars, which tangential bars are secured upon a support around the pedestal, and to the rim of the table, of the leaves secured upon sliding bars connected to clips engaging with the tangential bars, said leaves being secured to said sliding bars at one side of their centres, and the said clips being longer on one side than the other, substantially as and for the purpose set forth. 8th. In a revolving extension table, the combination, with the inner edges of the leaves D, having rounded edges, of the springs c<sub>3</sub> secured to the said inner edges, substantially as herein shown and described, whereby covers can be kept in place upon the said leaves, as set forth. 9th. The combination of the pedestal extension leaves, frame supporting said extension leaves, a revolving centre supported on a staff mounted in an appropriate bearing in the central standard, and a spring catch mounted on the revolving centre to engage with notches at the top of said central standard, whereby said top may be locked in any position desired. 10th. The combination of the pedestal, a hollow central standard, the journal bearing b<sub>2</sub> on top of said standard, the adjustable bearing b<sub>1</sub> at its bottom, and the revolving top supported on the staff E<sub>2</sub>, which is mounted in said bearing b<sub>2</sub> and rests in said adjustable bearing b<sub>1</sub>, substantially as set forth. 11th. In a revolving extension table, the combination of a supporting pedestal, a circular rim mounted on a frame work supported by said pedestal, said rim being so mounted as to revolve tangential bars connecting said rim to a central revolving plate, sliding leaves mounted on said tangential bars, and a central top mounted on the top of a staff, said staff being mounted to revolve in the central standard of said pedestal, substantially as set forth.

### No. 27,868. Elastic Balanced Valve.

(*Souape élastique équilibrée.*)

Joseph Lewis, South Evanston, Ill., U.S., 27th October, 1887; 5 years.

*Claim.*—1st. As a new manufacture, the plug valve having elastic

or expanding cheeks, and a central exhaust, substantially as set forth. 2nd. The plug-valve, provided with expanding cheeks, and a yielding clamp resisting the expansion of the cheeks, substantially as specified. 3rd. The plug valve, consisting of the shell, the expanding cheeks and the yielding clamp, all combined and operating substantially as specified. 4th. The shell, in combination with the expanding cheeks having shanks fitting transversely in said shell, and the bolt and springs holding the cheeks together, and resetting the pressure upon them, substantially as specified. 5th. The shell, open transversely to receive the cheek shanks, and having a central exhaust, in combination with the expanding cheeks, having shanks entering the shell, and ports open to said central exhaust, and a clamp holding the cheeks together, substantially as specified. 6th. The shell, in combination with the expanding cheeks, and the packing confined in the recesses D in the latter, substantially as specified. 7th. In a valve, the expanding cheeks, covered by the brass plates E, cast upon the cheek with its metal filling the countersunk openings in the plates, substantially as specified. 8th. In a valve, a shell, in combination with the expanding cheeks, having the hollow guiding shanks, the open ports and the interior surfaces *s, s*, to receive the expanding pressure of the steam, substantially as set forth. 9th. The valve casing, in combination with an elastic plug-valve having ports, as set forth, and a central hollow spindle serving as an exhaust, substantially as specified. 10th. The valve casing, in combination with an elastic plug-valve, rotating or oscillating therein, the casing having an open space at each end of the plug to balance the pressure thereon, substantially as specified.

### No. 27,869. Sole Fastening Wire.

(*Fil de fer pour poser les semelles.*)

Louis Goddu, Winchester, Mass., U.S., 27th October, 1887; 5 years.

*Claim.*—As an improved article of manufacture, a sole fastening wire having independent or separate threads, the grooves between the threads being substantially diametrically opposite, as and for the purpose specified.

### No. 27,870. Axle Lubricator. (*Boîte à graisse.*)

John C. Nichol, Montreal, Que., 27th October, 1887; 5 years.

*Claim.*—In a car axle lubricator, the combination, with the axle, of movable frame E, rod D, levers E, E, and strips F, as and for the purposes set forth.

### No. 27,871. Throttle Valve for Locomotives.

(*Souape d'admission pour locomotives.*)

Charles Lozon, Detroit, Mich., U.S., 27th October, 1887; 5 years.

*Claim.*—1st. In a locomotive engine, the combination of the steam pipe, with the throttle valve, an exterior pipe C suitably connected with the steam pipe, the cap F and the pipe E, the parts being constructed and arranged substantially as and for the purposes described. 2nd. In a locomotive engine and in combination, a steam pipe throttle valve and an auxiliary valve, substantially as and for the purposes described. 3rd. In a locomotive engine and in combination, a steam pipe, a throttle valve and a strainer suspended below said valve, substantially as described. 4th. The combination of the steam pipe of a locomotive engine, with a throttle valve, an auxiliary valve and a strainer below the valves, substantially as described. 5th. The combination in a locomotive engine, of a steam pipe, with a strainer below the throttle valve, substantially as described. 6th. The combination, in a locomotive engine, of a steam pipe provided with a throttle valve B, auxiliary valve H, exterior pipe C suitably connected to the steam pipe, the cap F and interior pipe E, all substantially as described. 7th. In a locomotive engine, the combination of the steam pipe channels *a* and the throttle valves, substantially as specified. 8th. In a locomotive engine, the combination of the steam pipe provided with a throttle valve, the rod G, the lever M, the link N, the bracket O, rod P, bell-crank lever R and rod S, substantially as and for the purposes set forth. 9th. In a locomotive engine, the combination of the steam pipe, provided with a throttle valve, the rod G, the lever M suitably pivoted to the steam pipe with suitable means for operating the lever, substantially as described.

### No. 27,872. Side Bar Side Spring Buggy Gear. (*Train de voiture à lévoirs et ressorts longitudinaux.*)

John B. Armstrong, Guelph, Ont., 27th October, 1887; 5 years.

*Claim.*—In a side bar side spring buggy gear, the single plate side bars C made of spring-tempered steel, and connected directly to the naked axle B and head-plate E, in combination with the single plate side springs D, located between the side bars C and connecting to the naked rear axle B and head-plate E by the swinging hangers *c*, substantially as and for the purpose specified.

### No. 27,873. Device for the Consumption of Liquid Fuel. (*Boyer à combustible liquide.*)

Charles L. Mitchell, Cincinnati, Ohio, U.S., 27th October, 1887; 5 years.

*Claim.*—1st. In a liquid-fuel burner, the combination, of the liquid-fuel orifices inclined outward toward their respective discharging-points, and spraying air or gas or vapour conduits inclined toward the central portion of the burner, and crossing the exit-opening of the said liquid-fuel orifices, substantially as and for the purposes specified. 2nd. In a device for the consumption of liquid fuel, the combination, of the burner having fuel-orifices E inclined, as shown, and spraying air or gas or vapour conduits, inclined as shown, and passing to one side of the axial centre of the burner, each orifice E meeting its respective conduit, substantially as and for the purposes specified. 3rd. In a liquid-fuel burner, the distinct and independent

orifices for the liquid-fuel from a fuel-chamber and surrounding distinct and independent orifices for the air or gas or vapour from an annular chamber surrounding the fuel-chamber, the fuel-orifices and the air or gas orifices being oppositely inclined, substantially as and for the purposes specified. 4th. In a liquid-fuel burner, a circle of distinct and independent inclined liquid-fuel orifices, surrounded by a circle of distinct and independent air, gas or vapour-orifices oppositely inclined to the fuel-orifices, substantially as and for the purposes specified. 5th. In a liquid-fuel burner, a circle of distinct and independent liquid-fuel orifices inclined upward and outward from the centre, and surrounded by a circle of distinct and independent air, gas or vapor conduits inclined upward and inward, each stream of liquid-fuel meeting its stream of air, vapor or gas, substantially as and for the purposes specified. 6th. In a liquid-fuel burner, the combination of two or more fuel-orifices inclined upward and outward from the axis of the burner, and arranged around the said axis, and two or more spraying air or gas or vapour conduits inclined upward and inward to one side of the axis of the burner, each stream of liquid-fuel being crossed by its respective stream of air, vapor or gas, substantially as and for the purposes specified. 7th. In a liquid-fuel burner, the annularly arranged oil-jets externally directed outwardly against their respective inclined air-jets, substantially as and for the purposes specified. 8th. In a liquid-fuel burner, the combination of fuel-orifices or conduits, and air gas or vapour conduits, the said conduits conveying and meeting immediately at the outside of the burner, and being both inclined at an angle to the peripheral or circular planes in which the mouths of the conduits are located, said planes being parallel to the longitudinal axis of the burner, substantially as and for the purposes specified. 9th. In a device for the consumption of liquid-fuel, the combination of the burner having fuel-orifices E, inclined as shown, and spraying air, gas or vapour conduits, inclined as shown, and passing to one side of the centre of the burner, each orifice E meeting its respective conduit, and conduit H extending beyond its orifice E in the form of a groove, the part of the conduit H at one side of orifice E being inclined at one angle and the grooved part on the other side being inclined at another angle, substantially as and for the purposes specified. 10th. In a device for the consumption of liquid fuel, the burner tip provided with a liquid-fuel orifice E, inclined substantially as shown, and with spraying air, gas or vapour conduits, inclined substantially as shown, the conduits being in the form of grooves in the surface of the tip, in combination with the cap provided with flange G arranged to meet the tip at the grooves, and provided with air, gas or vapour space below and at the flange, each conduit meeting its respective orifices E, substantially as and for the purposes specified. 11th. In a device for the consumption of liquid fuel, the burner tip provided with liquid-fuel orifices E, inclined substantially as shown, and with spraying air or gas or vapour conduits, inclined substantially as shown, the conduits being in the form of grooves in the surface of the tip, in combination with the cap provided with flange G arranged to meet the tip at the grooves, and provided with air or gas space below at the flange, each conduit meeting its respective orifice E, the part of the groove below the orifice E being inclined at one angle, and the part of the groove in the other side of said orifice being inclined at another angle, substantially as and for the purposes specified. 12th. In a liquid-fuel burner, the combination of the burner-head having the fuel-orifices E, and the spraying air or gas conduits and cup-shaped flange C surrounding the burner-head, substantially as and for the purposes specified. 13th. The combination, in a liquid-fuel burner, of the central liquid-fuel feed-tube terminating in fuel orifices, and the surrounding spraying air or gas or vapour feed tube having space F terminating above in spraying air or gas or vapour conduits, located in the immediate vicinity of said fuel orifices, and the supplemental air or gas or vapour conduits located farther back from, or lower down than, the first-named conduits, substantially as and for the purposes specified.

### No. 27,874. Pencil Clasp. (*Agrafe de crayon.*)

William H. Sherman, Hartland, Vt., U.S., 27th October, 1887; 5 years.

*Claim.*—In a pencil clasp, the outer cylinder A provided with the bearing-loop *a*, the pin B inserted into the same, and bent to form two arms terminating in points *b, b*, and the hooks *d, d* facing one another, in combination with the inner cylinder E provided with an annular flange or lip, and having the cylindrical openings *c* and the tapering spring blades *c* extending therefrom and bent at or near their centre, substantially as and for the purpose hereinbefore set forth.

### No. 27,875. Locomotive Spring.

(*Ressort de locomotive.*)

Robert H. Illingworth and De Witt C. Smiley, Jersey City, N. J., U.S., 27th October, 1887; 5 years.

*Claim.*—1st. The improved spring for vehicles, consisting essentially of a centre block having pivotal bearings, spring-arms *f, f* having projections *g, g*, springs *f, f* and a block or piece *h*, all said parts being arranged and combined substantially as and for the purposes set forth. 2nd. In a spring, a centre-block, independent bearing arms *f, f* which take the weight of the locomotive boiler, etc., spiral springs and pivoted plates *e, e*, all arranged and adapted to operate substantially as set forth. 3rd. In combination with the locomotive frame *a* having the saddle *a*, equalizing bars *e* and hangers *b*, the centre-block *d* resting on said saddle, and having independent bearings *d*, and side bearings *d*, the arms *f, f* pivoted on said block and taking the weight at their outer extremities from the said hangers *b*, and having dependent bearings *f*, plates *e, e* pivoted on said bearings *d*, and spiral springs arranged between said plates and the dependent bearings, all said parts being arranged and combined substantially as set forth. 4th. In combination with the frame *a* and hangers *b* of a locomotive, of the centre-block *d*, the oppositely extending arms *f, f* pivoted thereon, and springs *f* arranged between said block *d* and bearings *f* of said arms *f, f*, said parts being arranged and adapted to operate substantially as and for the purposes set forth. 5th. In combination, a central bearing-block

*d* having pivotal bearings *f*, *f*, and side spring bearings or plates *e*, *e*, oppositely extending arms *f*, *f* pivoted on said bearings *f*, *f*, and provided with depending bearings *f*, *f* and springs *f*, *f*, arranged between said central block *d* and bearings *f*, *f*, said parts being arranged with relation to one another, and adapted to operate substantially as and for the purposes set forth.

**No. 27,876. Broom and Brush Making Machine.** (*Machine à faire les balais et les pinceaux.*)

Abner Brown and Frederick A. Schneider, Toronto, Ont., 27th October, 1887; 5 years.

*Claim.*—The combination of the shaft *a*, the chuck *b*, the tight pulley *c*, the loose pulley *d*, the specially designed clutch *e*, the springs *f* and *g*, the bearings *g*, *g* and the frame *h*, *h*, all combined in the manner and for the purpose specified.

**No. 27,877. Revolving Railway Signal.** (*Signal changeant de chemin de fer.*)

James K. Tremain, Milwaukee, Wis., U. S., 27th October, 1887; 5 years.

*Claim.*—1st. A railway signal consisting of a fixed light or lights, a shell surrounding said light or lights, and having its periphery provided with alternate open and closed spaces, a vertical shaft rigidly secured at its upper end to the shell, and a disk connected to the lower end of the shaft to come in frictional contact with a revolving medium, as set forth. 2nd. A railway signal consisting of a fixed light or lights, and having its periphery provided with alternate open and closed spaces, a vertically adjustable shaft rigidly secured at its upper end to the shell, and a disk loosely connected to the lower end of the shaft to have vertical play thereon, and arranged to come in frictional contact with a revolving medium, as set forth. 3rd. A railway signal consisting of a fixed light or lights, a surrounding shell having openings upon its periphery, and secured to the upper end of a vertical shaft that carries at its lower end a disk arranged to come in frictional contact with a revolving medium, in combination with a lever mechanism for bringing the disk in and out of contact with said revolving medium, as set forth. 4th. In a railway signal, a shell having alternate open and closed spaces upon its periphery, and arranged to surround a fixed light or lights, in combination with a vertical shaft having its upper end rigidly connected to the shell, and its lower end squared, a disk having a squared central opening adapted to fit the squared portion of the shaft, and a revolving medium designed to come in frictional contact with said disk, as set forth. 5th. The combination, with a railway car having a suitable bracket adapted to support a light or lights, of an adjustable vertical shaft carrying a shell provided with openings upon its periphery and adapted to surround said light or lights, a casing surrounding the shaft, a disk loosely connected to the lower end of said shaft, and a sleeve rigid upon one of the car axles and arranged to come in frictional contact with the disk, as set forth.

**No. 27,878. Means for Operating Railway Switches.** (*Moyen d'actionner les aiguilles de chemin de fer.*)

James H. Swift, Amenia, (assignee of Harry Roser, Long Island), N. Y., U. S., 28th October, 1887; 5 years.

*Claim.*—1st. In combination, the switch rails, a pair of bolts-plungers adapted to alternately lock and unlock the switch rails, a vibrating cam having arc-shaped holding faces and curved cam operating faces on opposite sides of a line passing through its centre of oscillation, and through a point midway between the arms of the cam when the latter is at mid-stroke, a vibrating lever adapted to alternately engage the said faces in the cam, a single operating lever and connection between the single operating lever, and the locking mechanism, and the cam operating lever and between the vibrating cam and the switch rails, whereby the movements of the single operating lever release, shift and lock the rails at well defined steps of the stroke, substantially as set forth. 2nd. In combination, the single operating lever, the connected bell-crank and three-armed levers the former connected with the single operating lever and the latter with the locking plungers, the vibrating two-armed cam connected with the movable rails, and the vibrating lever for operating the two-armed cam, the latter connected with the single operating lever, whereby the switch is set for either the main or side track and locked in position by the movement of a single lever, substantially as set forth. 3rd. A switch mechanism, constructed substantially as herein described, consisting of the switch connecting rods, the two cylinders and their plungers, the three-armed crank N, bell-cranks G, G, detector bar operating lever E, and the several connections arranged and operating to unlock, shift and lock the switch by a single movement of the operating lever, substantially as set forth. 4th. A combined switch shifting and locking device, having the cylinders and plungers, the cam, the cam arm, and means for operating the same, in combination with the transverse rod H, and the detector bar with its operating mechanism, the whole being adapted to receive motion from a single lever, as set forth.

**No. 27,879. File.** (*Lime.*)

George Custer, John S. Napier, Sr., and Nancy Napier, Tuscomba, Ala., U. S., 28th October, 1887; 5 years.

*Claim.*—1st. A file having the teeth upon its faces so cut that they extend half way across the faces, meeting at their inner ends at an angle, and having a longitudinal groove at the meeting ends of the teeth, as and for the purpose shown and set forth. 2nd. A file having its tang projecting rearwardly from one face above the other face of the file, as and for the purpose shown and set forth. 3rd. A file having a half-round convex face, with a tang projecting from one end of the said convex face above the same, as and for the purpose shown and set forth. 4th. A file having an upwardly and rearwardly bent tang, projecting from the end of its half-round face, as and for the purpose shown and set forth.

**No. 27,880. Manufacture of Paper Pads.** (*Fabrication des calepins.*)

Warrick & Sons (assignees of Charles Johnson), Toronto, Ont., 28th October, 1887; 5 years.

*Claim.*—As an improvement in the manufacture of paper pads, binding the edge or edges of the pad by a piece of linen or like material, coated on its outside with glue, paste, or other suitable adhesion, and pressed when moist onto the edge to be bound, substantially as and for the purpose specified.

**No. 27,881. Grain Harvester.** (*Moissonneuse.*)

William Deering (assignee John F. Steward, Herman N. Kennedy and Burr A. Kennedy), Chicago, Ill., U. S., 28th October, 1887; 15 years.

*Claim.*—1st. In combination with the cylindrical frame-bar, the gear-wheel which communicates power from the drive-wheel to the operating mechanism of the harvester, having said cylindrical frame bar as its axle. 2nd. In combination with the cylindrical frame-bar extending horizontally across the vertical plane of the drive-wheel, the sickle crank-shaft at right angles to the said frame-bar, a gear-wheel, having said frame-bar as its axle, and a pinion on the sickle crank-shaft meshing with and driven by the gear-wheel on the frame-bar. 3rd. In combination with the drive-wheel, and a power-communicating wheel rigid therewith, the frame sustained on a drive-wheel axle, having a horizontal cylindrical sill, or main frame-bar extending across the vertical plane of the drive-wheel, two wheels formed integral, one inside and the other outside of the vertical plane of the drive-wheel, and having said cylindrical frame-sill as their axle and a shaft at right angles to the said cylindrical sill, and a pinion thereon, one of said interaxial wheels having motion communicated to it by the power communicating wheel on the drive-wheel, and the other communicating motion to the said pinion and its shaft. 4th. In combination with the outer truss, and the cylindrical frame-bar secured to it, a main driving pinion K<sub>1</sub>, and its shaft located in the vertical plane of the truss, and the horizontal plane of the cylindrical frame-bar, and a gear-wheel F, having the cylindrical frame-bar for its axle meshing with and driving the pinion and its shaft and having the bell-shaped web F<sub>1</sub>, as and for the purpose set forth. 5th. In combination, with the drive-wheel loose on its axle, the sprocket-wheel rigid with the drive-wheel, the frame having a cylindrical sill, the segments rigid with the frame, the axle having the pinions rigid with it meshing in the segments racks, the sprocket-wheel rigid with the axle, the sprocket-wheel having the cylindrical sill as its axle, and having the main gear rigid with it, the sprocket-wheel having the cylindrical sill as its axle and having the worm-wheel rigid with it, an endless screw or worm-shaft journaled on the frame and engaging the worm-wheel and the chains connecting respectively, the last-named sprocket-wheel with the first-named and the intermediately named with each other, substantially as and for the purpose set forth. 6th. In combination, with the truss-bars and the cylindrical sills, the truss-clips having the sockets for the sills, the wings to secure the bars, the wings to secure the frame uprights and the bearings for the gear. 7th. In combination, with the front and rear sills, the truss-bars extending from front to rear, and the truss-clips provided with sockets for fastening the sills, and with wings in a plane at right angles to the sockets for securing the truss-bars, whereby the clips form rigid junctions between the sills and the trusses. 8th. In combination with the truss-bars, and the cylindrical sills, and the frame-uprights, the truss-clips, the sockets for the sills, the wings to secure the bars, the wings to secure the frame-uprights and the bearings for the gearing. 9th. In combination with the tubular front and rear sills, and the upper and lower truss-bars, the truss-clips having tubular sockets to receive the sills bolted therein, and suitable wings to attach the truss-bars by bolting thereto. 10th. In combination with the front and rear sills, the truss-bars extending from front to rear, the upright and the truss-clips, having the sockets wherein the sills are rigidly bolted and the wings respectively where the truss-bars and the uprights are bolted, whereby said clips form the junctions between the sills, truss-bars and uprights. 11th. In combination with the tubular sills, the trusses having sockets near the ends to receive said sills, and the segments near the middle to serve as struts, the braces secured to one of the segments and extending and secured to the sills respectively, to prevent distortion of the frame by the tubular sills turning in their sockets. 12th. In combination with the front and rear sills, and the trusses extending from front to rear having sockets, in which the sills are rigidly secured, the uprights secured rigidly to the outer truss at its ends respectively, and rigidly joined at their upper part by a cross-bar, and the braces secured to the upper part of the uprights respectively, and extending and secured to the strut of the inner truss. 13th. In combination with the trusses, the front and rear sills and the outer uprights rigidly secured thereto, the cross-bar connecting said uprights, and the braces P<sub>1</sub>, P<sub>2</sub>, P<sub>3</sub> and P<sub>4</sub> joined to the upper part of the inner truss, and extending and secured, two of them, to the outer uprights respectively, and two of them to the sills respectively. 14th. In combination with the front and rear sills rigidly connected, the outer uprights rigidly joined thereto, and the elevator-slide bearing-bars rigidly joined to the uprights and to the sills respectively, and the elevator-rollers journaled in the slide bearing bars, whereby the elevator mechanism is supported independent of the sheathing, substantially as set forth. 15th. In combination with the front and rear sills rigidly connected, and the outer uprights rigidly joined thereto, and the slant bars O<sub>5</sub>, O<sub>5</sub> rigidly connected to the uprights and to the sills respectively, whereby are formed a pair of uprights, triangular frames to support the elevator mechanism. 16th. In combination with the front and rear sills, rigidly connected, the outer uprights rigidly joined thereto, the elevator-slide bearing-bars secured to the uprights and to the sills respectively, the elevator-rollers journaled in the slide-bearing bars, and the sheathing made of sheet metal secured to the outer surface of the slide-bearing bars. 17th. In combination with the front and rear sills rigidly connected, the uprights M<sub>1</sub>, M<sub>2</sub>, M<sub>3</sub> and M<sub>4</sub>, rigidly secured, two to each sill, and the elevator-slide bearing bars rigidly secured, two to the rear uprights and two to the front uprights, and the sheathing of sheet metal secured between the

uprights and the slide-bearing bars, which are secured to them respectively. 18th. In combination with the front and rear sills, the uprights M<sub>3</sub> and M<sub>4</sub>, made of metal bar and affording support and attachment for the elevator slide-bearing bars, and bent horizontally inward from such attachment, and the seat-plank secured on said horizontal portions. 19th. In combination with the sickle crank-shaft journalled outside the wheel, and having the crank in front of the front sill, the front truss-clip D<sub>4</sub> of the inner truss, having the pivot for the pole, and the aperture between said pivot and the front sill for the sickle-crank pitman. 20th. In combination with the metallic rear sill, and the under flooring of the conveyer-platform, the wooden plank S<sub>1</sub> secured to the metallic sill, and having the flooring secured to the lower edge, and serving as a hanger to connect the sill and the flooring, substantially as set forth. 21st. In combination, substantially as set forth, the post M<sub>4</sub>, having the horizontal portion M<sub>4</sub>, M<sub>40</sub>, and the tilting lever having the rock-shaft bearings secured on said portion M<sub>40</sub> of the post. 22nd. In combination with the post M<sub>1</sub>, and the brackets N<sub>2</sub> and N<sub>3</sub>, rigidly secured thereto, the former having the slide bearings n<sub>20</sub> for the binder-frame, the rock-shaft N<sub>4</sub> journalled in said brackets N<sub>2</sub> and N<sub>3</sub>, and having the crank-arm to actuate the binder, substantially as set forth. 23rd. In combination with the outer truss, the posts M<sub>1</sub> and M<sub>2</sub> secured to said truss, and having the horizontal portions M<sub>10</sub> and M<sub>20</sub>, and the elevator-slide bars secured to said horizontal portions, substantially as set forth. 24th. In combination with the trusses, having their upper bars formed of angle-iron, the posts bolted to the vertical flanges of such angle-iron truss-bars, substantially as set forth. 25th. In combination with the finger-bar, and the upper and lower bars of the divider truss, a post, as R<sub>4</sub>, bolted on the finger-bar, and having lugs forming shoulders to spread the truss bars and adapt the post to form the strut of the truss. 26th. In combination with the finger-bar, and the rear sill, the upper and lower bars R<sub>1</sub> and R<sub>2</sub>, joined at the rear and secured to the rear sill, and the post R<sub>4</sub> footed on the finger-bar and affording means of securement, the bars spread apart, substantially as set forth. 27th. In combination, with the upper and lower truss bars secured together at front and rear ends, the post R<sub>4</sub> having a strut for the truss, having the post pad for securing the finger-bar and the head pad for securing the divider board. 28th. In combination with the upper bar of the divider truss-tee strut post R<sub>4</sub> extended above said upper bar, and the divider board joined to the forward end of the said bar, and to the upper part of the post thereby, the forward part of the bar, the upper part of the post and the forward part of the board form the sides of a triangular frame and mutually brace each other, substantially as set forth. 29th. In combination, with the finger-bar and the rear sill, the trussed frame constituting the grain end of the platform, and having that portion of the lower bar which extends between the rear sill and the finger-bar, parallel with the line of travel, and having the portion forward of the finger-bar deflected grainward to form the divider, substantially as set forth. 30th. In combination with the portion R<sub>11</sub> of the upper bar, the portion R<sub>21</sub> of the lower bar and the brace R<sub>3</sub>, the post R<sub>5</sub> constituting a strut for the truss formed by the other parts named, substantially as set forth. 31st. In combination, with the divider truss, the finger-bar rigid with the lower bar and extending grainward beyond it, and the brace R<sub>9</sub> secured to the upper bar and to the grainward extension of the finger-bar, substantially as set forth. 32nd. In combination with the lower bar R<sub>2</sub>, and the portion R<sub>11</sub>, of the upper bar, the brace R<sub>9</sub> connected to the bar R<sub>2</sub>, as by the finger-bar, and post R<sub>4</sub> rigid with the said bar R<sub>2</sub>, and the post K<sub>5</sub> forming a strut by the parts R<sub>2</sub>, R<sub>4</sub> and R<sub>9</sub>, substantially as set forth. 33rd. In combination with the divider truss, the grain-wheel guide post, as R<sub>5</sub>, secured to the upper and lower truss bars and forming a strut for said truss.

**No. 27,882. Apparatus for Operating Incandescent Electric Light Installations from an Arc Light Circuit.**  
(*Appareil pour actionner les lampes électriques incandescentes au moyen de circuits de lampes à arc.*)

The Royal Electric Company (assignee of Frederick Thomson), Montreal, Que., 28th October, 1887; 5 years.

*Claim.*—1st. In an apparatus for operating incandescent electric light installations from an arc light circuit, the combination, with connections from such arc light circuit, of resistance E<sub>1</sub>, E<sub>2</sub> and E<sub>3</sub>, each equivalent to the proportion of current carried by each lamp, and means for substituting such proportional resistance in the place of each lamp, and *vice versa*, all substantially as herein set forth. 2nd. In an apparatus for operating incandescent electric light installations from an arc light circuit, the combination, with the conductors, of a lever W pivoted to core, of electro-magnet S working in dash pot, switch board T and compound resistances, all forming a shunt circuit round the apparatus, as and for the purposes set forth. 3rd. The combination, with the resistances E<sub>1</sub>, E<sub>2</sub>, E<sub>3</sub> and positive and negative conductors, of wire P<sub>2</sub>, armatures I, I<sub>1</sub>, I<sub>2</sub>, with contact points  $\gamma$ ,  $\gamma_1$ ,  $\gamma_2$ , and contacts K, K<sub>1</sub>, K<sub>2</sub>, all as herein set forth and for the purposes described. 4th. In an apparatus for operating incandescent electric light installations from an arc light circuit, the keys L, L<sub>1</sub> and L<sub>2</sub> corresponding to lamps R, R<sub>1</sub> and R<sub>2</sub>, operating to cut same in and out of closed circuit through contact plates O, connection of same with electro-magnets, and electro-magnets G, G<sub>1</sub> and G<sub>2</sub>, all substantially as herein set forth. 5th. In an apparatus for operating incandescent electric light installations from an arc light circuit, a distributor box composed of the base-plate A, carrying switch X, back plate B, slotted ledge C, metal frames D, D, D, on which resistances are wound, and casing E, all substantially as and for the purposes herein set forth. 6th. In an apparatus for operating incandescent electric light installations from an arc light circuit, the combinations with connections from such arc circuit, and from an incandescent installation of an adjusting device for the main current, or arranged to shunt circuit round the entire apparatus, resistances equivalent to the proportion of current carried by each lamp, means for substituting such proportional resistance in the place of each lamp, means for cutting lamps in and out of circuit by hand and automatic safety cut-out, all constructed and operating as herein described and arranged in distributor box.

**No. 27,883. Pounder Washing Machine.**

(*Machine à blanchir à pilon*)

Joseph T. Varney and Edgar Robinson, South Wareham, Mass., U.S., 28th October, 1887; 5 years.

*Claim.*—1st. In a washing-machine, the combination of the plunger handle attached thereto, the cross-head having a central opening to operate on the said handle, and the guide-rods secured to the under side of the said cross-head, and passing through openings in the said plunger, substantially as specified. 2nd. In a washing-machine, the combination of the plunger A, the pins H on the under side, the handle B secured to the upper side, cross-head D having a central opening to slide on the handle, adjustable collar G on the said handle spring F coiled around the handle and bearing at the ends against the said collar, and the cross-head and the rods E secured to the said cross-head, and passing through vertical openings in the plunger, all constructed and arranged substantially as and for the purpose set forth. 3rd. The herein-described washing-machine comprising the plunger A having openings C, C therein, corrugated pins H on the lower side of the said plunger, handle B secured to the upper side thereof, washer or cushion e at the lower end of the handle, cross-head D having a central opening d to slide on the handle, vertical guide-rods E having conical lower ends, the said rods being secured to the cross-head and passing through the openings C, C, adjustable collar G on the said handle, and the spiral spring coiled around the handle and bearing at the opposite ends against the collar G and the cross-head D, all constructed and arranged substantially as specified.

**No. 27,884. Grinding Mill.** (*Moulin à moudre.*)

Frank Beall, Hugh Crea and David Hutchison, Decatur, Ill., U.S., 28th October, 1887; 5 years.

*Claim.*—1st. In grinding mills, a pair of opposing rolls having differential rotation in opposite directions, and provided with longitudinal furrows composed each of a surface approximately tangential to the roll, and a comparatively abrupt surface outwardly convex, the abrupt surfaces of the furrows of the slow roll being presented in the direction of the roll's rotation, the abrupt surfaces of the furrows of the fast roll being presented in the direction opposed to the roll's rotation, and the said furrows being either plane or corrugated as desired. 2nd. In grinding mills, a pair of opposing rolls having differential rotation in opposite directions, and provided with longitudinal furrows composed each of a surface approximately tangential to the roll, and a comparatively abrupt surface of ogee conformation, the abrupt surfaces of the furrows of the fast roll being presented in the direction opposed to the roll's rotation, the abrupt surfaces of the furrows of the slow roll being presented in the direction of the roll's rotation, and the said furrows being either plane or corrugated as desired. 3rd. In grinding mills, a roll having longitudinal furrows and intermediate peripheral surfaces being either plane or corrugated, and the furrows being composed each of an abrupt terminal surface, and a comparatively long surface approximately tangential to the roll. 4th. A roll for grinding mill having longitudinal furrows and intermediate peripheral surfaces, the furrows and intermediate surfaces being either plane or corrugated, and the furrows being composed each of an abrupt ogee surface, and a comparatively long surface approximately tangential to the roll.

**No. 27,885. Sad Iron.** (*Fer à repasser.*)

Eber C. Byam, John A. Stewart and James S. Baker, Rochester, N.Y., U.S., 28th October, 1887; 5 years.

*Claim.*—1st. The combination of the iron A, top top-plate B constructed with the socket g, inclined lug d and lateral arms i, i, the handle C constructed with the hook p, shoulder r and lateral arms s, s, the lever D provided with the hook t, and the spring v, all arranged to operate in the manner and for the purpose specified. 2nd. In a sad iron, the combination, with the top plate B, provided with side ribs i, i of the handle, having a tie-bar m provided with lateral arms s, s said arms resting on the ribs and preventing contact of the tie-bar with the plate, as described. 3rd. In a sad iron, the combination, with the handle provided with hook-shaped lugs v, v, of the spring shield E provided with slots engaging with said lugs, whereby the shield in self-holding as described. 4th. In a sad iron, the combination, with the handle C and the lever D, of the spring r secured at the upper end in the handle, its lower length passing through a loop x of the shank of the handle and its lower end resting against a bearing y of the lever D, as shown and described and for the purpose specified.

**No. 27,886. Hay Cocking Machine.**

(*Machine à enveilloter le foin.*)

Thomas Hale, (Co-inventor with Henry Hale and Sylvanus D. Harvey), Wales, N.Y., U.S., 28th October, 1887; 5 years.

*Claim.*—1st. In a machine for cocking hay, the combination, with a supporting frame, of a hay-receiving box thereon, a rake adapted to gather the hay from the ground, devices for conducting the raked hay to the open top of the box, and a flexible distributor reciprocating back and forth over the open top of the box, substantially as described for the purposes set forth. 2nd. In a machine for cocking hay, the combination, with a supporting frame, a hay-receiving box thereon, and a slide receiving hay from a rake which lifts it from the ground, of a flexible distributor arranged for reciprocation at the open top of the box, and adapted to fold or hang between the box and the slide as it moves to uncover the top of the box, substantially as herein set forth. 3rd. In a machine for cocking hay, the combination of a supporting frame, a hay-receiving box thereon, a rake mounted on the frame and adapted to gather the hay from the ground, a slide receiving the hay from the rake, an elevator operating in front of the slide and over the box to carry the raked hay up the slide and above the box, and a flexible distributor reciprocating back and forth over the open top and between the elevator, and the said open top of the box, substantially as described for the purposes set forth. 4th. In a machine for cocking hay, the combination with

the open-topped hay-receiving box, and a flexible distributor arranged to reciprocate thereover, of guides preventing buckling of the distributor, substantially as herein set forth. 5th. In a machine for cocking hay, the combination, with a frame drive wheels supporting it and having gears *e*, a hay-receiving box, means for raising the hay thereto, and a flexible distributor arranged for reciprocation above the box, of pivoted levers *M* connected to the distributor and slotted at *m*, blocks *N* in said levers, slotted crank arms *O* connected to the blocks and to gear wheels *F*, and gearing connecting the wheels *P* with the drive wheel gears, substantially as shown and described. 6th. In a hay-cocking machine, the combination, with a supporting frame, and a hay-receiving box thereon, of a fixed slide on the frame in front of the box, a rake pivoted to supports back of the slide, an elevator belt working in front of the slide and over the top of the hay box, a flexible distributor reciprocating back and forth over the open top of the box and means for operating the rake elevator and distributor, substantially as herein shown and described. 7th. In a hay-cocking machine, the combination, with a frame, a hay-receiving box thereon provided with hinged bottom, and back of a fixed slide on the frame in front of the box, a rake pivoted to supports back of the slide, an elevator belt travelling in front of the slide and over the top of the box, a flexible distributor reciprocating back and forth over the open top of the hay box between it and the elevator, and means for operating the said hinged bottom and back, substantially as herein shown and described.

**No. 27,887. Combined Visual and Audible Signal for Railroads.** (*Signal optique et acoustique combiné de chemins de fer.*)

James H. Swift, South America, and Edwin Thorne, Millbrook, (assignees of Frank H. Treacey, Poughkeepsie), N. Y., U. S., 28th October, 1887; 5 years.

*Claim.*—1st. The combination, with a post, of an arm pivoted thereto and provided with a lug at its outer end, means for actuating this arm, a cam pivoted to the post between the pivot of the arm and lug thereon, and adapted to be engaged by said lug, a signalling device and connecting devices between said cam and said signalling device, substantially as described. 2nd. The combination, with a signal post *A*, of the blade *C* pivoted thereto, means for actuating said blade, an arm *I* pivoted to the post and connected with the blade *C* so as to move in company therewith, a cam *H* pivoted to the post *A* and adapted to be engaged by the arm *I*, and means for transmitting the movement of the cam to a signalling device. 3rd. The combination, with the post *A*, of blade *C*, lever *F*, arm *I* and cam *H*, all pivoted to said post rods *a*, *b* and *d*, and a torpedo machine, substantially as and for the purpose set forth.

**No. 27,888. Switch and Signal Mechanism.** (*Mécanisme d'aiguille et de signal.*)

James H. Swift, South America, and Edwin Thorne, Millbrook, (assignees of Frank H. Treacey, Poughkeepsie), N. Y., U. S., 28th October, 1887; 5 years.

*Claim.*—1st. The combination, with the rails *B*, of a pivoted double face cam *a*<sub>1</sub>, located adjacent to the switch, the lever *a*<sub>2</sub>, having the lug *a*<sub>3</sub> to engage with a notch in said cam to turn it in either direction from a central position, and to lock the said arm when so turned, the said cam being pivoted between the pivot of said lever and its lug, a rod *a* connected with said lever to move the same, and a switch bar *a*<sub>3</sub> pivoted to the cam and connected with the rails *B*, whereby the rails will be moved when the cam is turned, substantially as described. 2nd. In a switch mechanism, the combination, with the switch bar, of a double faced pivoted cam *a*<sub>1</sub>, the lever *a*<sub>2</sub> having at one end a lug *a*<sub>3</sub> to engage with said cam, the other end of said lever being connected by rod *E* with the detector bar *E*<sub>1</sub>, whereby the detector bar will be lifted nearly to its highest point before the cam is actuated to move the switch, as described and shown. 3rd. The combination, with the switch having the perforated locking bar *F*<sub>1</sub>, of the compensating locking movement *a*, *a*<sub>1</sub>, *a*<sub>2</sub>, *a*<sub>3</sub>, the rod *b*, lever *b*<sub>1</sub> and a bolt *F*, actuated to engage with the locking bar by a movement of lever *b*<sub>1</sub> in either direction from a central position, as described. 4th. The combination, with a switch having a perforated locking bar *F*<sub>1</sub>, of the compensating locking movement *a*, *a*<sub>1</sub>, *a*<sub>2</sub>, *a*<sub>3</sub>, the rod *b*, the lever *b*<sub>1</sub>, the rod *d* connected with said lever *b*<sub>1</sub> so as to lie substantially in line therewith when the lever is in its central position, the bell crank lever *d*<sub>1</sub>, rod *d*<sub>2</sub> and bolt *F*, whereby the bolt will be thrown forward by a movement of lever *b*<sub>1</sub> either way from a central position, as described and shown. 5th. The combination, with a switch having perforated locking bar *F*<sub>1</sub>, of a lever *F*, rod *d*<sub>2</sub>, bell crank, lever *d*<sub>1</sub>, rod *d* and lever *b*<sub>1</sub>, said rod and lever lying substantially in the same line when the lever is in its central position, mechanism for operating the switch, and connection between said mechanism and the lever *b*<sub>1</sub>, whereby said lever will be moved from a point at one side of its central position to a point on the other side whenever the switch is operated, whereby the bolt *F* will be first withdrawn and then thrown forward again as the switch is operated, as described and shown. 6th. The combination, in a switch mechanism, of the compensating locking movement *a*, *a*<sub>1</sub>, *a*<sub>2</sub>, *a*<sub>3</sub>, the locking mechanism *b*, *b*<sub>1</sub>, *d*, *d*<sub>1</sub>, *d*<sub>2</sub>, *E* and *F*<sub>1</sub>, and the detector bar *E*<sub>1</sub> and rod *E*, the rod *b*<sub>2</sub>, a two-bladed semaphore and intermediate mechanism actuated by said rod, and only operative to change the position of the blades before and after the switch is shifted, as described. 7th. In a switch mechanism, the combination, with the rod, a cam *a*<sub>1</sub> and lever *a*<sub>2</sub>, of a locking mechanism and detector car operated simultaneously with said lever *a*<sub>2</sub>, a signal post *G* carrying two semaphore blades *H*, *I*, a lever *K* having the projecting lugs *K*, *K*<sub>1</sub>, the arms *L*, *M* pivoted concentrically with lever *K*, rods *H*<sub>1</sub>, *I*<sub>1</sub> connecting the blades *H*, *I* with the arms *L*, *M*, and connection between the lever *K* and the lever *a*<sub>2</sub>, as shown and described. 8th. The combination, with a switch, of the rod, a cam *a*<sub>1</sub>, lever *a*<sub>2</sub>, a signal post, a lever *K* pivoted thereto and provided with lugs *k*, *k*<sub>1</sub>, suitable connection between lever *K* and the lever *a*<sub>2</sub>, two arms *L*, *M* pivoted concentrically with lever *K*, signalling devices *H*, *I*, rods *H*<sub>1</sub>, *I*<sub>1</sub>, so

that when the lever *a*<sub>2</sub> is first moved both signalling devices will come to danger and remain there until the lever *a*<sub>2</sub> has shifted the switch, when the further movement of the lever will throw down one of the signalling devices, as described. 9th. In a switch mechanism, the combination, with means for shifting the switch, of a single actuating rod *a* connected with a compensating device allowing an excess of movement in certain parts, a locking mechanism, a detector bar and a pair of semaphore blades connected with said parts, and an intermediate mechanism between said semaphore blades and the operating parts aforesaid, whereby the blades will be moved only either before or after the switch has been shifted, the parts being so arranged and connected that a single movement of the actuating rod *a* will operate all the several elements of the combination, substantially as shown and described. 10th. In a switch mechanism, the combination, with a single actuating rod *a* and its co-operating parts, of the movable rails and a pair of signalling devices with compensating locking device between said operating parts, and rails and another compensating device between said operating parts and said signalling devices, the whole combined and arranged in such a manner that when the rails are being moved the signal will remain at rest in a position to indicate danger, and will not move to safety until after the rails have been moved and locked, the parts being so arranged and connected that a single movement of the actuating rod *a* will operate the several elements of the combination, substantially as shown and described. 11th. The combination, with the movable rails of a switch, of a compensating locking movement *a*, *a*<sub>1</sub>, *a*<sub>2</sub>, a locking mechanism *b*, *b*<sub>1</sub>, *d*, *d*<sub>1</sub>, *F*, *F*<sub>1</sub>, a detector bar *E*<sub>1</sub> and rod *E*, rod *b*<sub>2</sub> connected with a compensating device *K*, *L*, *M* and signalling devices *H*, *I*, the whole so arranged and combined that a single movement of rod *a* will unlock the switch, set both signals at "danger", operate the detector bar, and lock the switch, and set one of the signals at "safety", as described.

**No. 27,889. Manufacture of Blasting Powder.** (*Fabrication de la poudre de mine.*)

Karl J. Sundstrom, Rustic, N. J., U. S., 28th October, 1887; 5 years.

*Claim.*—1st. The within-described process of preparing a blasting powder compound, consisting in moistening nitrate of soda with a solution of wood tar and resin, whereby a coating is formed thereon which is impervious to moisture, and adding to and mixing with the nitrate of soda so coated, a solution of sulphur in a volatile solvent, whereby the tar is dissolved, and an intimate combination of the sulphur and nitrate produced, substantially as herein set forth. 2nd. A blasting powder mixture composed of nitrate of soda coated or impregnated with wood tar, resin and sulphur, in the proportions substantially as herein set forth.

**No. 27,890. Rotary Engine.** (*Machine rotatoire.*)

George A. Washburn, Cleveland, Ohio, U. S., 28th October, 1887; 5 years.

*Claim.*—The In a rotary engine, the combination, with a cylinder piston-wheels and the connected piston, arranged substantially as indicated, of packing-block set in the piston-wheels lengthwise thereof, springs for pressing the packing outward, and screws arranged as described to limit the outer movement of the packing blocks, substantially as set forth. 2nd. In a rotary engine, the combination, with a cylinder piston wheel, pistons arranged substantially as indicated and a rod connecting the pistons of anti-friction rolls connected with the piston, the parts being arranged substantially as described. 3rd. In a rotary engine, the combination, with one or more removable cylinder-heads of soft-metal packing inserted in the counterbore of the cylinder between the head and bottom of the counterbore bolts for tightening the heads and compressing the packing, and abutment screws secured to the heads and bearing against the ends of the cylinder for limiting the compression of the packing, the parts being arranged, substantially as described. 4th. In a rotary engine, the combination, with cylinder cylinder-head and engine-shaft, substantially as indicated, of brackets with boxes mounted thereon for supporting the shaft, elongated holes in the brackets for the passage of the securing-bolts, and set-screws bearing against the adjusting-bolts for adjusting the brackets to bring the piston-wheel in contact with the cylinder, the parts being arranged substantially as set forth. 5th. The combination, with a rotary engine, substantially as described, of a series of induction-ports arranged in line lengthwise of the cylinder, said ports leading into a governor-valve chamber, a hollow cylindrical governor-valve, the same having a series of annular external grooves corresponding with the ports and holes through the side walls of the valve opening into said groove, the parts being arranged substantially as set forth. 6th. In rotary engine, the combination, with cylinder having two bores of unequal diameter of piston-wheel and pistons, arranged substantially as set forth.

**No. 27,891. Faucet.** (*Robinet.*)

George Groseman, Lancaster, Penn., U. S., 28th October, 1887; 5 years.

*Claim.*—1st. The combination, in a spigot, with the shell or casing having the screw *a* for securing in the cask at its outer end, the slots *m* for admitting water into the spigot, and the vent *V* located in front of said screw, of the spigot enlarged at the front and inner ends to engage the bore of the shell, and having slots *r* placed so as to coincide with the slots *m* in said shell when the spigot is open, and the chamber *H* located between the shell and spigot and tapering rearwardly toward the centre to facilitate the flow of dripping toward the vent, substantially as specified. 2nd. The combination, in a faucet, with the shell or casing having slots giving admission into the spigot, and a vent located in the part of said shell which projects beyond the barrel cask or reservoir of the spigot having slots so located as to coincide with the slots in the shell when the spigot is open, the shell and spigot being constructed so as to form a chamber about the latter which tapers rearwardly toward the centre, to facilitate the flow of dripping toward the vent, substantially as specified.



**No. 27,892. Jar Fastener.** (*Fermeture de jarre.*)

Thomas B. Howe, M. A. Goodwin and G. A. Clearwater, Scranton, Penn., U.S., 31st October, 1887; 5 years.

*Claim.*—1st. In a jar-fastener, the combination, with the spring wire hinged at one end and passing over the top of the jar, of an independent bridge piece secured thereto, and resting on said top at either side, substantially as described. 2nd. In a jar-fastener, the combination, with the spring wire passing over the top of the jar, and having the coiled spring at its centre, of a bridge piece passing through said coiled spring and resting on the cover at either side, substantially as described. 3rd. In a jar fastener, the combination, with the catch and ear, as described, of the spring wire hinged to the ear by two loops passing over the cover and engaging the catch at its free end, one of the loops of the spring wire uniting it to the ear being larger than the other, whereby the wire is permitted a slight horizontal movement, substantially as described. 4th. In a jar-fastener, the combination, with the spring wire passing over the top of the jar, and having the coiled spring at the centre, of a bridge piece passing through said coiled spring having depending loops for engaging the top of the jar, substantially as described. 5th. In a jar-fastener, the combination, with the catch and ear, as described, of the spring wire doubled and engaging said catch at the forward side, passing thence to the bridge piece, and formed into the coiled spring circling outward on either side, the ends passing back in substantially parallel lines from the end of the spring to and engaging with the ear, substantially as described.

**No. 27,893. Box for Holding Cuffs and Collars.** (*Boîte pour poignets et faux cols.*)

Philip de Carteret, Guelph, Ont., 31st October, 1887; 5 years.

*Claim.*—A collar and cuff box having frame *r*, bottom *d*, sides *n*, roof *s*, division *p*, doors *e* and *x*, all combined and arranged as described.

**No. 27,894. Steam Radiator.**

(*Distributeur de vapeur.*)

Edwin Mansell, Coldwater, Mich., U. S., 31st October, 1887; 5 years.

*Claim.*—In a steam-radiator, the combination of a longitudinally-divided secondary steam-chamber having a steam-chamber at one end an exhaust-chamber at the other, communicating with each side of said secondary chamber, a pipe connecting said steam-chamber with said exhaust-chamber, radiator pipes secured to said secondary chamber, valves at the ends of secondary chambers, an inlet and an outlet pipe, and a projection on the upper and outer margin of the radiator base forming a drip-tray or evaporating-pan, substantially as described and shown.

**No. 27,895. Belt Shifter.** (*Embrayage de courroie*)

Frank A. Shoemaker, Buffalo, N.Y., U.S., 31st October, 1887; 5 years.

*Claim.*—1st. The combination, with a shifter bar, of a shifting plate connected therewith, and a shifting pawl attached to a movable support, whereby the shifting plate is moved in opposite directions, substantially as set forth. 2nd. The combination, with a shifter bar, of a shifting plate connected therewith, a shifting pawl attached to a movable support, whereby the shifting plate is moved in opposite directions, and a locking device, whereby the shifting plate is held in position, substantially as set forth. 3rd. The combination, with a shifter bar, of a shifting plate connected therewith and provided with locking notches, a movable support provided with a projection adapted to engage in either of said notches, and a shifting pawl attached to said movable support, substantially as set forth. 4th. The combination, with the shifter bar *C* and the movable support *I*, of a pivoted plate *E* connected with the shifter bar *C*, and provided with inclines *g*, *g*<sup>1</sup> and stops *h*, *h*<sup>1</sup>, and shifting pawl *K* pivoted to the support *I* below the plate *E*, and adapted to engage against the stops *h*, *h*<sup>1</sup>, substantially as set forth. 5th. The combination, with the shifter bar *C*, and the movable support *I* provided with a projection *m*, of a pivoted plate *E* connected with the shifter bar *C*, and provided with inclines *g*, *g*<sup>1</sup>, and stops *h*, *h*<sup>1</sup>, notches or recesses *n*, *n*<sup>1</sup> formed in the upper end of the plate *E* in which the projection *m* engages, and a shifting pawl *K* pivoted to the lower end of the movable support *I*, substantially as set forth.

**No. 27,896. Runner for Vehicle Wheels.**

(*Patin pour roues de voitures.*)

William A. Hyde, Grand Rapids, Mich., U.S., 31st October, 1887; 5 years.

*Claim.*—1st. A runner having a vertical bend at or near its middle, and a clamp having sections which bind against the wheels at their ends, and are drawn together by an intermediate device, substantially as described. 2nd. The runner having clips *D* engaging with the unis of the wheels, and a clamp having the sections arranged between the wheels, so that the ends will bear against the same, and a bolt or bolts for drawing the sections toward each other and thereby causing them to bind upon the wheels, substantially as described. 3rd. The runner having the clips affixed thereto and engaging with the unis of the wheels, and a clamp consisting of sections and an intermediate coupling-bolt, one of the sections being attached to the runner at the upper part of the vertical bend, substantially as described. 4th. A runner having clips adapted to retain the wheels upon the runner, and a clamp having the coupled sections arranged parallel to the runner, and so constructed and proportioned as to embrace or lap the sides of the wheels to which the device is applied, or and for the purpose described. 5th. A runner having a vertical bend at or near the middle and a clamp engaging with the sides of the wheels and attached to the upper part of said vertical bend, said vertical bent portion of the runner and said clamp having horizontal bends, substantially as and for the purpose specified. 6th. In combination with a vehicle wheel, a runner extending underneath said wheel, and bent upward at either end, said runner touching said

wheel at the bottom, front and rear and secured to the same by the clip *D* at the bottom and at the front and rear by the clips, as described.

**No. 27,897. Hot Air Register.**

(*Régistre à air chaud.*)

John Warren, Boston, Mass., U.S., 31st October, 1887; 5 years.

*Claim.*—1st. In a hot air register, the combination of a supporting and stationary frame *A*, with a perforated face-plate *B* pivoted to said frame, and provided with a support, for the purposes and substantially as described. 2nd. In a hot air register, the combination of the stationary frame *A*, having teeth *d*, with the movable and adjustable face plate *B*, provided with a hook *C* and a notched arm *b* hinged to the end thereof, substantially as set forth. 3rd. In a hot air register, the combination of the toothed frame *A*, with the movable and adjustable face-plate *B* hinged to said frame, the support or hook *C* provided with notched arm *b* and the shelf *c* attached to said plate *B*, for the purpose and substantially as set forth. 4th. In a hot air register, the combination of the stationary frame *A*, with the movable plate *B* hinged at one end to said frame by pins *a*, a fitting into sockets, and the permanent shelf *c* attached to the end of said plate, for the purposes and substantially as set forth.

**No. 27,898. Centrifugal Machine.**

(*Machine centrifuge.*)

Michael Pedersen and Jens Nielsen, Roeskilde, Denmark, 31st October, 1887; 5 years.

*Claim.*—In a centrifugal machine of the described class, the container or receptacle, the bottom of which is forming a cone, turning its top upward, mounted loosely upon the upper end of the vertical shaft or axis, in such a manner that the receptacle is allowed to vary its position in relation to the axis, and that the rotation of the axis is transmitted to the receptacle through the friction between the top of the axis and the bearing in the bottom of the receptacle for the top of the axis, substantially as and for the purpose herein shown and specified.

**No. 27,899. Car-Coupler.** (*Attelage de chars.*)

Solon G. Howe, Detroit, Mich., U.S., 31st October, 1887; 5 years.

*Claim.*—1st. The combination of a draw-head *B*, open on its under side, a hook *C* pivoted at its rear end in the draw-head, a transverse operating bar *F* extended to either side of the top of car, and having a forwardly-projecting arm *F*<sup>2</sup> and a loose connection, substantially as described, between the extremity of said arm and the hook. 2nd. The combination, with a draw-bar, open on its under side, of a hook pivotally engaged therein, and constructed with extended shoulders *e*, *c*<sup>1</sup> to extend into corresponding recesses *b*, *b*<sup>1</sup>, a weighted rock-bar extended to either side or top of the car and engaged with said hook, and a fastening device to hold said bar in a given position, substantially as described. 3rd. The combination of a draw-head *B*, open on its under side, a hook *C* pivoted at its rear end within the draw-head, and a transverse rock-bar extended to either side of the top of the car, and provided with a forwardly-projecting arm *F*<sup>2</sup> loosely connected with the pivot-hook, and with a bent rearward projecting weighted arm to automatically swing the hook into the draw-head, substantially as described. 4th. A draw-bar, open on its under side, having in combination therewith, a hook pivotally engaged therein, said draw-bar constructed with an orifice *b*<sub>2</sub>, substantially as and for the purpose described. 5th. A draw-bar, constructed with an orifice *b*<sub>3</sub> adjacent to the rear of a coupling-link engaged therein, substantially as and for the purpose described. 6th. The combination, with a draw-bar, of a spring engaged therein to bear upon the link, said spring bent to form a double thickness at its end, and a downwardly-projecting guide flange *g*<sup>1</sup>, substantially as described.

**No. 27,900. Pump.** (*Pompe.*)

Matthias M. Chew, Williamstown, N. J., U. S., 31st October, 1887; 5 years.

*Claim.*—A pump, having an air-tight floating valve-rod *D*, consisting of a tube with plates *G*<sub>1</sub> within the same near the ends forming sockets *G*, the wooden plugs *H* fitted in said sockets, the connections *E*, *F* entering said plugs, and the fastenings driven through the sides of the sockets, the plugs and connections, the several parts being combined and operating substantially as and for the purpose set forth.

**No. 27,901. Cradle.** (*Berceau.*)

Albert H. Ordway, Mattapoisett, Mass., U. S., 31st October, 1887; 5 years.

*Claim.*—1st. The crib *B* and the stationary frames *A*, *A*, combined with the supporting links or bars *C*, *C*, pivoted in their upper ends to the said frames, and in their lower ends to said crib, and the downwardly-projecting extensions *b*, *b* connected to the fulcrum *a*<sub>11</sub>, *a*<sub>11</sub>, as and for the purpose set forth. 2d. The stationary frames *A*, *A* and crib *B*, combined with the links or bars *C*, *C* pivoted to said frames and crib, as described, and having handles *C*<sub>1</sub>, *C*<sub>1</sub> in their upper ends for their operation, and the downwardly-projecting crib extensive *b*, *b*, with their stationary fulcrum *a*<sub>11</sub>, *a*<sub>11</sub>, as and for the purpose set forth. 3rd. The frames *A*, *A* and their stop-braces *a*, *a* and the crib *B*, combined with the links or bars *C*, *C* pivoted in their upper and lower ends respectively to said frames and crib, and the downwardly-projecting extensions *b*, *b* on the said crib, adapted to slide or be guided on the fulcrum *a*<sub>11</sub>, *a*<sub>11</sub> on frames *A*, *A*, as and for the purpose set forth. 4th. The frames *A*, *A*, having upper fulcrum *c*, *c* and lower fulcrum *a*<sub>11</sub>, *a*<sub>11</sub>, combined with the crib *B*, and links or bars *C*, *C*, pivoted in their lower ends to said crib, and in their upper ends to fulcrum *c*, *c* on the said frames, and the downwardly-projecting crib extensions *b*, *b* adapted to slide or be guided on the fulcrum *a*<sub>11</sub>, *a*<sub>11</sub>, as and for the purpose set forth.

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

- |                                                                                                                                                                                 |                                                                                                                                                                                                                  |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p>979. F. H. BALL, (assignee) 2nd 5 years of No. 15,842, from the 22nd day of Nov., 1887. Improvements on Governors for Steam Engines, 1st Oct., 1887.</p>                     | <p>990. B. T. BABBITT, 3rd 5 years of No. 8,118, from the 17th Nov., 1887. Improvements on Air Compressors, 12th Oct., 1887.</p>                                                                                 |
| <p>980. G. A. WILLIARD, 3rd 5 years of No. 8,328, from the 22nd day of Jan., 1887. Improvements on Process and Apparatus for Treating Ores, 1st Oct., 1887.</p>                 | <p>991. G. O. SCHMELLER, 2nd 5 years of No. 15,670, from the 23rd day of Oct., 1887. Improvements on Button Fastening, 12th Oct., 1887.</p>                                                                      |
| <p>981. J. A. McRAE, 2nd 5 years of No. 15,614, from the 12th day of Oct., 1887. Improvements in Crimping Machines, 1st Oct., 1887.</p>                                         | <p>992. W. YOUNG, 2nd 5 years of No. 16,183, from the 23rd day of Jan., 1888. Improvements in Plashed Hedges, 12th Oct., 1887.</p>                                                                               |
| <p>982. E. A. SPERRY, 2nd 5 years of No. 15,567, from the 3rd day of Oct., 1887. Improvements on Dynamo Electric Machines, 3rd Oct., 1887.</p>                                  | <p>993. A. MORTON, 2nd 5 years of No. 15,651, from the 28th Oct., 1887. Improvements on Steam and other Motive Power Engines, 20th Oct., 1887.</p>                                                               |
| <p>983. THE JOHNSTON HARVESTER CO. (assignees), 3rd 5 years of No. 7,988, from the 9th day of Oct., 1887. Improved Harvesting Machine, 5th Oct., 1887.</p>                      | <p>994. L. SPITZIG, 2nd 5 years of No. 15,657, from the 28th Oct., 1887. Improvements on Attachment to Harvester for Lifting Pea Vines, 20th Oct., 1887.</p>                                                     |
| <p>984. THE JOHNSTON HARVESTER CO. (assignees), 3rd 5 years of No. 7,989, from the 9th day of Oct., 1887. Improvement in Rake Cam Supports for Harvesters, 5th Oct., 1887.</p>  | <p>995. G. RAMSDELL, 2nd 5 years of No. 15,665, from the 23rd day of Oct., 1887. Improvements on Gas Apparatus for the Manufacture of Illuminating Gas., 23rd Oct., 1887.</p>                                    |
| <p>985. R. S. MONTGOMERY (assignee), 2nd 5 years of No. 15,643, from the 17th October, 1887. Improvements on Mail Bag Fastening, 5th Oct., 1887.</p>                            | <p>996. S. FOX, 3rd 5 years of No. 8,186, from the 6th day of Dec., 1887. Improvements on the Construction of Formation of Metal Plates for Internal Flues and Fire Boxes of Steam Boilers, 21st Oct., 1887.</p> |
| <p>986. H. W. FLEURY, 2nd 5 years of No. 15,784, from the 13th day of Nov., 1887. Improvements on Cone Root Cutters, 5th Oct., 1887.</p>                                        | <p>997. J. T. WILSON and W. J. Hallam, 2nd 5 years of No. 15,682, from the 24th day of Oct., 1887. Improvement in a Cinder Sifter, 22nd Oct., 1887.</p>                                                          |
| <p>987. THE ELECTRICAL ACCUMULATOR CO. (assignees), 2nd and 3rd 5 years of No. 16,499, from the 15th day of March, 1888. Improvements in Secondary Battery, 5th Oct., 1887.</p> | <p>998. J. B. ARMSTRONG, 2nd and 3rd 5 years of No. 15,766, from the 10th day of Nov., 1887. Improvements on Axles for Board Vehicles, 22nd Oct., 1887.</p>                                                      |
| <p>988. THE BELL TELEPHONE CO., 2nd and 3rd 5 years of No. 25,106, from the 12th day of Oct., 1881. Improvements in Telephone Transmitters, 5th Oct., 1887.</p>                 | <p>999. E. C. DURAND, 2nd 5 years of No. 15,728, from the 4th day of Nov., 1887. Improvements on Belt Shifters, 26th Oct., 1887.</p>                                                                             |
| <p>989. D. KNOWLTON, 2nd 5 years of No. 15,609, from the 11th day of Oct., 1887. Improvements on Bed Bottoms, 6th Oct., 1887.</p>                                               | <p>1,000. T. GALLOWAY, 2nd 5 years of No. 15,730, from the 6th day of Nov., 1887. Improvements on Combined Drill and Broadcast Seeders, 28th October, 1887.</p>                                                  |
|                                                                                                                                                                                 | <p>1,001. A. SMITH and H. Skinner, 3rd 5 years of No. 8,160, from the 4th day of Dec. 1887. Improvements on Looms, 31st Oct., 1887.</p>                                                                          |



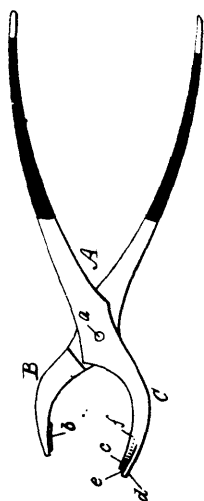
THE  
CANADIAN PATENT OFFICE RECORD.

ILLUSTRATIONS.

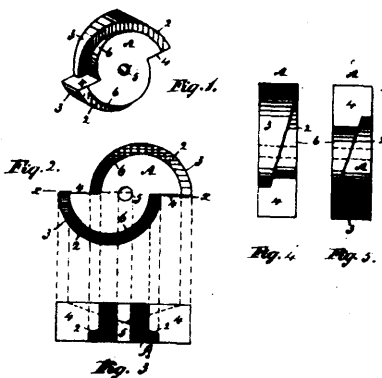
Vol. XV.

NOVEMBER, 1887.

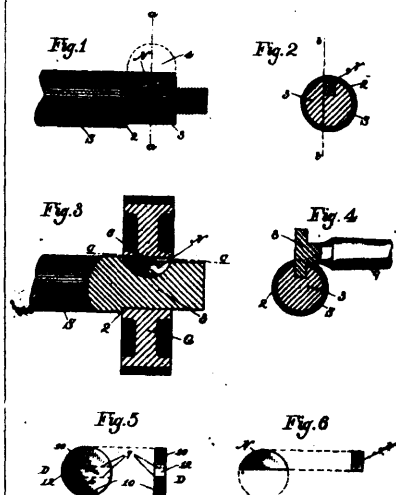
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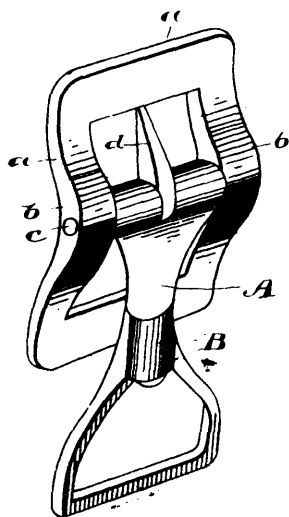
27681 Chandler's Implement for Inserting Glaziers' Points.



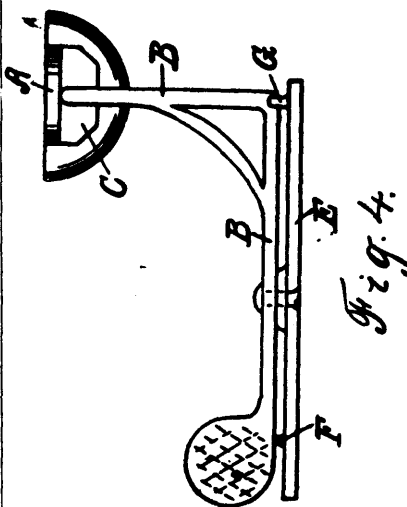
27682 Bromley's Cam for Shingle Edging Machines, etc



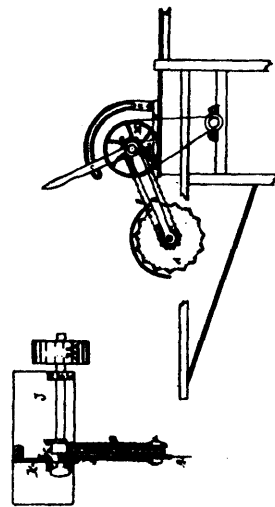
27683 Woodruff's Shaft Key for Holding Gears, Wheels, etc., in Position.



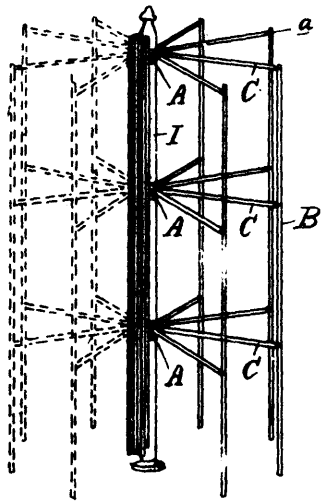
27684 Hill & McRae's Harness Buckle.



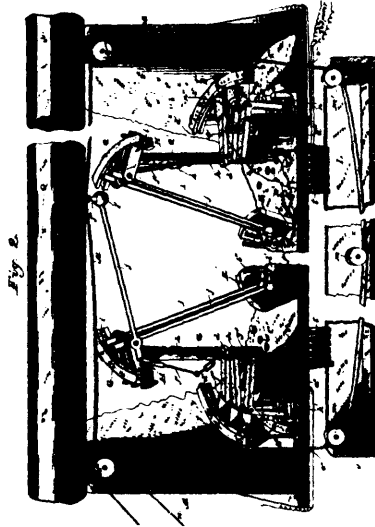
27685 Halls' Door Stop and Holder.



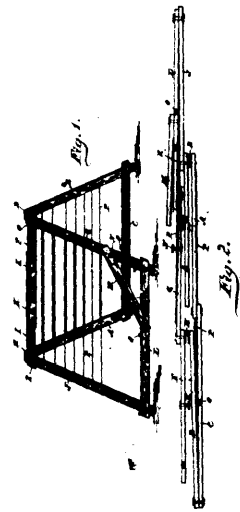
27686 Aldred & McCollam's Machine for Cutting Bands of Sheaves in Combination with Thrashing Machines.



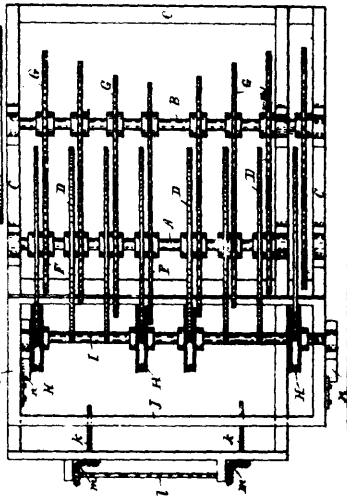
27687 Pickett's Folding Clothes Bar.



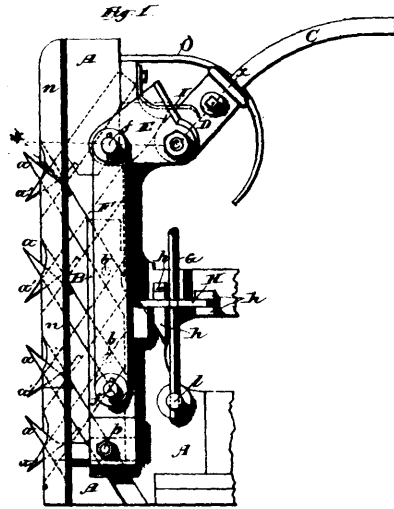
27688 McLaughlin's Receiver for Electrical Type Writers.



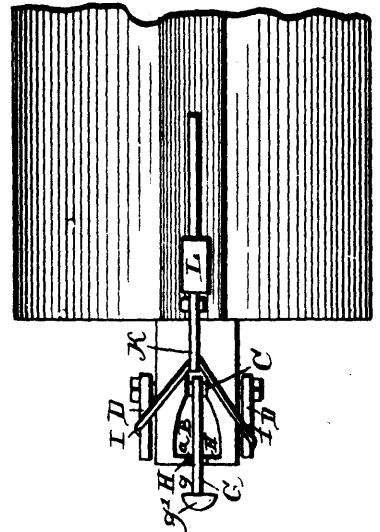
27689 Stunden's Clothes Drier.



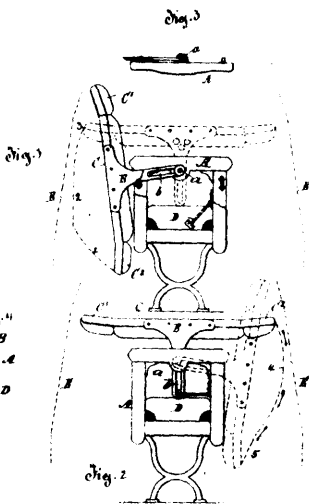
27690 Latour's Motor.



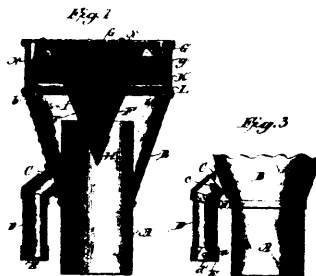
27691 Gowen's Saw-Mill Dog.



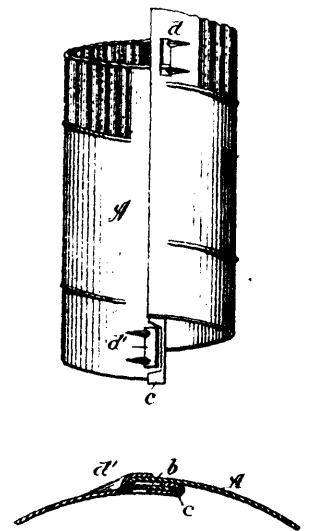
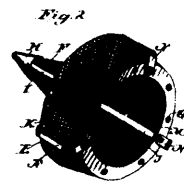
27692 Lewton's Car-Coupling.



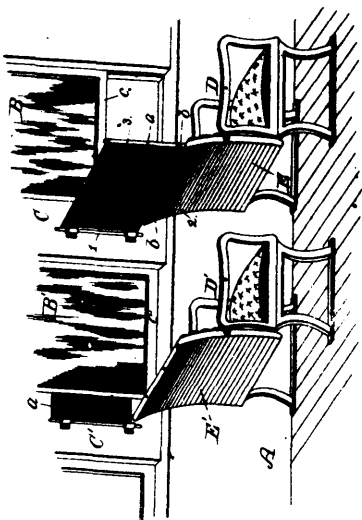
27693 Wiseman's Seat for Railway Cars.



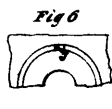
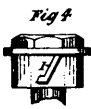
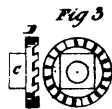
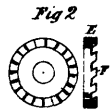
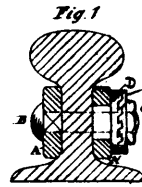
27695 Tyner's Spark Arrester.



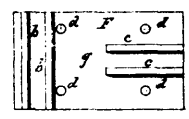
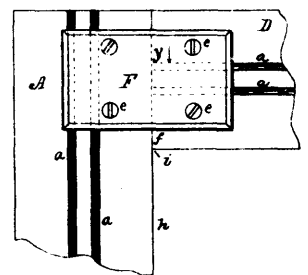
27696 Shipe's Stove Pipe.



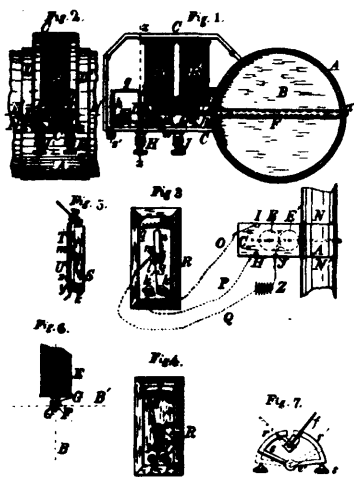
27697 Smith's Screen Guard for Car Seats.



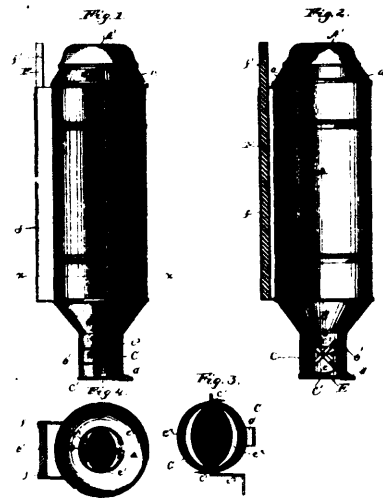
27699 Allen & Cavill's Appliance for Locking Bolts and Nuts.



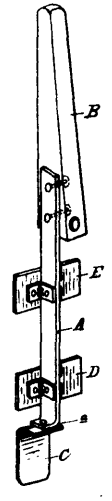
27700 Stuart's Frame for Door and Window Openings.



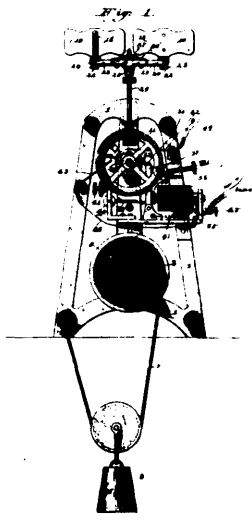
27702 Lee's Electric Temperature Regulator.



27703 Tyler's Flour Receptacle and Sifter.



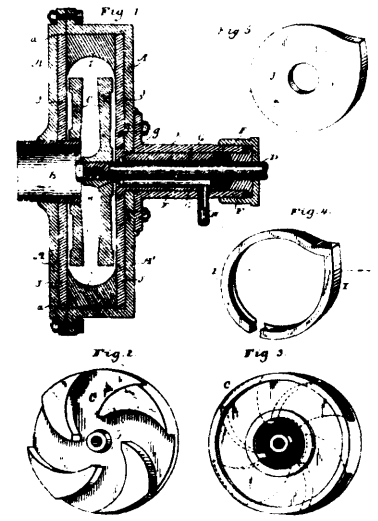
27704 Ayres' Fence Post



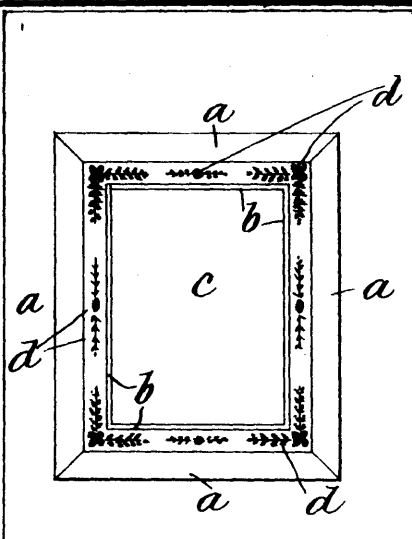
27705 McLaughlin's Electro-Automatic Synchronal Motor Escapement.



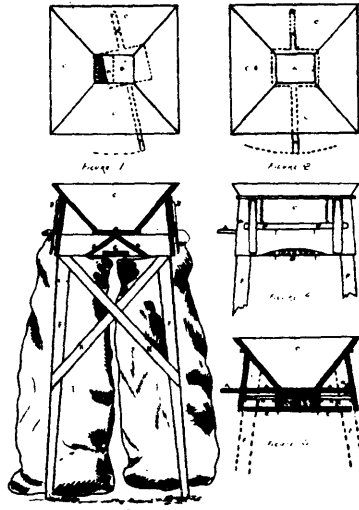
27706 Moreau's Machine for Drilling Rock.



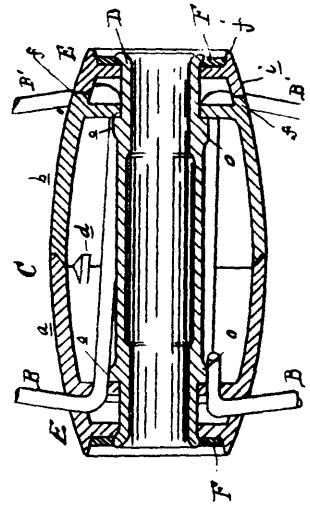
27707 Hawley's Centrifugal Pump.



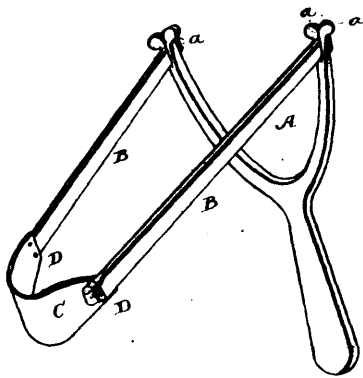
27708 Egginton's Glass Cover for Pictures, etc.



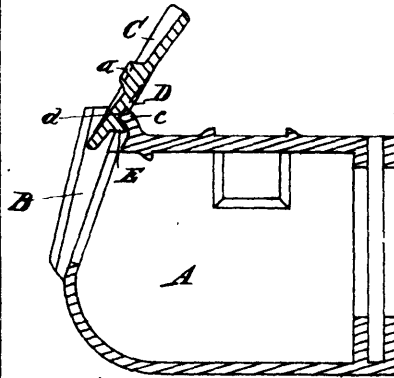
27709 Fraser's Machine for Holding Grain Sacks and Bags.



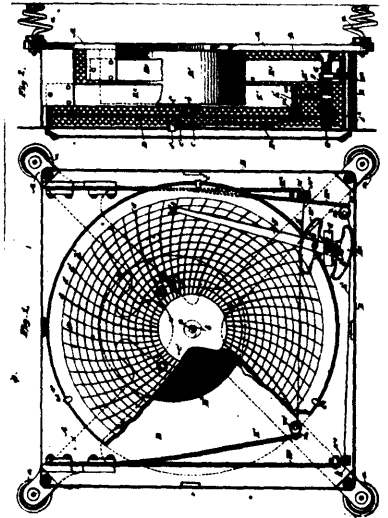
27710 Harris' Wheel.



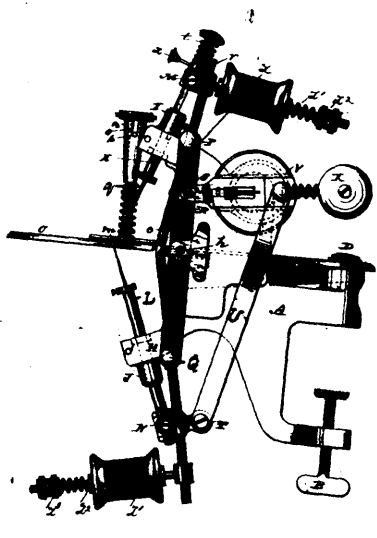
27711 Myers' Toy Sling.



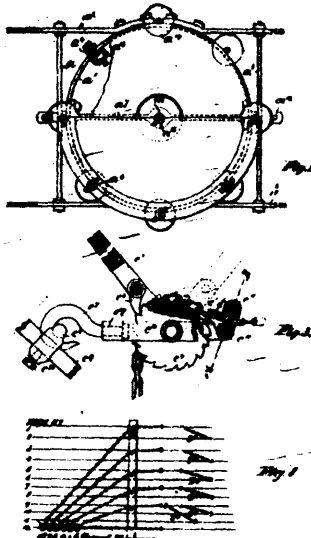
27713 Susemihl's Car Axle Journal Box Cover.



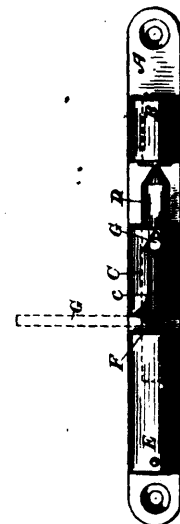
27714 Draper's Recording Thermometer.



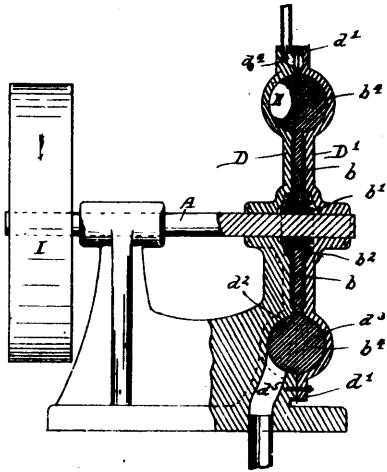
27715 Noble's Sewing Machine.



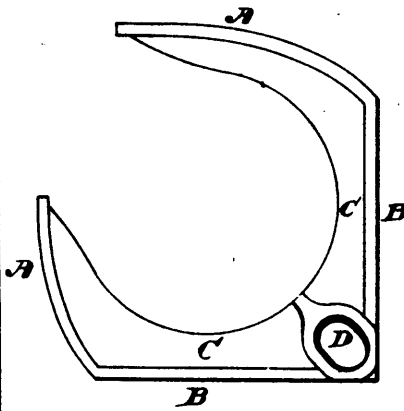
27716 Evans' Wire-Fencing, etc.



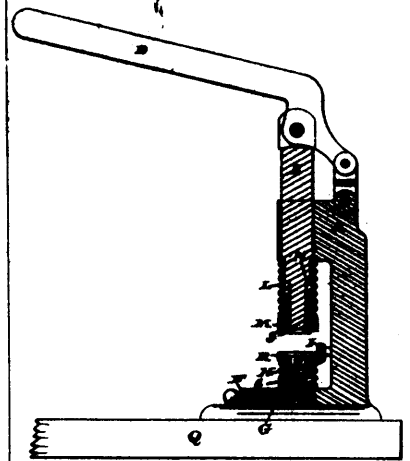
27717 Elliot's Percussion Burglar Alarm.



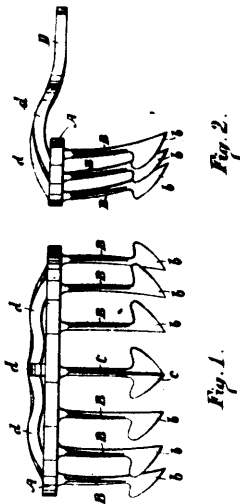
27718 Messer's Steam Engine.



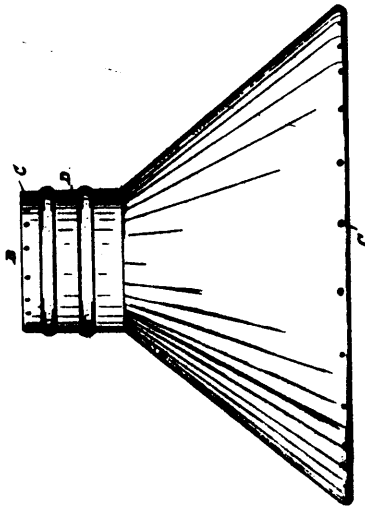
27719 Richmond's Combination Tool for Shoemakers.



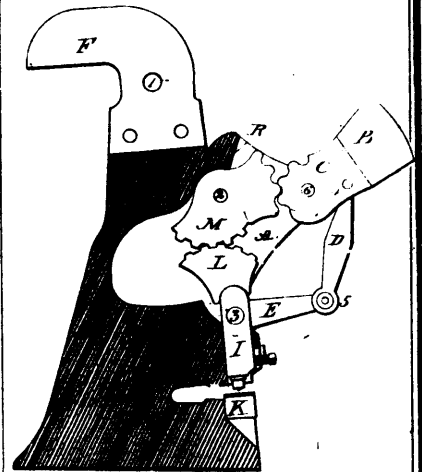
27720 Devine's Machine for Covering Buttons.



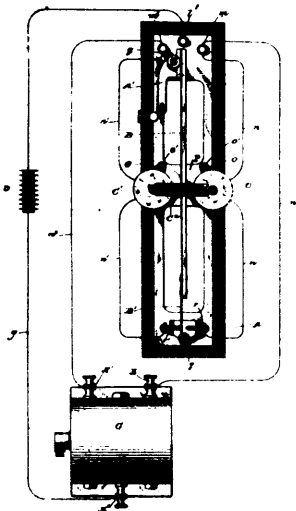
27721 Calef's Potato Digger.



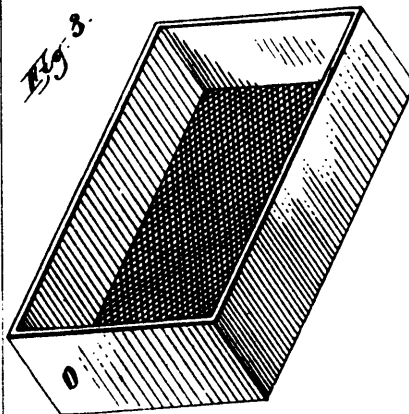
27722 Levy's Reflector for Lamps, etc.



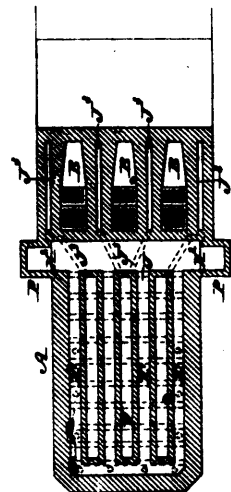
27723 Rice's Punching and Shearing Machine.



27724 Jacobs' Thermostat.

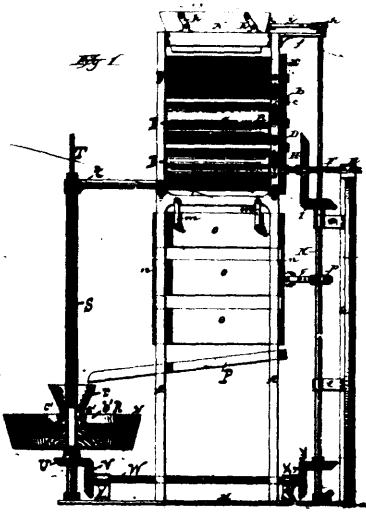


27725 Baranore's Machine for Crushing and Screening Quarts.

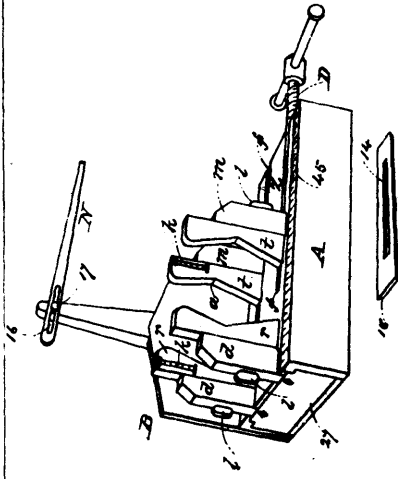


27726 Ferrari's Glass Furnace.

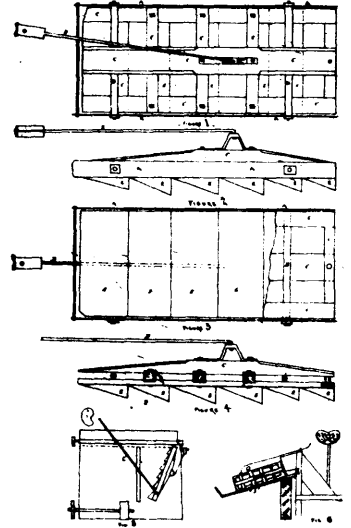




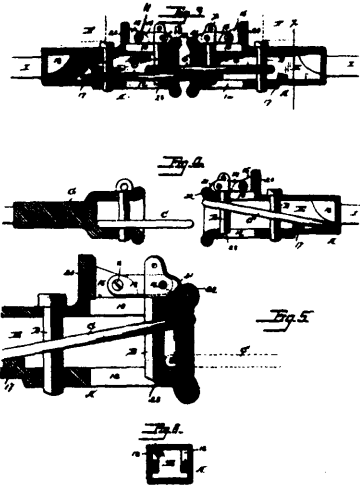
27727 Paramore's Mining Pan or Settler.



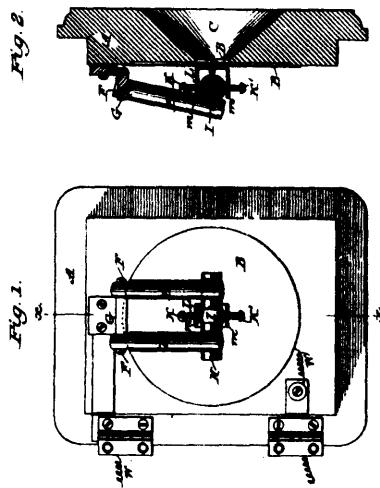
27728 Caswell's Machine for Bunching Cigars.



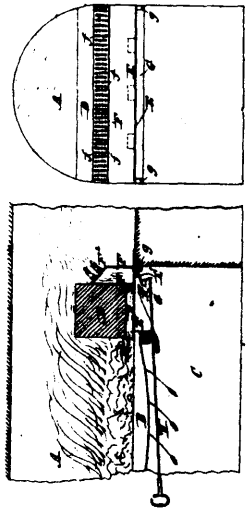
27729 Bellamy's Binder.



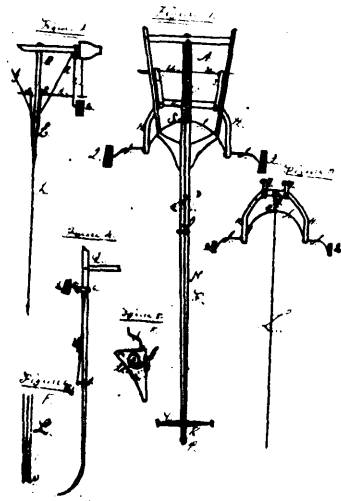
27730 Reed's Car Coupler.



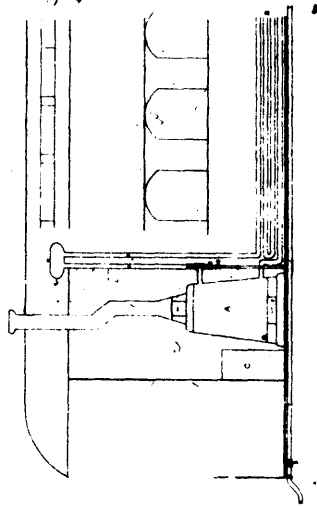
27731 Rose's Telephone.



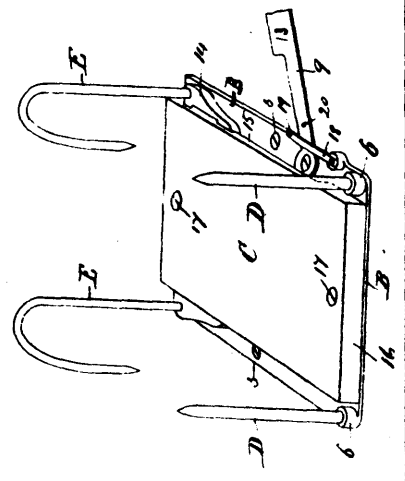
27732 Dobson's Smoke Consumer.



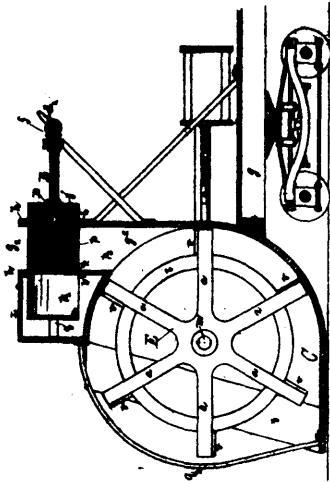
27733 Fraser's Wagon Brake.



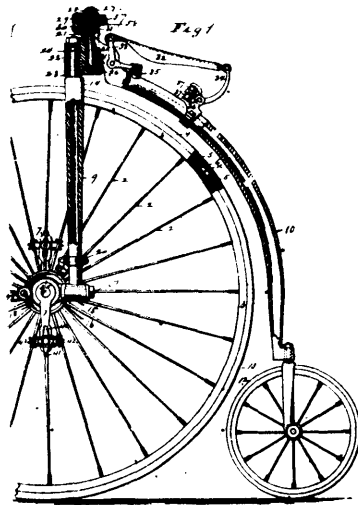
27734 Bontar's Apparatus for Heating Cars.



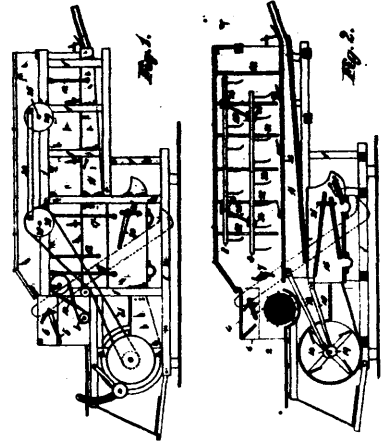
27735 Lawrence's Letter File.



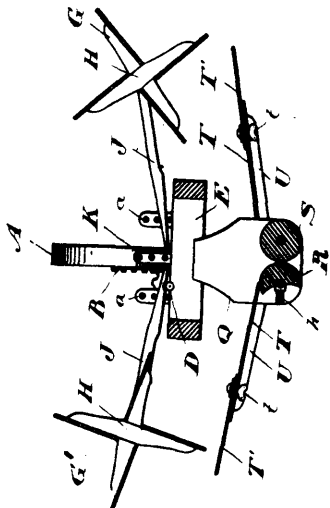
27736 Cox's Excavator or Machine for Excavating and Removing Snow, etc.



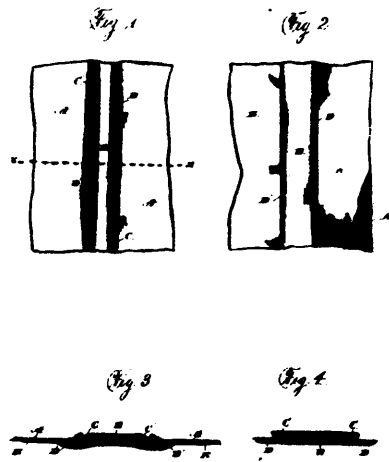
27737 Warwick's Bicycle.



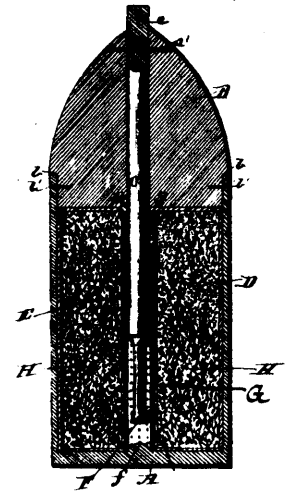
27738 Robertson's Threshing Machine.



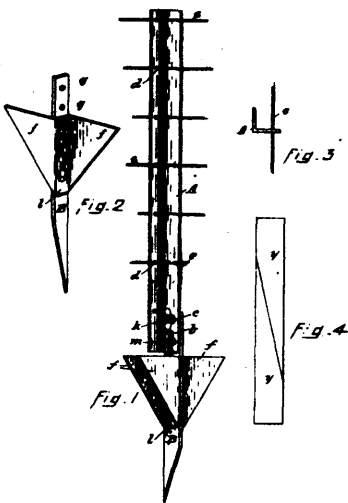
27739 Hovey & Bailey's Device for Destroying Potato Beetles.



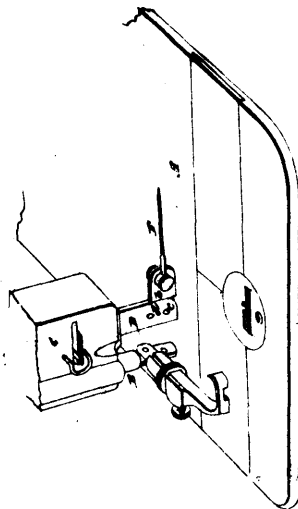
27740 Vallant's Boot and Shoe.



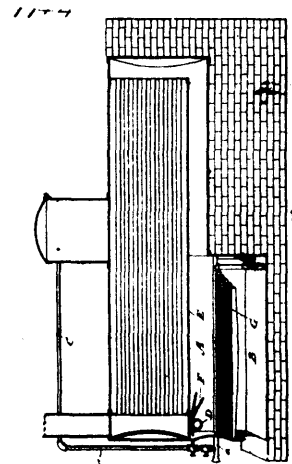
27741 McCreary's Projectile for Fire Arms.



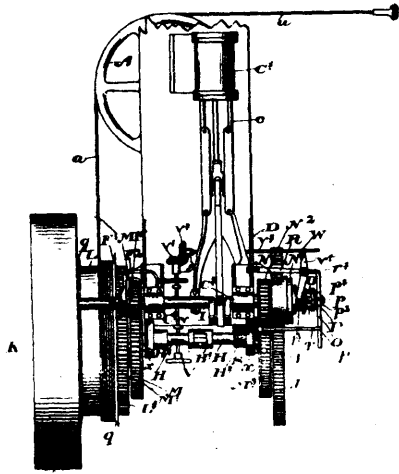
27742 Yount's Fence Post.



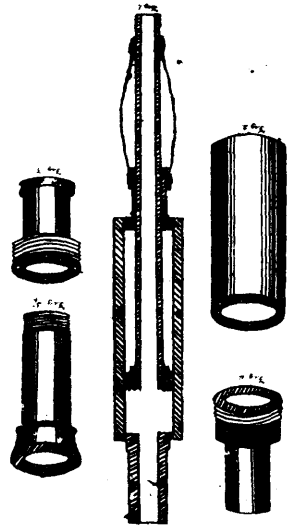
27743 Looker's Sewing Machine.



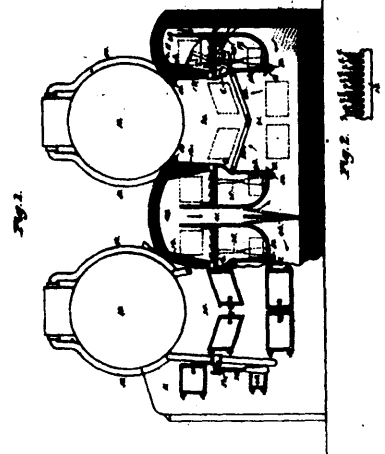
27744 Ellis' Smoke Consumer.



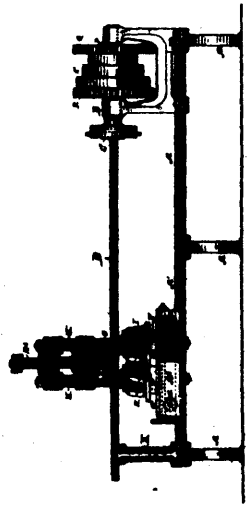
27745 Morris' Machinery for Operating Steam Ploughs.



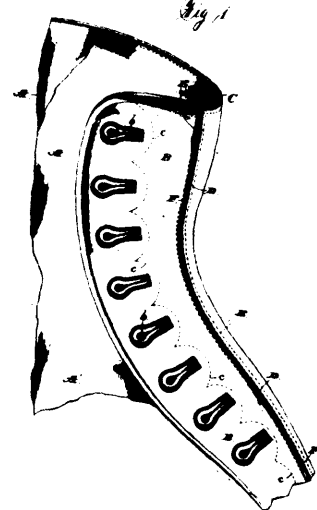
27746 Babcock's Appliance for Shutting off Water, etc., from Wells.



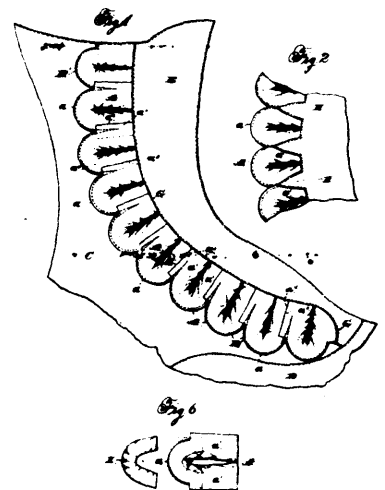
27747 Peelin's Smoke-Consuming Furnace.



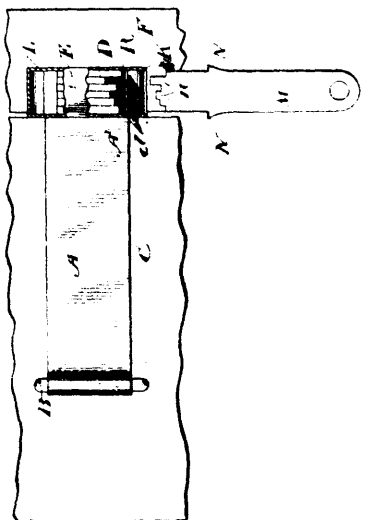
27748 Medart's Machine for Straightening Metal Bars or Pipes.



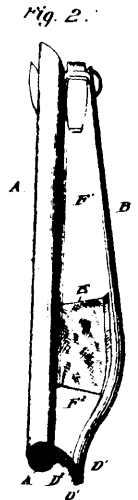
27749 Vallant's Button-Hole Strip for Boots or Shoes.



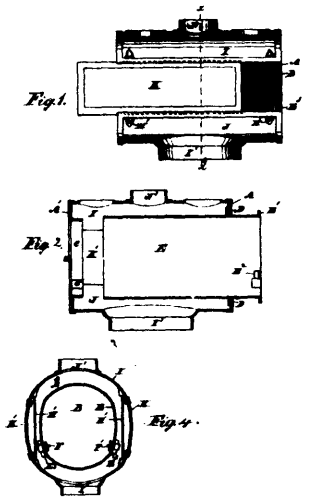
27750 Vallant's Button-Hole Strip for Boots or Shoes.



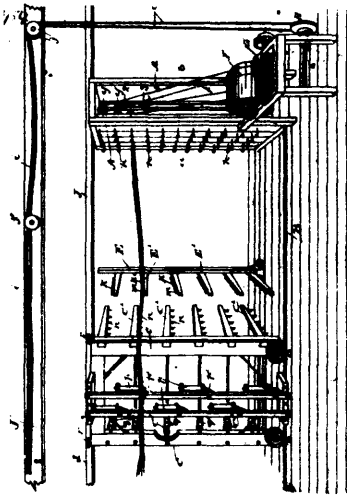
27751 Moore's Lock and Hasp.



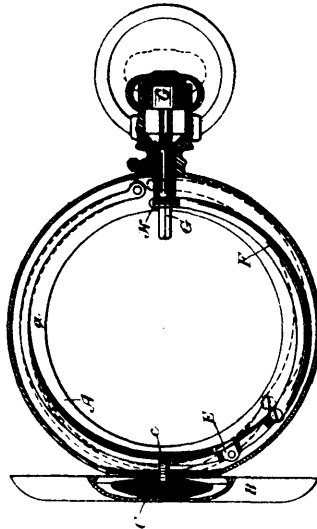
27752 Brownson's Horse Collar.



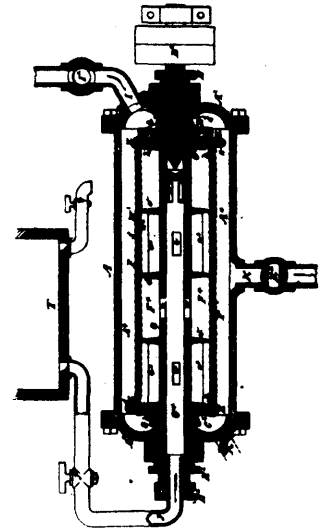
27753. Peter's Elevated Oven Cooking Stove.



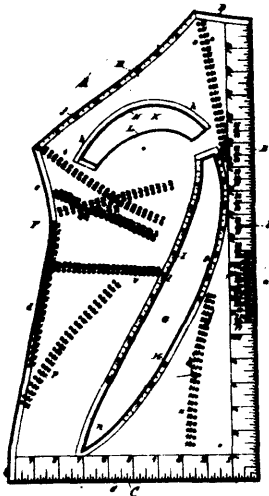
27754 Avis' Machinery for the Manufacture of Twines, etc.



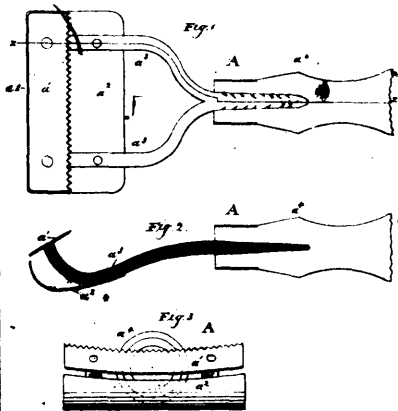
27755 Graham's Hunting Watch Case.



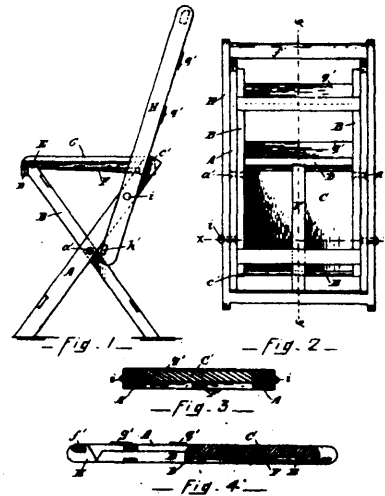
27756 Howes' Rotary Filtering Apparatus.



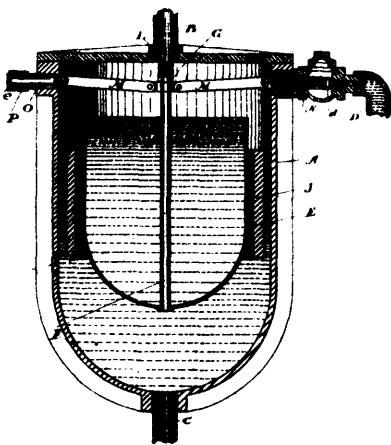
27757 Baker's Dress-Maker's Chart.



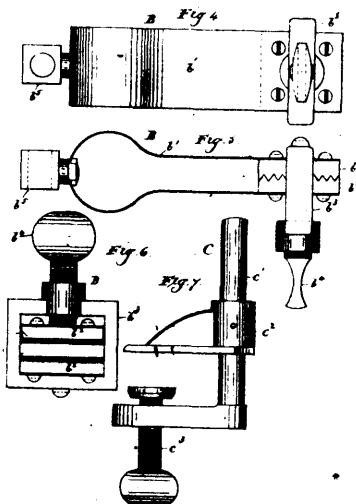
27758 Clow & Findlay's Scale Stripper for Cleaning Fish.



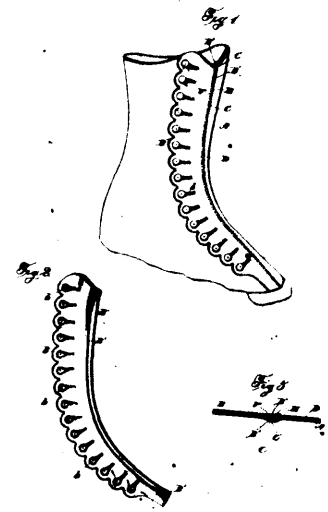
27759 Henry's Folding Stool Chair.



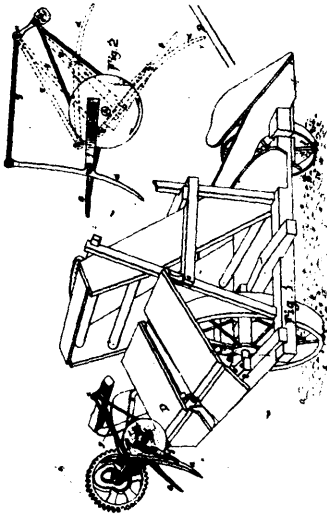
27760 Weaver's Feed-Water Regulator for Steam Boilers.



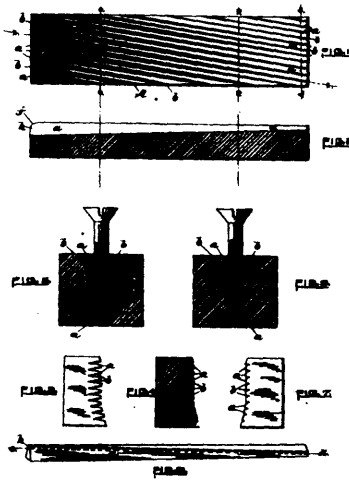
27761 Clow & Findlay's Fish Holder for Cleaning Fish.



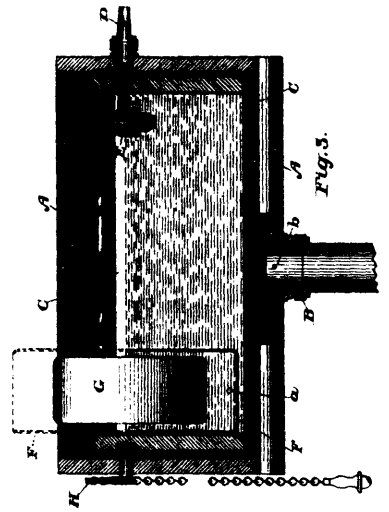
27762 Vallant's Boot or Shoe.



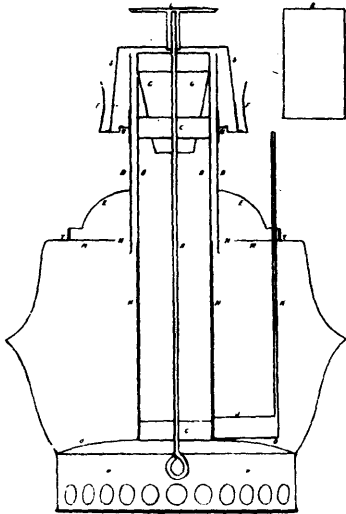
27763 Whiteley's Ejector for Grain Binders.



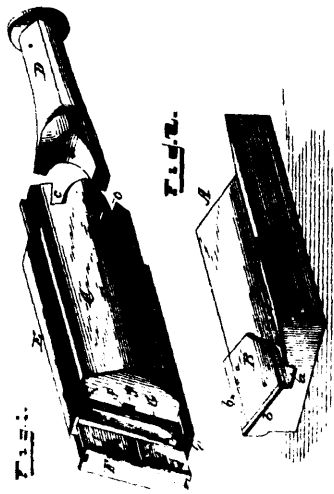
27764 Rogers' Die for Rolling Screw Threads.



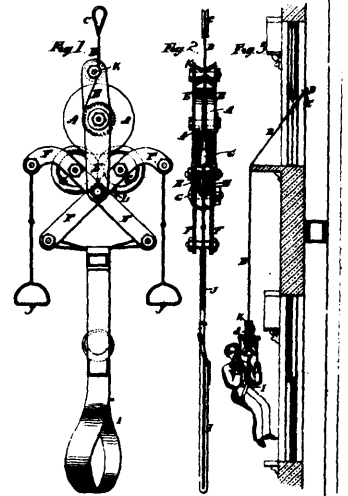
27765 Parker's Flushing Cistern.



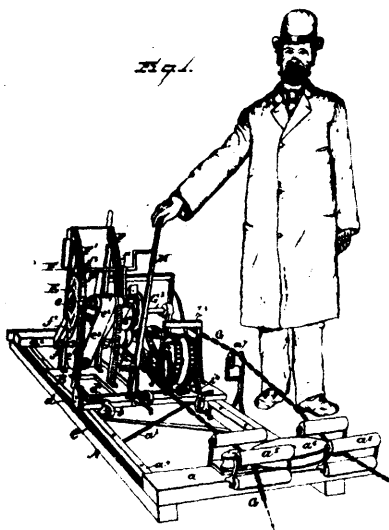
27766 Bixby's Argand Lamp.



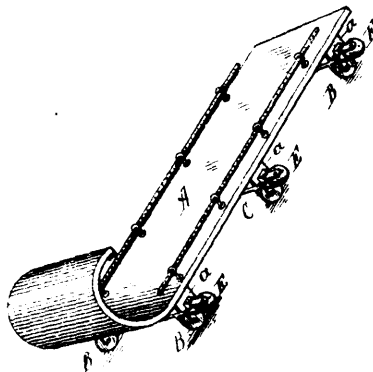
27767 Kingsley's Die and Connection for Making Eye-Bars.



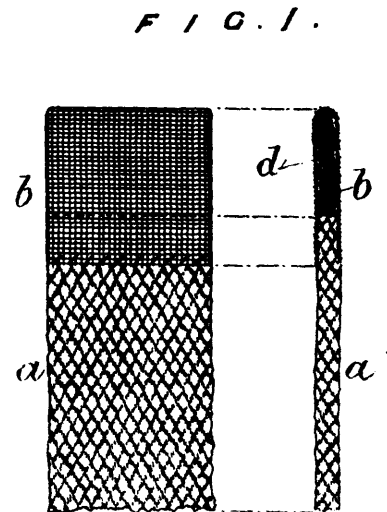
27768 Burkin & Melville's Domestic Fire Escape.



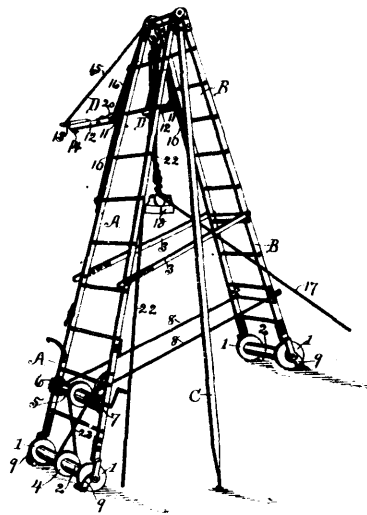
27769 Trahan's Ice-Sawing Machine.



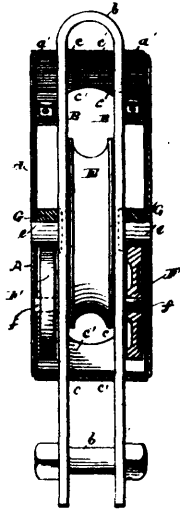
27770 Chadeayne's Toboggan.



27771 Bondini and Tubini's Lamp Wick.



27772 Wright's Fire-Escape Ladder.



27773 Ford's Tackle Block.

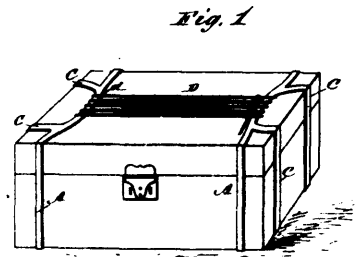
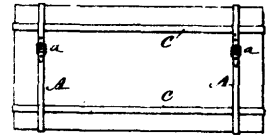
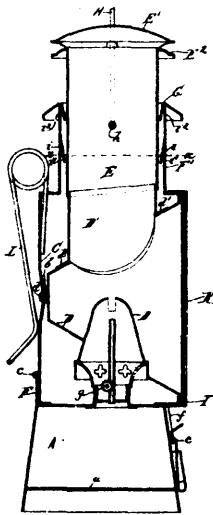


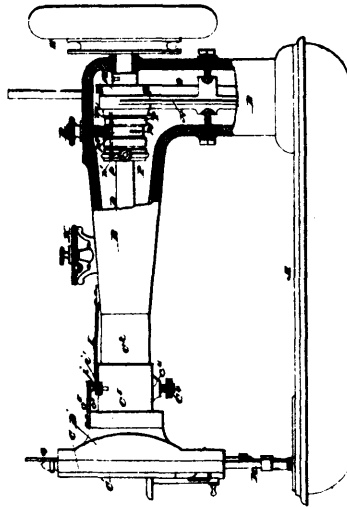
Fig. 1



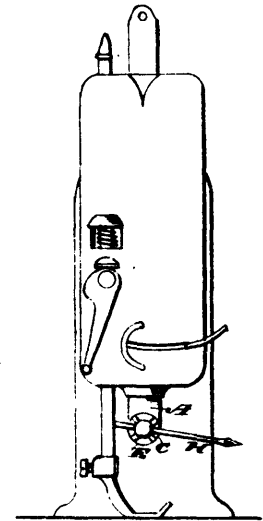
27774 Van Orden's Trunk Harness.



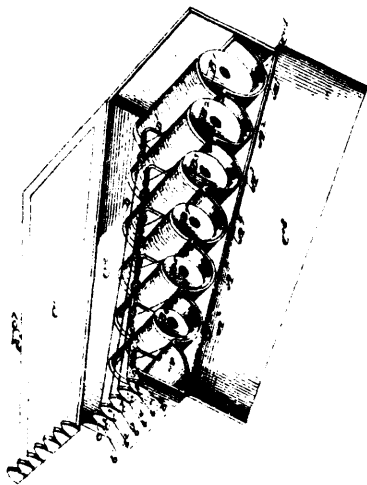
27775 Betts' Lantern.



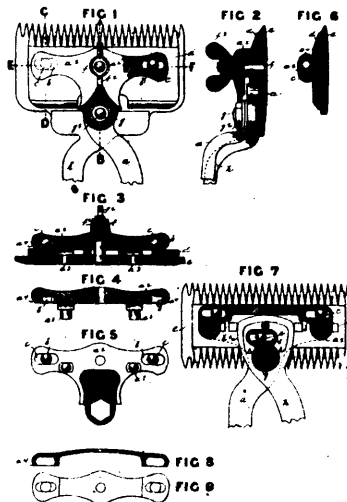
27776 Looker's Sewing Machine.



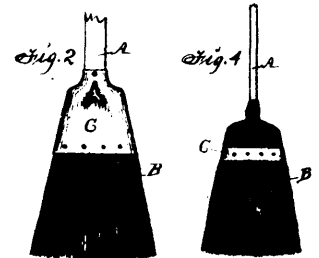
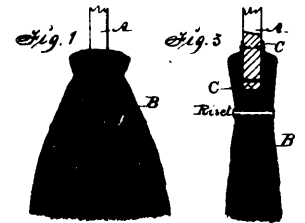
27777 Looker's Adjustable Oscillating Needle Clamp for Sewing Machines.



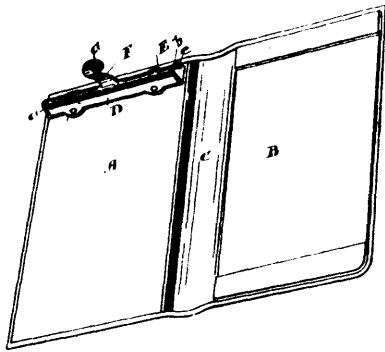
27778 Looker's Spool Box for Sewing Machines.



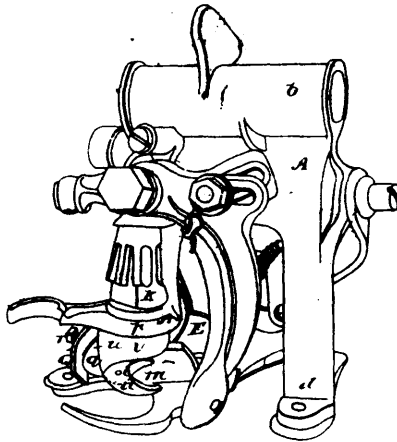
27779 Phipps' & Burman's Clipping and Shearing Machine.



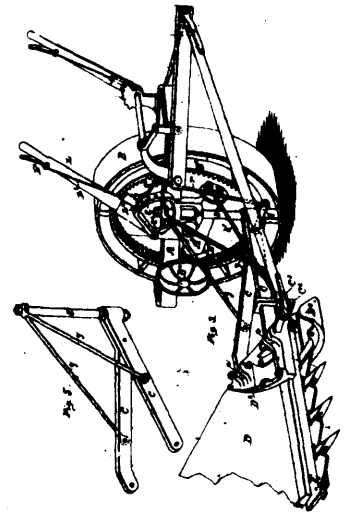
27780 Pelton's Broom.



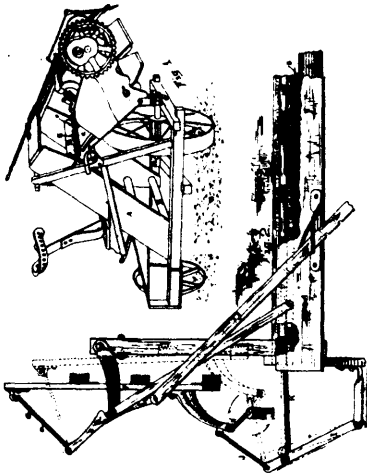
27781 O'Hara's Detachable Book Cover and Clasp.



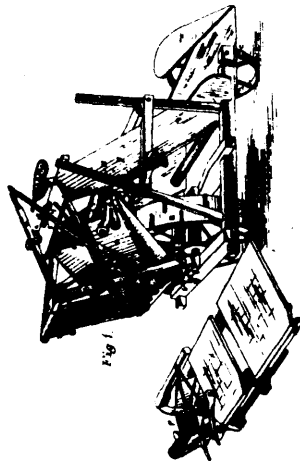
27782 Whiteley's Knotter for Grain Binder.



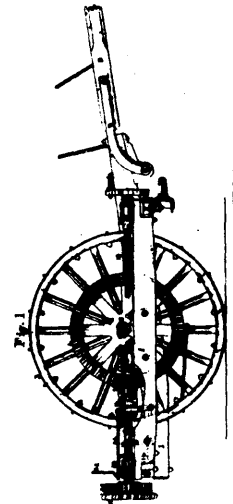
27783 Whiteley's Harvesting Machine.



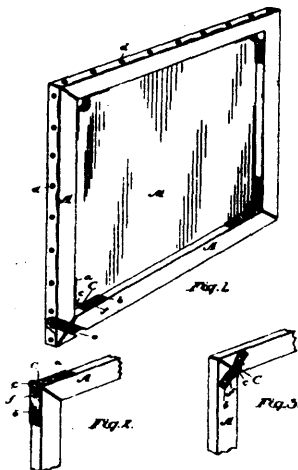
27784 Whiteley's Binder.



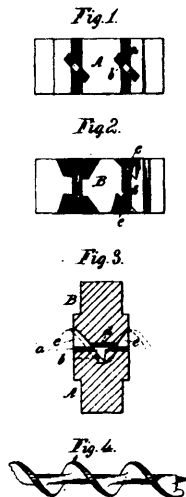
27785 Whiteley's Harvester.



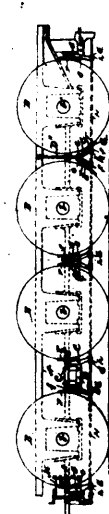
27786 Whiteley's Harvester Frame, etc.



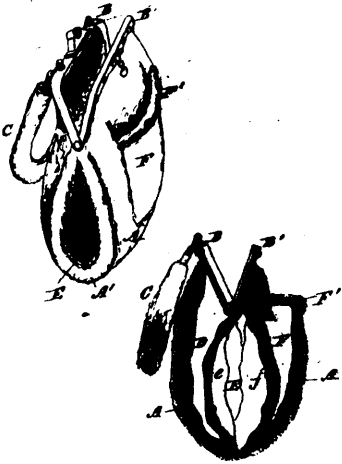
27787 Rawbone's Fastener for Frame Joints



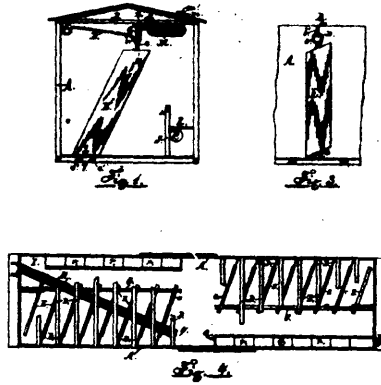
27788 Johnson's Die for Making Auger Bits.



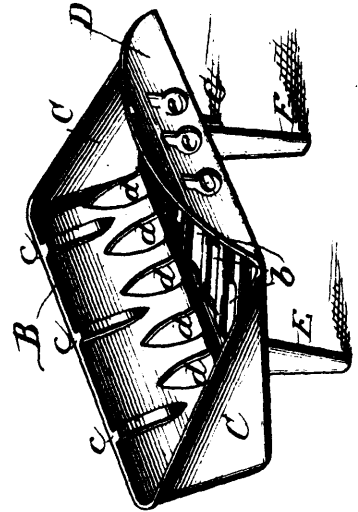
27789 Guernsey & Beale's Locomotive Brake.



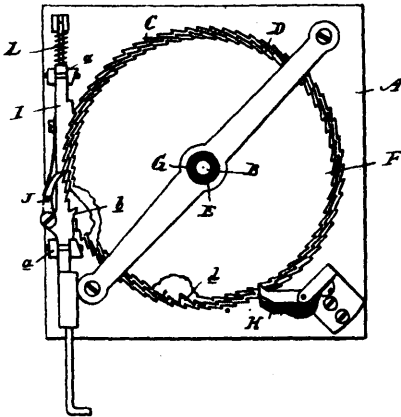
27790 Brahad's Muff, Satchel and Pocket.



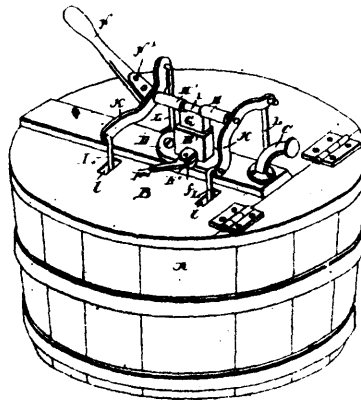
27791 Grossman's Stock Car.



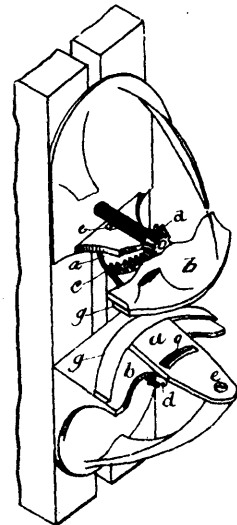
27792 Laxton's Soap Dish.



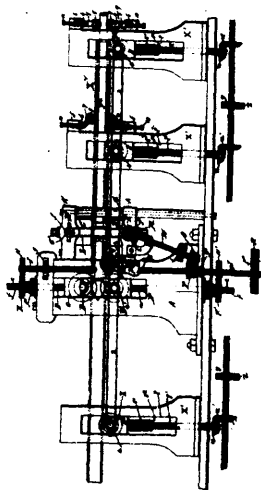
27793 Dutton's Registering and Recording Device.



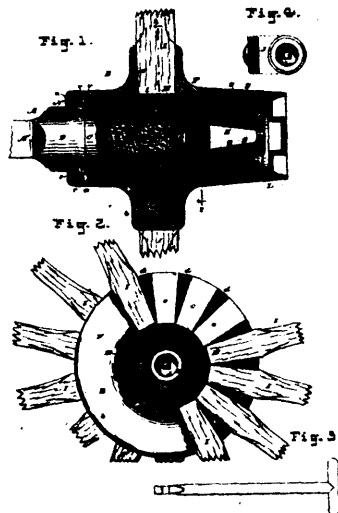
27794 Oliver's Washing Machine.



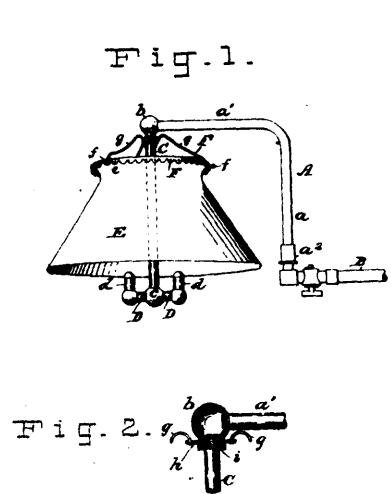
27795 Tebbetts' Machine for Rolling Metal Articles to form.



27796 Appleton's Machine for Rolling Seamless Tubes, Pipes, etc., from Hollow Ingots.

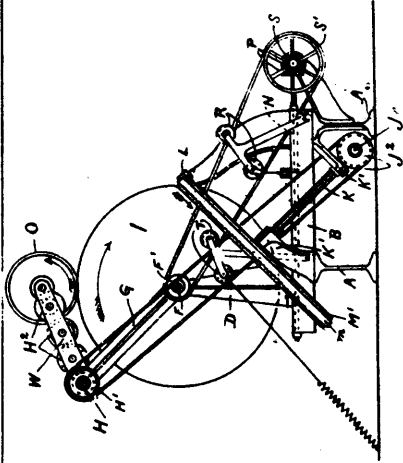


27797 Harris' Hub for Vehicle Wheels.

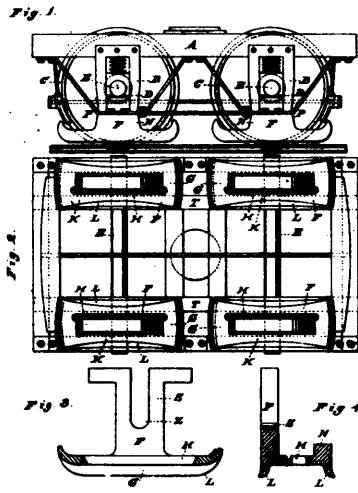


27798 Gregory's Retort Gas Burner.

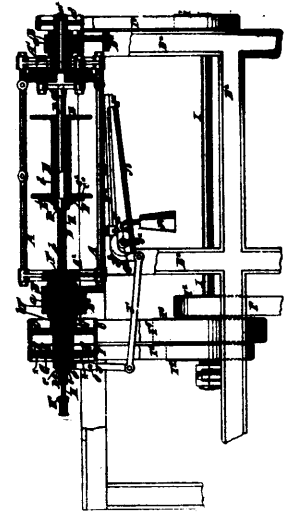




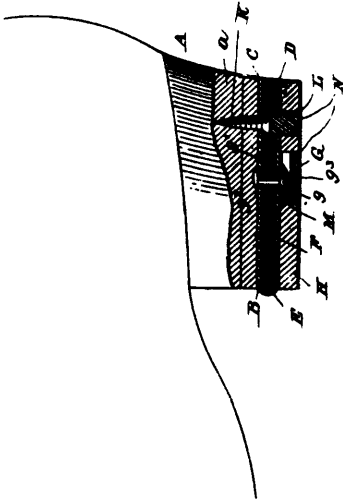
27799 Goodwin's Process for Manufacturing from Wood, Excelsior and Material for Making Wood Pulp, &c.



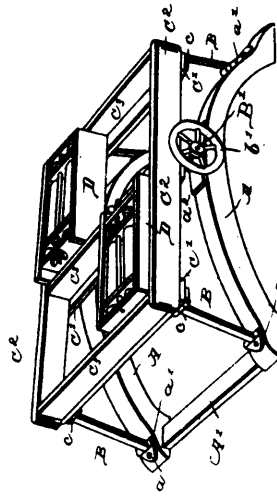
27800 Knight's Means for Preventing the Derailment of Cars.



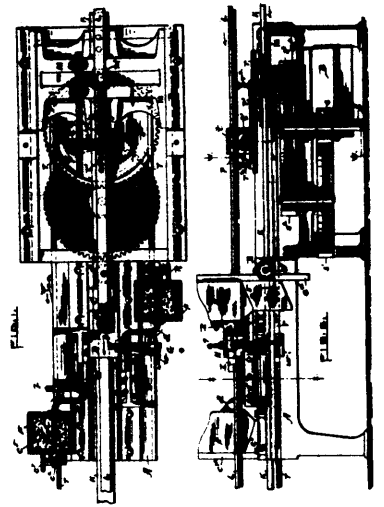
27801 Good's Spindle and Filter.



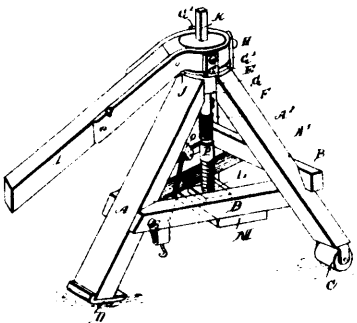
27802 Swan's Flexible Heel for Boots or Shoes.



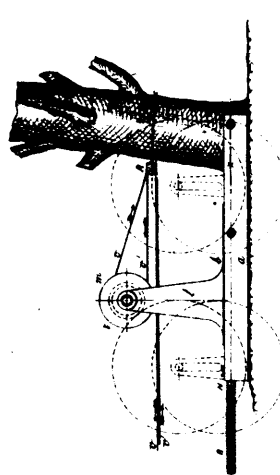
27803 Fargo's Churn.



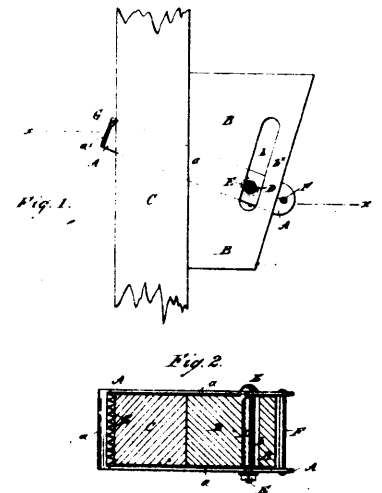
27804 Rogers' Machine for Making Wood Screws.



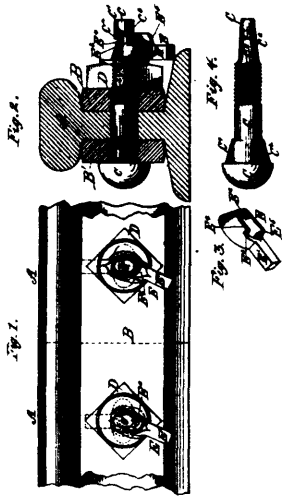
27805 Krueger's Stump Puller.



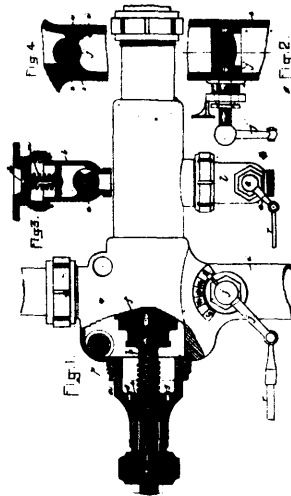
27806 Richard's Tree-Felling Machine.



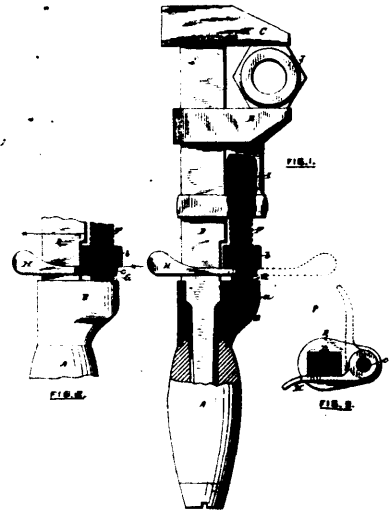
27807 Whittingham's Scaffold Clamp.



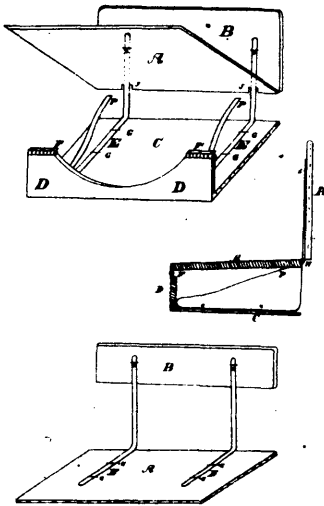
27808 Roberts' Nut Lock.



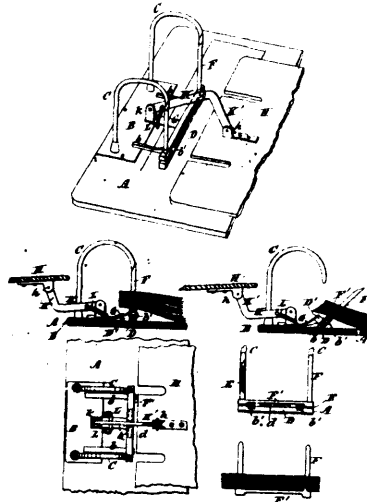
27809 Mack's Injector.



27810 Taft's Wrench.



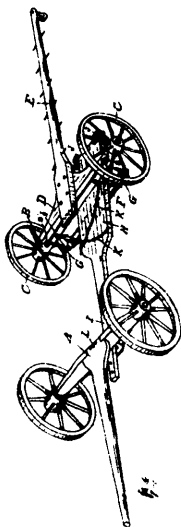
27811 Briggs' Spring Back and Vehicle Seat.



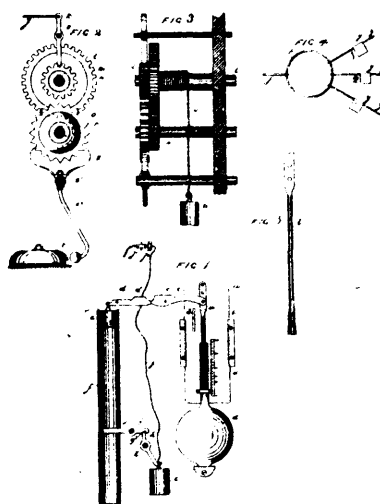
27812 Gazeley's Office File for Letters, etc.



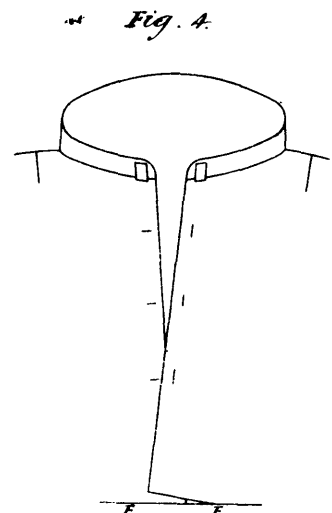
27813 Howe's Boiler Injector.



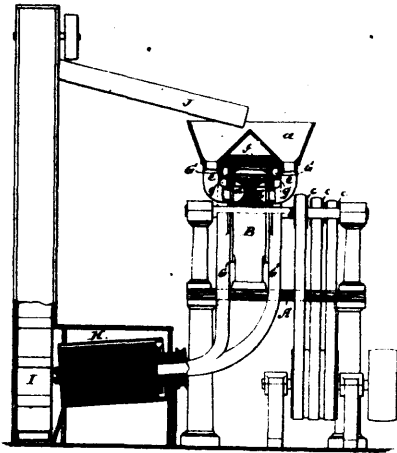
27814 Estes' Truck for Transplanting Trees.



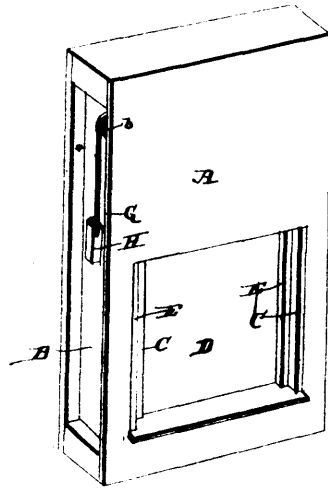
27815 Earles' Fire Alarm.



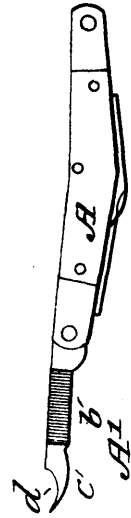
27816 Husband's Shirt Front and Attaching Collars to Shirt.



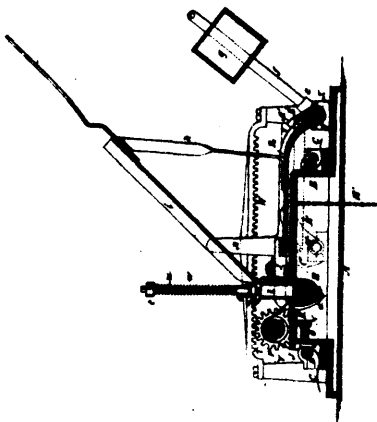
27817 Eyerson's Machine for reducing Cereals, &c.



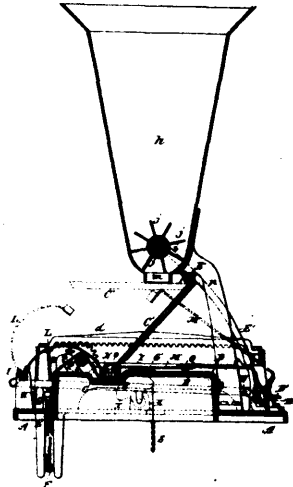
27818 Sessions' Blackboard.



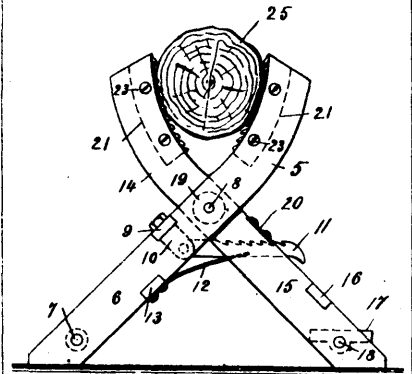
27820 Eaton's Finger Nail Cleaner.



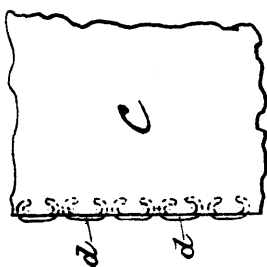
27821 Williams' Cigar Bunching Machine.



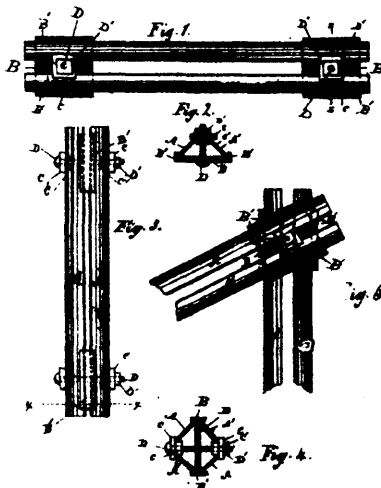
27822 Williams' Cigar Bunching Machine.



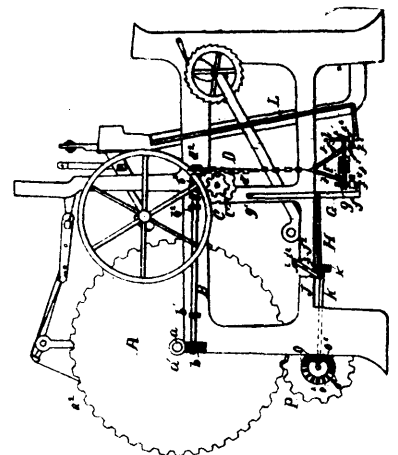
27823 Moriarty's Adjustable Saw Buck.



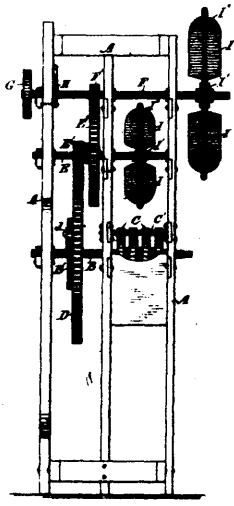
27824 Meacom's Belting.



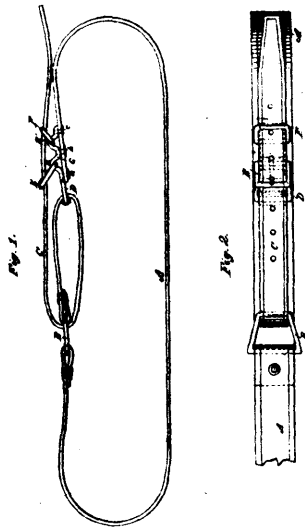
27826 Heath & Waters' Construction of Compound Structural Bars.



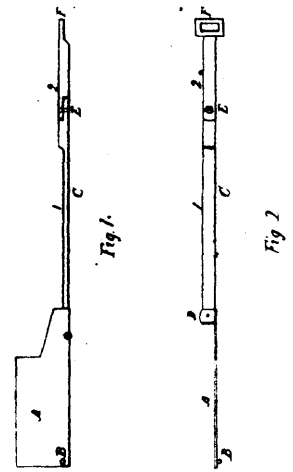
27827 Brown's Device for Lett-Off Motions for Looms.



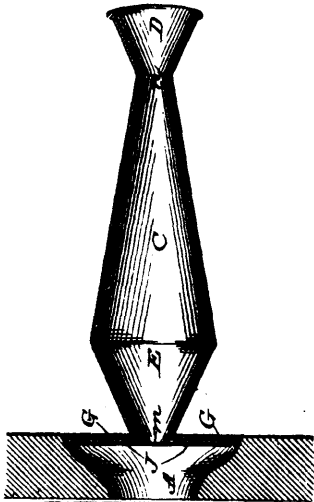
27828 Smith's Motor.



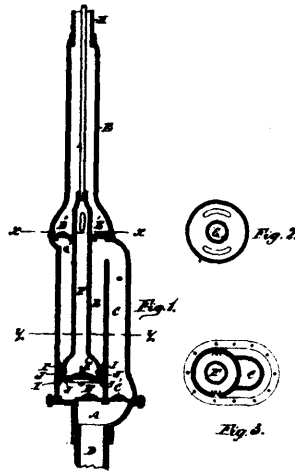
27829 Berry's Trunk Strap.



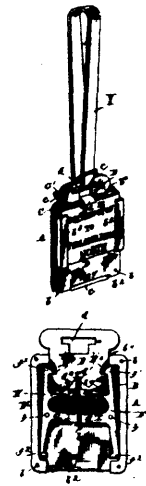
27830 Buck's Damper for Stoves or Ranges.



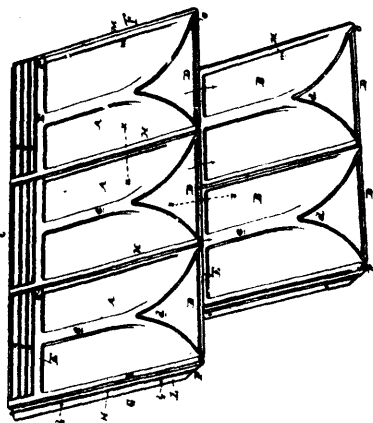
27831 Lee's Method of Conveying Speech to Telephonic Transmitters, etc.



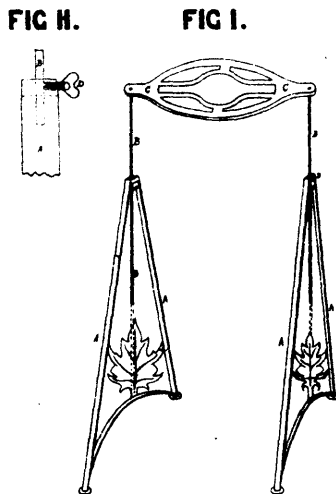
27832 Collver's Pump.



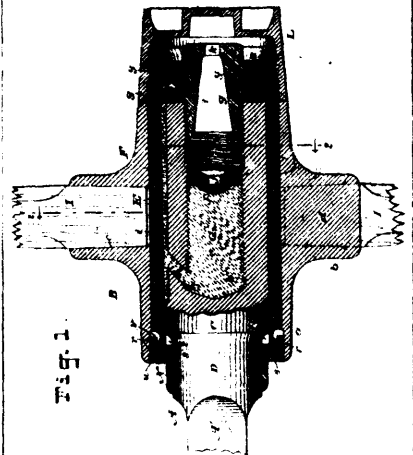
27833 Drinker's Baggage Check.



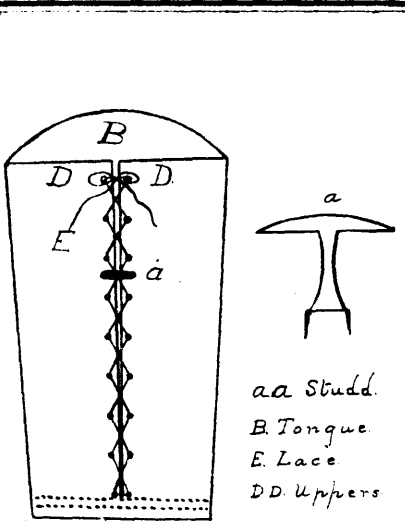
27834 Cortright & Darlington's Metallic Roofing Plate or Shingle.



27835 Patching & Terrell's Household Lamp Stove.

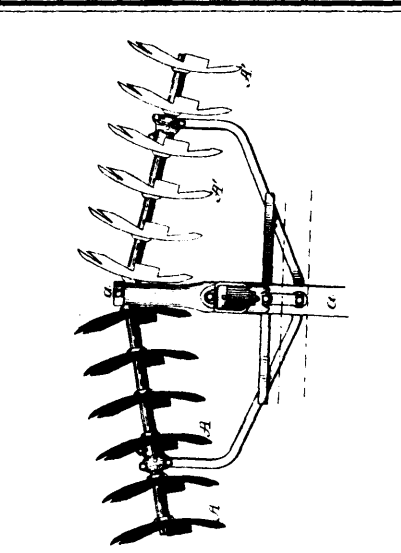


27836 Harris' Vehicle Axle Lubricator and Hub

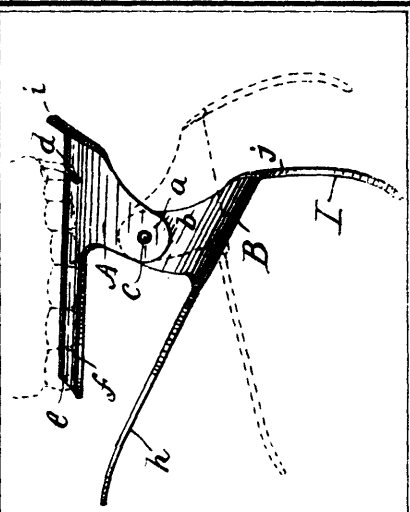


aa Studd.  
 B. Tongue  
 E. Lace  
 DD Uppers

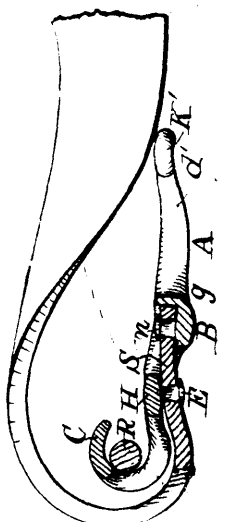
27837 Anderson's Boot Tongue.



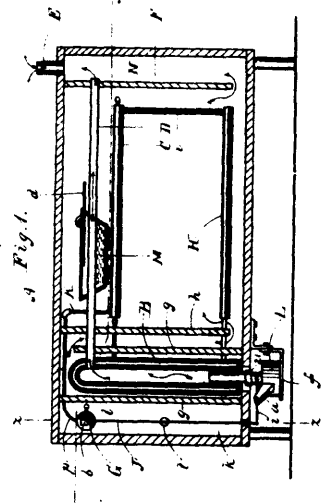
27838 Clark's Harrow.



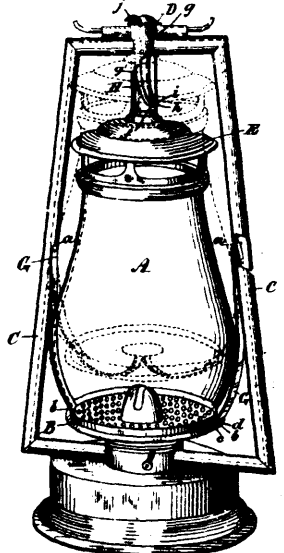
27839 Cole's Speculum for the Throat.



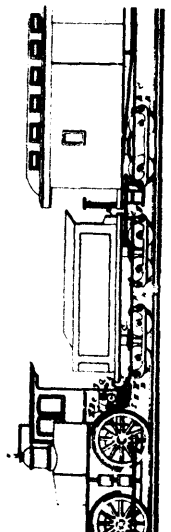
27840 Gathright's Device for Attaching Straps.



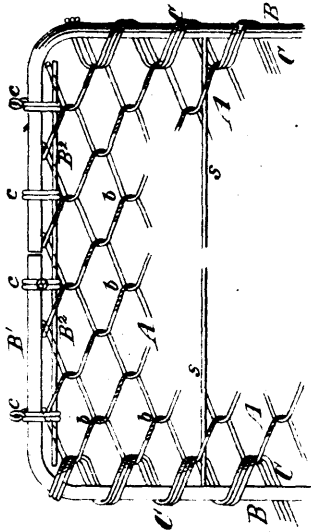
27841 Carr's Incubator.



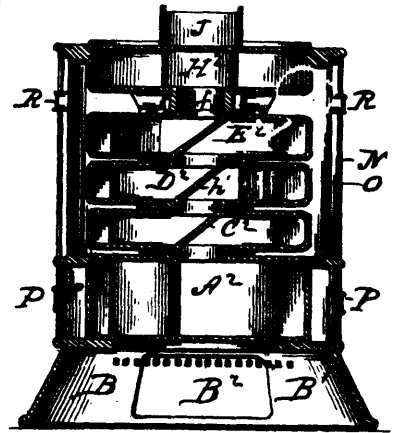
27842 Blankley & Tallman's Lantern.



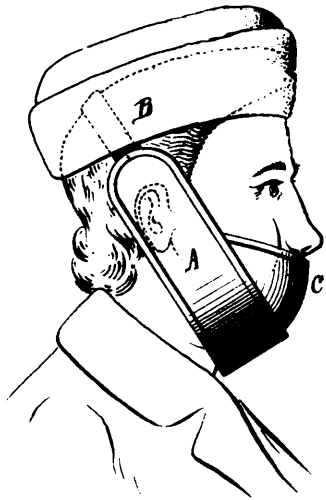
27843 Stovall's Car Brake.



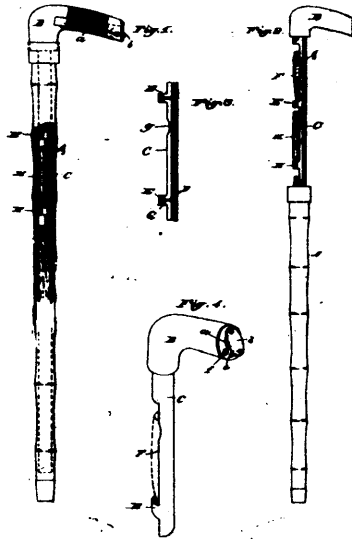
27844 Pitt's Manufacture of Wire Mats.



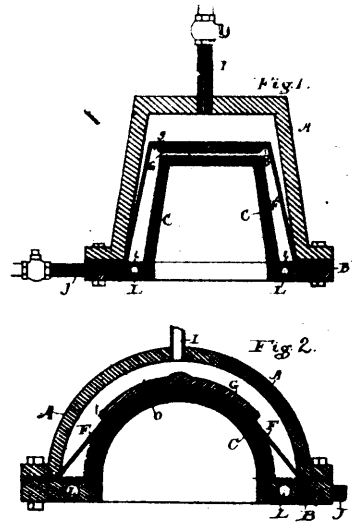
27845 Pulsifer's Sectional Boiler.



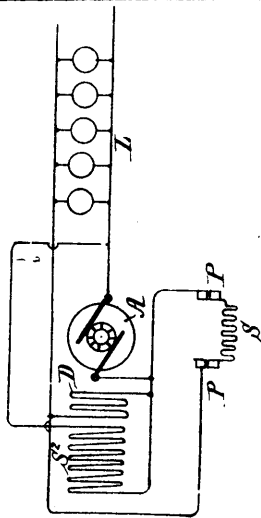
27846 Nehemias' Ear and Mouth Protector.



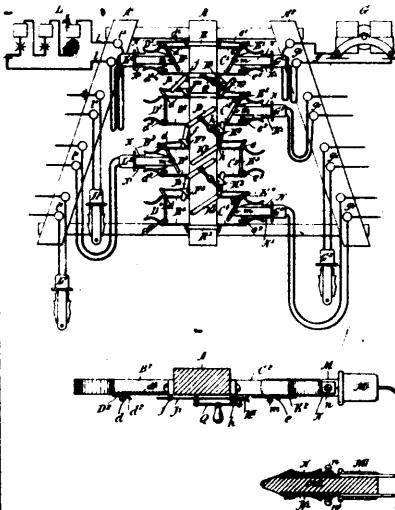
27847 Fowler's Cane and Cigar and Cigarette Case.



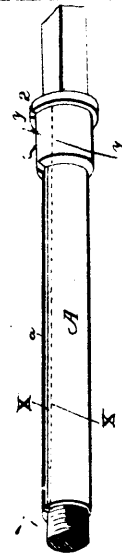
27848 Hanson's Machine for Forming Hollow Articles from Pulp.



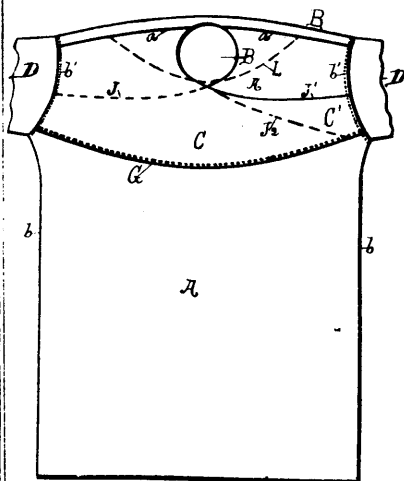
27849 Thomson's Compound Wound Dynamo



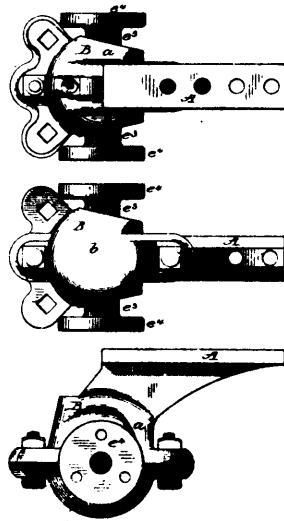
27850 Thomson's Switch Board for Electric Light Stations.



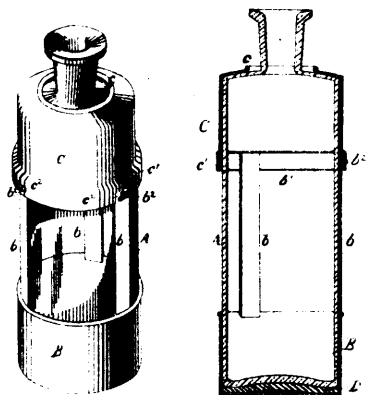
27851 Nott's Axle Skein.



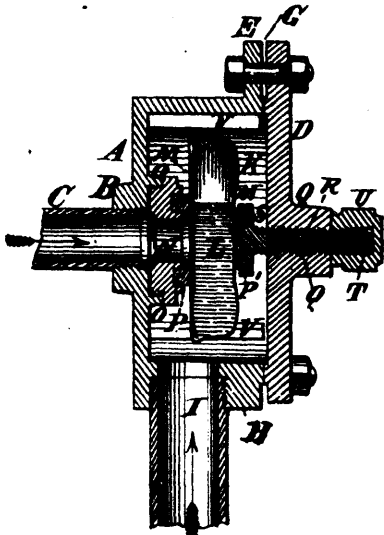
27852 Turner's Shirt.



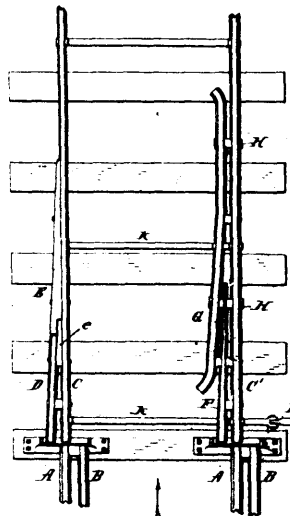
27853 Clark's Thrust Bearing Journal Box



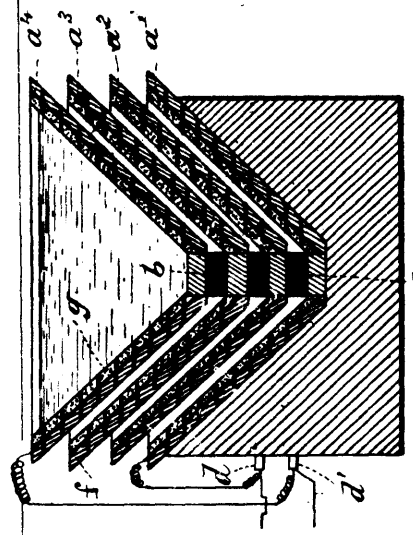
27854 Lightwardt's Bottle Jacket



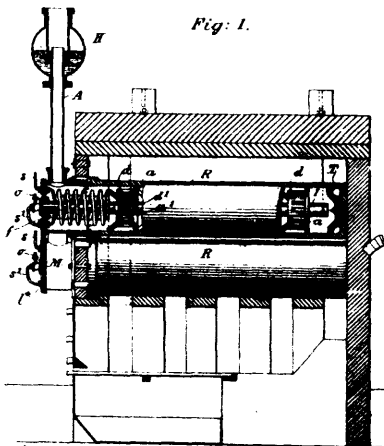
27855 Gold's Steam Trap.



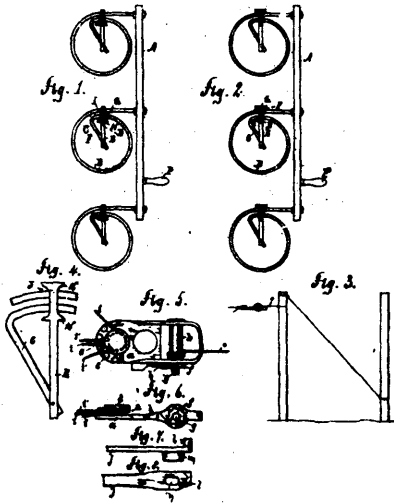
27856 Cooke's Railway Switch.



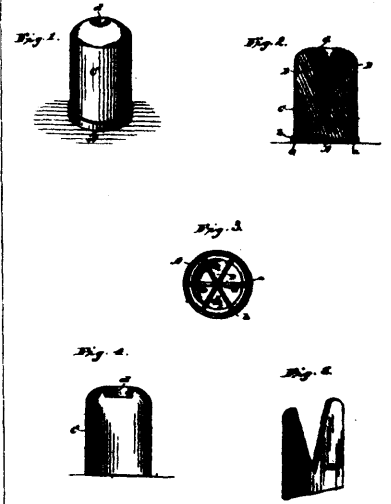
27857 Julien's Electric Battery.



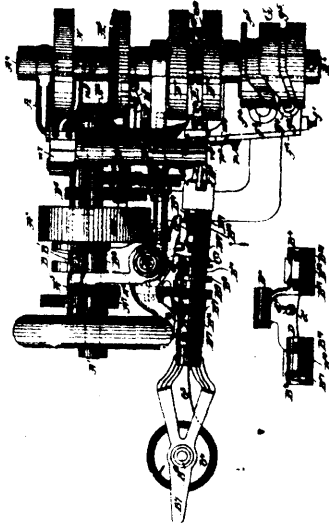
27858 Meeze's Manufacture of Gas, &c.



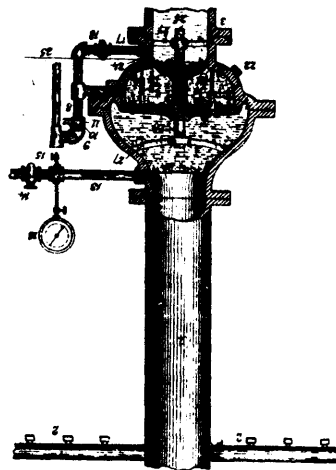
27859 Connett's Hand Fence Machine.



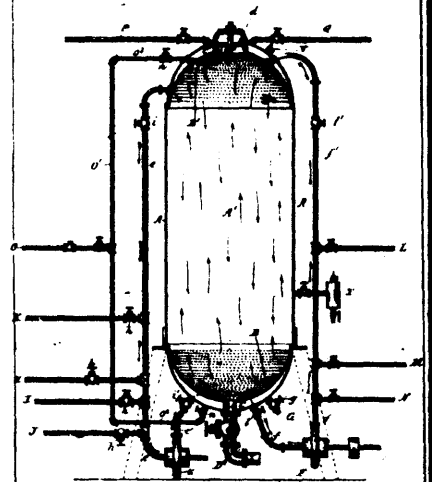
27860 Gay's Pencil Sharpener.



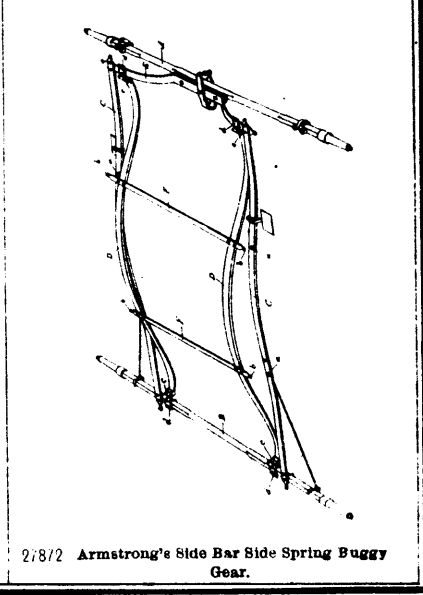
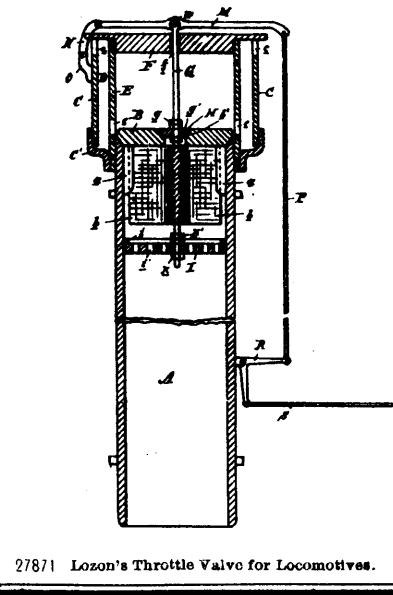
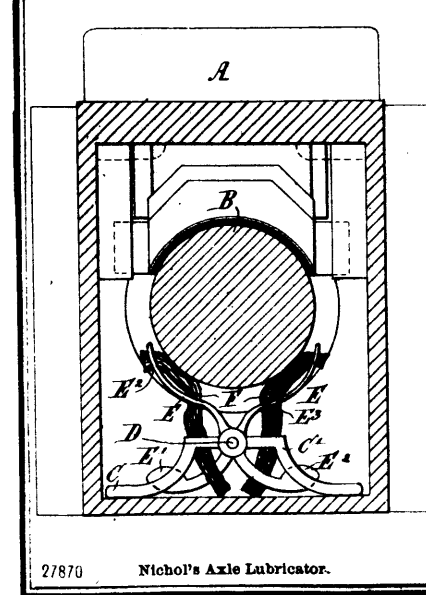
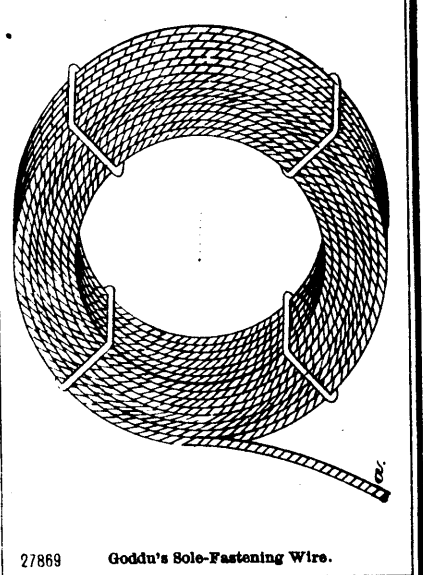
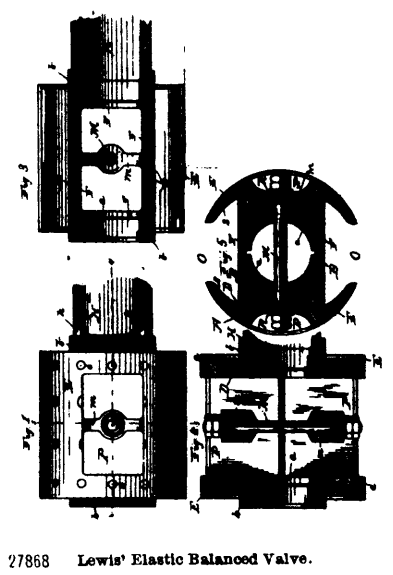
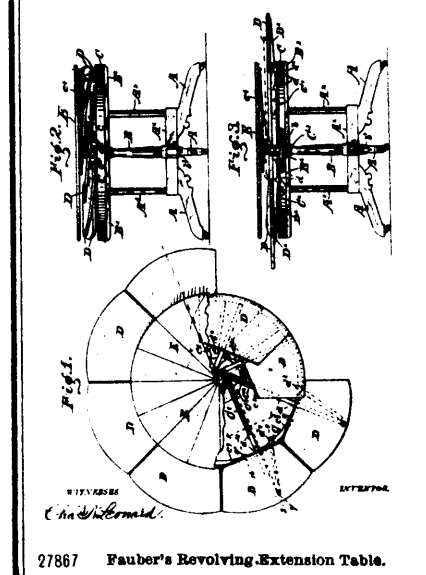
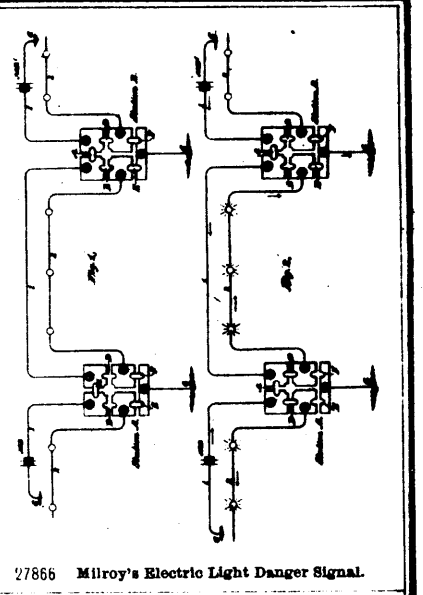
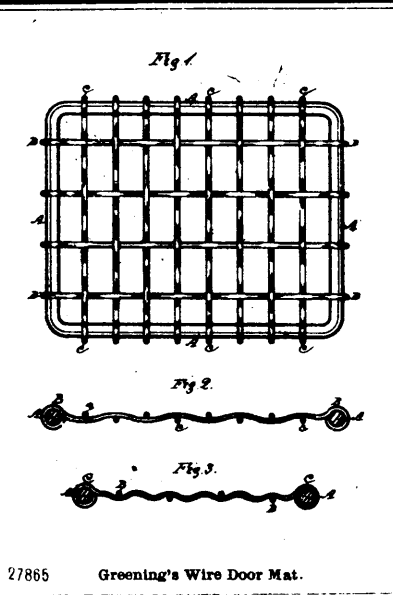
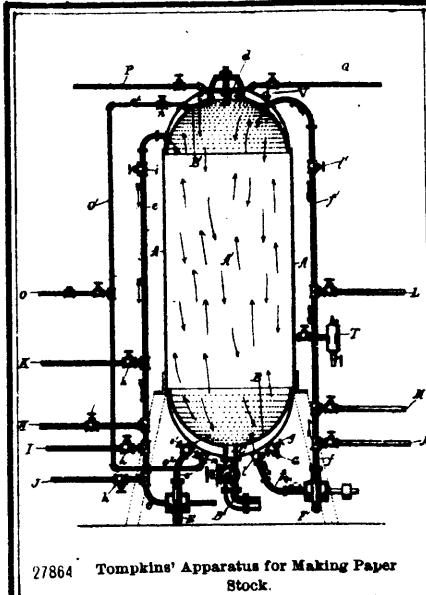
27861 Goddu's Nail Making Machine.



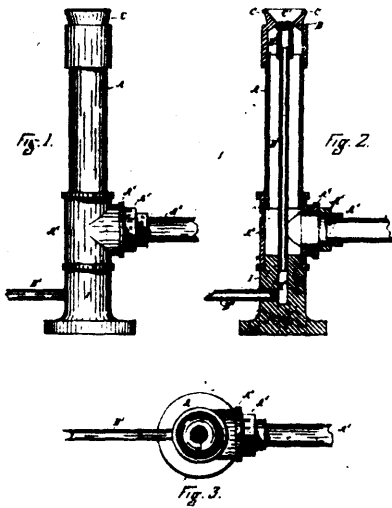
27862 Grinnell's Fire Extinguishing apparatus



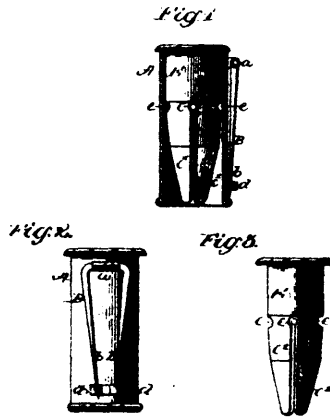
27863 Tompkins' Process for Making Paper Stock.



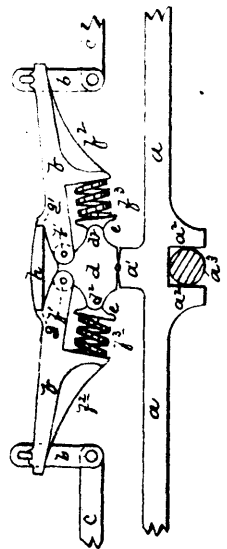




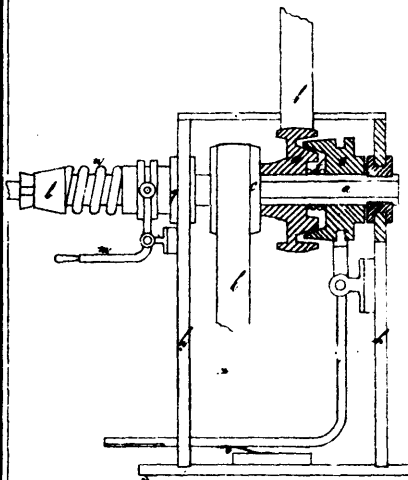
27873 Mitchell's Device for the Consumption of Liquid Fuel



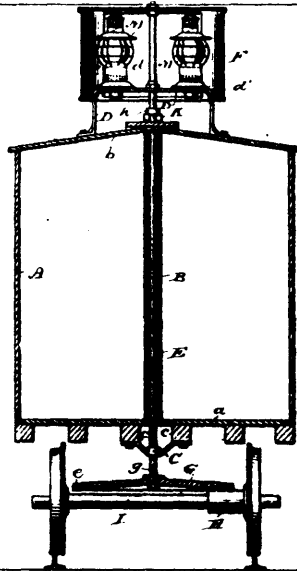
27874 Sherman's Pencil Clasp.



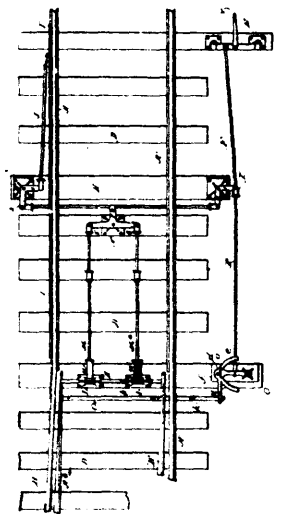
27875 Illingworth & Smiley's Locomotive Spring



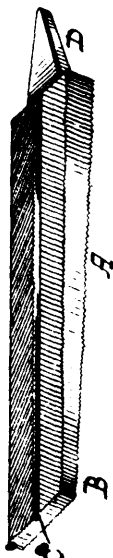
27876 Brown & Schneider's Broom and Brush-Making Machine.



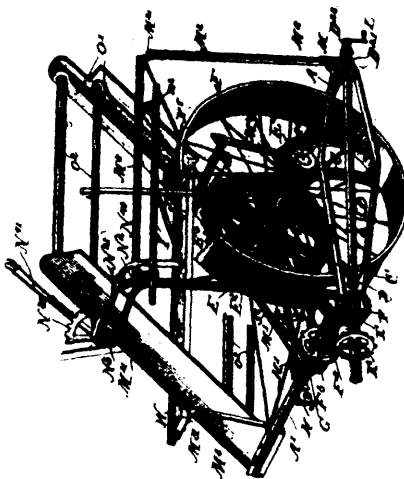
27877 Tremain's Revolving Railway Signal.



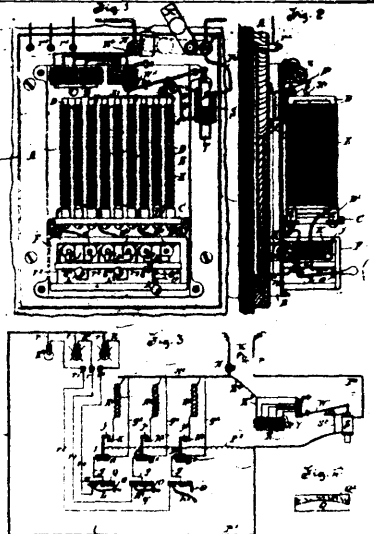
27878 Roser's Means for Operating Railway Switches.



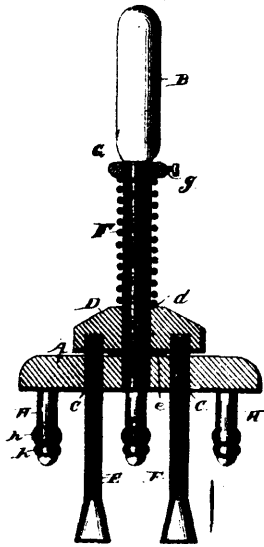
27879 Custer's File.



27881 Steward & Kennedy's Grain Harvester.



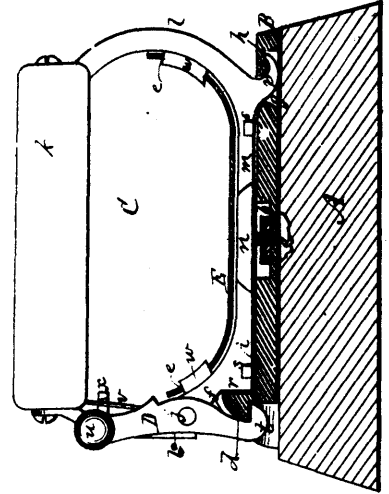
27882 Thomson's Apparatus for Operating Incandescent Electric Light Installations from an Arc Light Circuit.



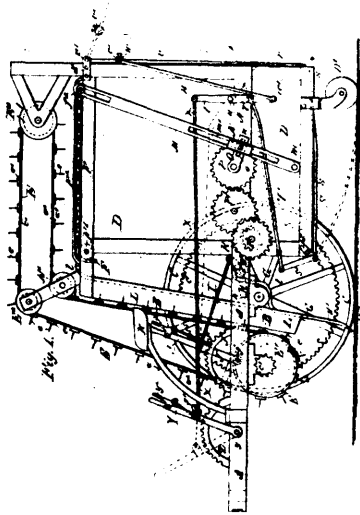
27883 Varney's Pounder Washing Machine.



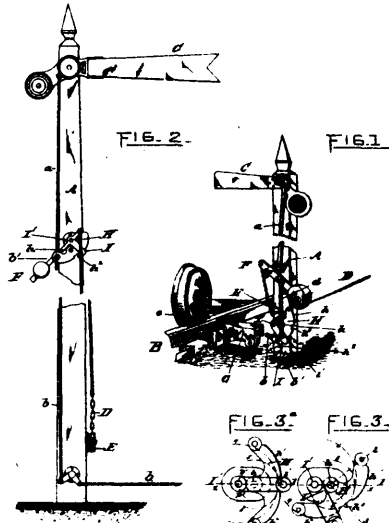
27884 Beall's Grinding Mill.



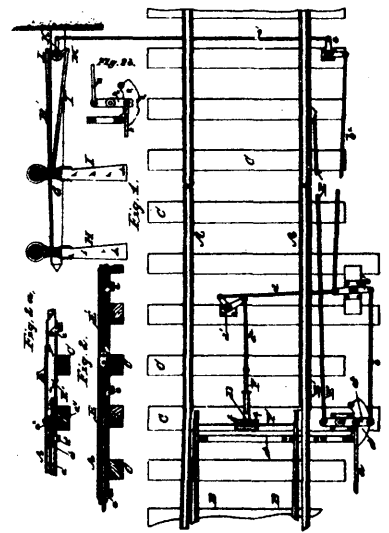
27885 Byam's Sad Iron.



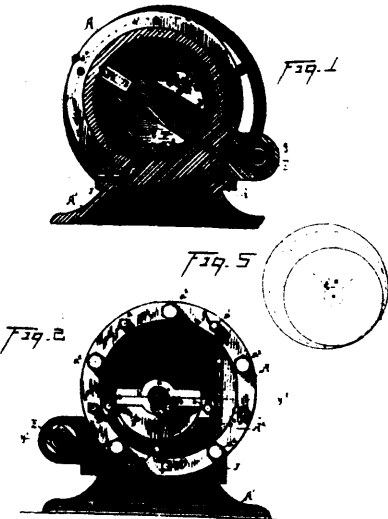
27886 Hale & Harvey's Hay-Cocking Machine.



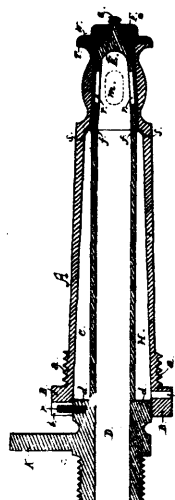
27887 Treacy's Visual and Audible Signal for Railways.



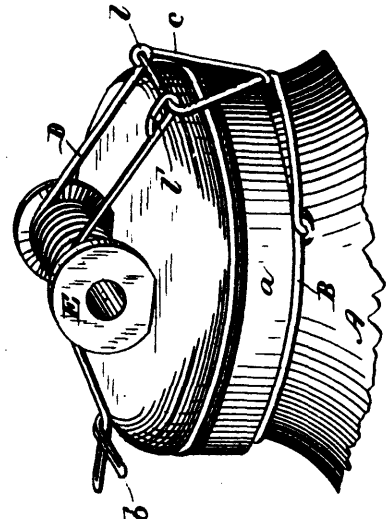
27888 Treacy's Switch and Signal Mechanism.



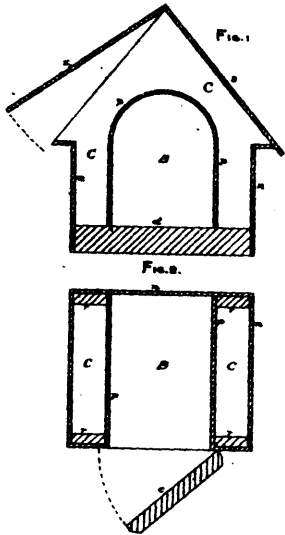
27890 Washburn's Rotary Engine.



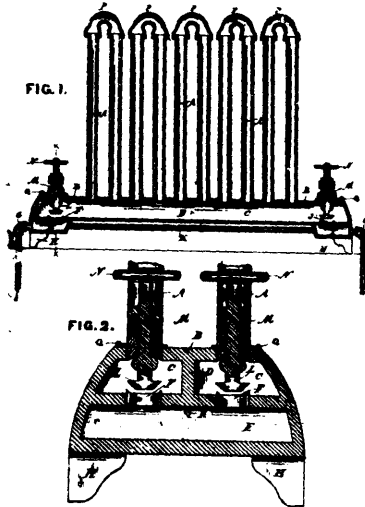
27891 Grossman's Faucet.



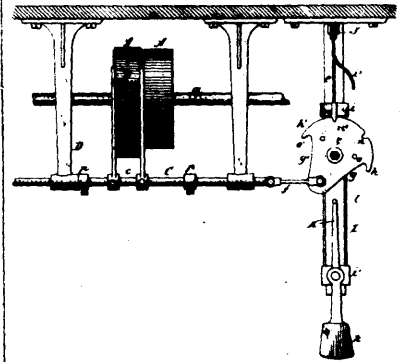
27892 Howe's Jar Fastener.



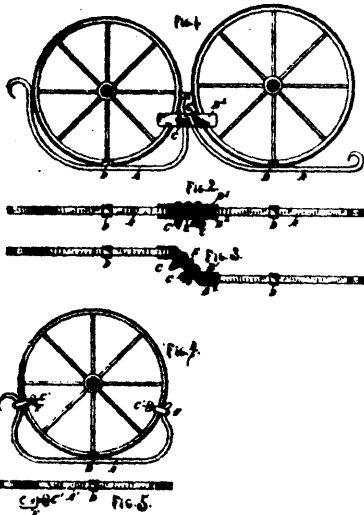
27893 DeCartret's Box for Holding Cuffs, &c.



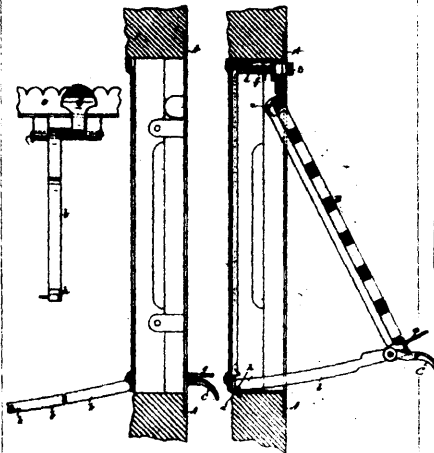
27894 Mansell's Steam Radiator.



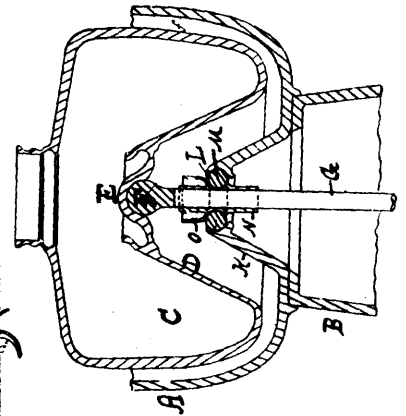
27895 Shoemaker's Belt Shifter.



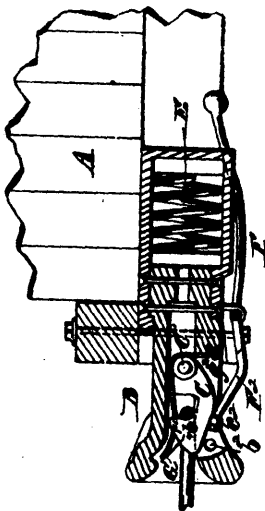
27896 Hyde's Runner for Vehicle Wheels.



27897 Warren's Hot Air Register.

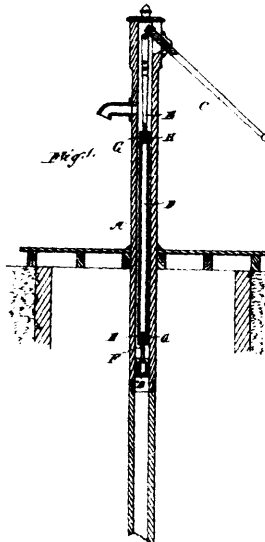


27898 Pedersen & Nielsen's Centrifugal Machine.

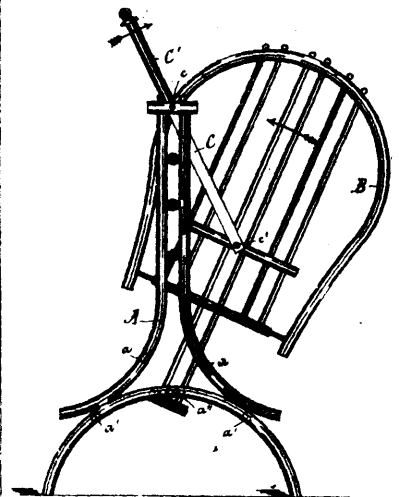


27899 Howe's Car-Coupler.

Fig. 2.



27900 Chew's Pump.



27901 Ordway's Cradle