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CONTENTS.

INVENTIONS PATENTED.....	243
ILLUSTRATIONS.....	273
INDEX OF INVENTIONS.....	I
INDEX OF PATENTEES.....	II

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. 17,104. Berth for Sleeping Cars.

(*Lit de wagon-dortoir.*)

Gustave Leve, New York, N. Y., U. S. (assignee of Adolphus Davis, Montreal, Que.) and Henry P. Alden, Montreal, Que., (assignee of the said Gustave Leve), 2nd July, 1883; 5 years.

Claim.—1st. The combination, with a swinging berth cupboard, of a mattress or bed made up of slats, hinged in the centre so as to form two divisions, said mattress being also hinged above end to said cupboard adapted to be folded inside same, substantially as and for the purpose set forth. 2nd. The combination, with the swinging cupboards A A, of the beds or mattresses E E pivoted to one cupboard and hooked on to another, and stanchions F F arranged so as to form side rails for same, substantially as set forth. 3rd. The combination, with the cupboard A and pivot *g*, of the metal bed or mattress E₂ having slots or loops *e* at the ends of its outer slats, substantially as and for the purpose set forth. 4th. The combination, with the cupboards A provided with steps or holders *a a* and clips *a* *a*, of the stanchions F F arranged as described, for the purpose set forth. 5th. The combination, with the cupboards A A provided with hook supports C C and male supports *f*, of the stanchions F having eyes *f* and sockets *f*, substantially as described.

No. 17,105. Improvements in Sand Dryers.

(*Perfectionnements aux sécheries à sable.*)

John G. McPherson, Mattoon, Ill., U.S., 2nd July, 1883; 15 years.

Claim.—1st. The combination, with the fire chamber A having the conical top L, the pipes B B, and the plate N provided with the apertures *n n*, of the cover D having central opening *d*, and the wall E surrounding the said chamber and pipes and provided with the hopper H, substantially as shown and described, and for the purpose set forth. 2nd. The combination, with the fire chamber A having a conical top, the pipes B B, the plate N having apertures *n n*, the cover D and the ash-box G, of the ring N₁ of larger diameter than the ash-box and provided with the discharge opening *f*, the ways or ribs *d*, and the upwardly projecting flange *l*, the sliding plates *b* and the wall E provided with the hopper H, substantially as shown and described. 3rd. The combination, with the fire box A having conical top L, of the pipes B B, the plate N provided with the apertures *n n* to receive the said pipes and the vent apertures *f*, substantially as shown and described.

No. 17,106. Music Leaf Turner.

(*Tourne-feuille de musique.*)

John M. Wittman, St. Marys, Pa., U.S., 2nd July, 1883; 15 years.

Claim.—1st. A music leaf turner, constructed as shown and described, with a series of rectangularly bent torsion springs to which the separate leaves are held as set forth. 2nd. A music leaf turner constructed with a series of rectangularly bent torsion springs, to which the leaves are held, and with a latch for locking the ends of the several springs in place and releasing them successively, substantially as shown and described, and for the purpose set forth. 3rd. A music leaf turner constructed with a spring wire for holding the music sheets or book on the rack, rectangularly bent torsion springs to which the several sheets are held, and a latch for locking the springs in place and releasing them successively, substantially as shown and described, and for the purpose set forth. 4th. The combination, with

the rack B, of the rectangularly bent torsion springs F, the clamps G on the ends of the same, the slotted standard H, and the latch K pivoted on the same, substantially as shown and described, and for the purpose set forth. 5th. The combination, with the rack B, of the springs F, the clamps G attached to the ends of the same, the slotted standard H, and the latch K pivoted in the same, and the spring N₁ in which the standard H is secured, substantially as shown and described, and for the purpose set forth. 6th. The combination, with the rack B, of the springs F, the clamps G, the standard H and the latch K provided with a slot *l*, substantially as shown and described, and for the purpose set forth. 7th. The combination, with the rack B, of the springs F, the clamps G, the standard H, the latch K provided with a notch *k*, and a prong L, substantially as shown and described, and for the purpose set forth. 8th. The combination, with the rack B, of the springs F, the clamps G, the standard H, the latch K and the spring N, substantially as shown and described, and for the purpose set forth. 9th. The combination, with the rack B, of the plate E having recesses *e*, the springs F, the clamps G, the standard H and the latch K, substantially as shown and described, and for the purpose set forth.

No. 17,107. Machine for Setting Tires.

(*Machine pour ajuster les bandages de roues.*)

James D. McPherson, Fingal, Ont., 2nd July, 1883; 5 years.

Claim.—1st. The combination of a tank A being of a length equal to the diameter of the iron plate C and the length of the legs D, the latter hinged to the bottom of the tank A and the frame B to move longitudinally, said plate C secured to the frame B to receive the wheel and tire T and provided with a suitable device for securing the wheel hub thereto and having, connected therewith, suitable means for lifting or lowering the table consisting of the lever L hinged to the tank and connected to said plate by a link N, said tank being provided with stops or rests E to receive the table when lowered. 2nd. The combination of a tank A provided with stops or rests E, a table consisting of a frame C supported upon legs D hinged thereto by hinges H, and to the bottom of the tank by hinges H₁, said tank allowing room for the table being folded down upon the stops E. 3rd. A tank A containing a table connected thereto by hinged legs D, said tank allowing space for the lowering and submerging of the table by its swinging over through an arc, and provided with suitable means of raising and lowering the same, all substantially as described and for the purpose set forth.

No. 17,108. Apparatus for Drying Glue, etc.

(*Appareil de dessiccation de la colle, etc.*)

William A. Hoeveler, Pittsburgh, Pa., U.S., 3rd July; 5 years.

Claim.—1st. A drying chamber, substantially air tight, having a power-driven air circulating device and a motor therefor located both within said chamber, substantially as described. 2nd. In a drying apparatus adapted to the continuous movements of its contained air, the combination of two twin alleys intercommunicating at the ends only and adapted to receive the material to be dried, an air forcing apparatus at one end of one alley, and a surface condenser at the same end of the other alley, substantially as described. 3rd. The drying apparatus consisting of the alleys A B, blower D, heating-coil G and condensing coil H, substantially as described.

No. 17,109. Glue Stock Washer.

(*Machine à laver les colles-matières.*)

William A. Hoeveler, Pittsburg, Pa., U.S., 2nd July, 1883; 5 years,

Claim.—1st. The combination of a rotary paddle wheel *e f* and a semi-circular wash-box B having rounded perforated bottom, substantially as described. 2nd. The combination of a semi-circular wash-box having a perforated bottom, and a rotary paddle wheel having its paddles rounded on one side, and flat on the other, and capable of having either side presented to the direction of motion, substantially as described. 3rd. The combination of a semi-circular wash-box having a perforated bottom, and a rotary paddle wheel having its paddles rounded on one side and flat and beveled or skewed on the other, and capable of having either side presented to the direction of motion, substantially as described. 4th. The combination, with the perforated principal wash-box, of a screen located beneath

the wash-box and having passages on its side or sides, and a hinged door or doors adapted in one position to cover said screen, and in the other position to close said side passage or passages, substantially as described. 5th. The combination of a rotary paddle wheel *e f* and a semi-circular wash-box B having rounded perforated bottom, said box B or its bottom constructed and adapted to oscillate around its axis, substantially as described.

No. 17,110. Metallurgical Gas Furnace.

(*Fourneau métallurgique à gaz.*)

William W. Waplington, Halifax, N.S., 2nd July, 1883; 5 years.

Claim.—1st. In a metallurgical gas furnace, the working chamber D provided on each side with the flues E C, and valves V V, also on each side, constructed and connected as described, whereby a movement of the same in one direction opens the induction-ports of the flues, and a movement in the opposite direction closes the induction-ports and opens the port of ejection-flue F, in combination with the gas producing chamber A arranged under said working-chamber, flues B B and air chambers I, substantially as described. 2nd. The working-chamber D provided on each side with the flues E C, valves V V arranged on each side as set forth, rack bars *a* and cog-gears G in combination with gas-producing chamber A arranged under the working-chamber, gas-flues B, air chamber I and spent-gas flues F, substantially as described. 3rd. The working-chamber D provided with the flues E C, alternately closing and opening valves V V, rack-bars *a* and cog-gears G, in combination with the gas-producing chamber A arranged under the working-chamber, gas-pipes B, air-chambers I and spent-gas tubes F adapted to receive said valves, substantially as described and for the purpose set forth.

No. 17,111. Improvements in Oil Lamps.

(*Perfectionnements aux lampes à double courant d'air.*)

Samuel Maxim, Wayne, Me., U.S., 2nd July, 1883; 5 years.

Claim.—1st. The combination, with an oil lamp, of an oil catching attachment consisting of the flange *c* extending from the lower end of the tube *a* and fastened to the inside of the shell of oil vessel, the flange *h* extending horizontally from the upper edge of the tube *a*, tube *i* projecting upward from the outer edge of the flange *h*, and tube *n* having the stepped flange *o*, substantially as and for the purpose set forth. 2nd. The tube *a* extended into the oil chamber, and the flange *c* connected to the said inner extension of the tube and to the inner surface of the oil chamber *b* forming chamber *d* within the oil chamber or vessel, the shell of the chamber *b* being provided with a passage *e* leading to the chamber *d*, and the flange or bottom *c* of the latter having a passage *f* leading to the oil chamber, said passages being arranged on opposite sides of the tube *a*, substantially as and for the purpose set forth. 3rd. The combination of the tube *a* attached to the oil holder *b* and having flange *o*, with the tube *i* having flange *h* and vertical tubular extension *v*, said flange *o* forming with the collar *k*, the annular recess *p*, and said flanges *o* and *h* having passages *q* and *l*, substantially as described. 4th. The combination of the tube *n* attached to the oil chamber or vessel *b* and having at its upper end the stepped flange *o*, with the tube *a* of the oil chamber or vessel, said tube *a* being extended into the oil vessel or chamber and having at its upper end the horizontal flange *h*, flange *c* connecting the lower end of the tube *a* to the oil vessel, and tube *i* extending from the outer edge of the flange *h* upwardly, said combination of parts constituting the recess *p* and chamber *s m* and *d*, said recess communicating with the chamber *s* by a passage *q*, and the latter chamber with the chamber *m* by a passage *l*, substantially as and for the purpose described.

No. 17,112. Improvements in Harvester Binders.

(*Perfectionnements aux lieuses des moissonneuses.*)

David Maxwell, Alexander Turnbull and Robert Turnbull, Paris, Ont., 2nd July, 1883; 5 years.

Claim.—1st. A harvester binder in which the grain table is rigidly fastened to the main frame of the machine, and the main driving wheel is journaled in front of the cutter bar, the axle of the wheel supporting the frame and grain table as specified. 2nd. In a harvester binder in which the grain table is rigidly fastened to the main frame behind the axle of the main driving wheel, the knotting mechanism carried on the frame of the machine at a point behind the driving wheel, in combination with driving mechanism situated in front of the said driving wheel, substantially as and for the purpose specified. 3rd. In a harvester binder in which the knoter is situated behind the driving wheel, and the mechanism for driving the knoter is situated in front of the driving wheel, a tube or pipe arranged with brackets and form bearings for the knoter shaft, in combination with brackets rigidly fastened to the main frame of the machine and carrying the tube which is rigidly fastened to the said bracket, substantially as and for the purpose specified. 4th. In a harvester binder having a hollow shaft journaled at right angles to the main axle and driving motion from the main driving wheel, a spindle journaled within the hollow shaft and having the needle attached to one of its ends, in combination with mechanism arranged to impart the required movement to the needle shaft. 5th. In a harvester binder having a shaft journaled at right angles to the main axle and driving motion from the main driving wheel, a spur wheel fastened to the shaft and meshing with a pinion fastened to a shaft suitably connected to the cutter bar, and conveyors for the purpose of imparting movement to the same. 6th. In a harvester binder having a shaft journaled at right angles to the main axle and deriving motion from the main driving wheel, a sprocket wheel keyed to the said shaft and connected by a chain to a sprocket wheel journaled on the knoter shaft, in combination with an arm fastened to the knoter-shaft and having pivoted to it a dog arranged to engage with a ratchet wheel on the face of the sprocket wheel, for the purpose of connecting the sprocket wheel to the knoter shaft. 7th. In a harvester binder in which the knoter shaft is connected to the driving wheel by a spring dog, which is held out of gear by a pin in a sliding bar and acting against the end of the

dog, in combination with a wiper or cam fastened to the compressor-shaft and arranged to move the sliding bar so as to carry the pin past the dog, for the purpose of permitting the dog to engage with the ratchet wheel. 8th. In a harvester binder in which the compressors are located behind the main wheel, and the mechanism for imparting movement to the compressors is located in front of the said wheel, the combination of a steel compressor-shaft small enough in diameter to permit sufficient torsion spring to accommodate the action of the grain on the compressors. 9th. In a harvester binder, the combination of a counter shaft journaled on the main frame in front of the driving wheel, parallel with the axle of the main wheel, and deriving motion from the movement of the main driving wheel. 10th. In a harvester binder having a counter-shaft journaled on the main frame in front of the driving wheel and deriving motion from the movement of the driving wheel, the combination of a sprocket or other wheel fastened to the counter shaft and provided with connecting mechanism for imparting the movement of the counter-shaft to the reel. 11th. In a harvester binder having a counter-shaft journaled on the main frame in front of the driving wheel, a shaft journaled on the main frame at right angles to the axle, and deriving motion from the shaft, in combination with connecting mechanism for conveying motion from the shaft to the cutters, knotters and conveyors. 12th. In a harvester binder having a counter-shaft journaled on the main frame in front of the driving wheel, and a butter frame pivoted on the grain table at a point near the heel and level with the cutter-bar, the combination of driving mechanism arranged to transmit the motion of the counter shaft to the butter, substantially as and for the purpose specified. 13th. In a harvester binder having a counter-shaft journaled on the main frame in front of the driving wheel and deriving motion from the movement of the driving wheel, a reel standard journaled on the counter-shaft, in combination with a pivoted hand lever connected to the reel standard, substantially as and for the purpose specified. 14th. In a harvester in which the falling grain is carried away at right angles to the cutter-bar and past the heel thereof, the combination of a butter frame carrying a travelling apron or chain and pivoted to the grain table at a point near the heel and level with the cutter-bar, substantially as and for the purpose specified. 15th. In a harvester binder in which the cutter-bar is situated behind the axle of the driving wheel, an arm pivoted at one end to the frame of the grain table, and at the other to a crank shaft deriving motion from the driving wheel, and at the other to the arm at a point between the cutter-bar and pivot point of the arm. 16th. In a harvester binder in which the grain is carried to the binding mechanism by travelling chains, a sprocket wheel fastened to a shaft deriving movement from the motion of the main wheel and designed to carry the travelling chain nearest to the cutter-bar, in combination with shaft journaled below the table near the grain wheel and having fastened to its sprocket wheels for carrying all the travelling chains, the chain nearest to the cutter-bar conveying motion to the sprocket wheel shaft, the sprocket wheels on its transmitting motion to their respective chains. 17th. In a harvester binder in which the grain is carried to the binding mechanism by travelling chains supported on sprocket wheels, below the level of the table, two sprocket wheel shafts having their axes on the same centre line but separated to permit the passage of the needle, the said sprocket shafts being driven by the travelling chains, in combination with cranks fastened to the sprocket wheel shaft for operating the packers. 18th. In a needle of a harvester binder unprovided with the ordinary fixed curved back, a curved rod pivoted at one end to the back of the needle, and at the other to a swinging link pivoted to a fixed point between the centre of the needle shaft and the point of the needle, when the needle is in the position of rest. 19th. In a harvester binder in which the grain is carried to the binding mechanism by travelling chains, and in which the table between the chains near the binding mechanism is hinged, a lever pivoted below the table and with one of its ends arranged to come in contact with the same and with a curved end formed on its opposite end, in combination with a projection formed on the hub of the needle bar and arranged to come in contact with the curved end of the lever, for the purpose of tilting the same and raising the hinged table. 20th. In a harvester binder in which the main frame and grain table are rigidly fastened together and are pivoted on the main axle, a tongue pivoted on the main frame in front of the axle and extending behind the pivot point, in combination with a lever pivoted on the main frame and arranged to act on the inner end of the tongue for the purpose of tilting the table. 21st. In a harvester binder in which the main frame and grain table are fastened rigidly together and pivoted on the main driving axle, a grain table framed to support the travelling chain mechanism, in combination with a light extension forming part of the grain table, but not designed to carry any part of the working mechanism, substantially as and for the purpose specified. 22nd. In a harvester binder in which the grain is carried to the binding mechanism by travelling chains, clips attached to the grain table and fitting over the travelling chain, in combination with angular brackets fixed to the grain table, one opposite to each clip, so as to keep the travelling chain under the clips and at the same time carry the chain over them.

No. 17,113. Improvements in Traction Wheels.

(*Perfectionnements aux roues de traction.*)

Joseph Enright, San Jose, Cal., U. S., 2nd July, 1883; 5 years.

Claim.—1st. The combination of the inwardly projected flange K, removable clamps C having their ends bent inward and arranged on the side of the wheel opposite to the flange K, the rubber blocks A placed on the periphery of the wheel, and the shields B having their ends bent outward, fitting under the flange K and under the inwardly projected end of the clamps C, substantially as and for the purpose set forth. 2nd. The combination of the peripheral plate provided with a series of transverse radially-projected partitions, a series of elastic blocks fitting between the adjacent partitions, a shield placed over and covering the elastic blocks, and means for holding the shield adjustably in place, substantially as set forth. 3rd. The combination, with the series of elastic blocks arranged around and transversely to the surface of the wheel, and means for holding the elastic blocks in place, of a series of partitions arranged transversely to the face of the wheel and projected outward between the adjacent blocks and

nearly to the outer face thereof, as and for the purposes set forth. 4th. The combination of the hub, the spokes G, angle iron G, plate H, angle iron H and I-shaped sections, elastic blocks placed in the spaces formed by the I-shaped sections, and means for securing the elastic blocks in place, as set forth.

No. 17,114. Composition for Plastering Walls, etc. (*Composition pour crépir les murs, etc.*)

Eutrope Chartier, Sorel, Que., 2nd July, 1883; 5 years.

Claim.—The described composition of matter to be used for covering the inner walls and ceiling of buildings consisting of paper pulp, chalk, glue, and linseed oil, in the proportions specified.

No. 17,115. Spring Lever Rotary Swing. (*Escarpolette tournante à levier à ressort.*)

Charles Watkins, Woodstock, Ont., 2nd July, 1883; 5 years.

Claim.—1st. The centre post A, supporting arms B formed into a horizontal swing frame suitably braced and hung by the braces *b* *b* and provided with cords C and canvas cover T, the swing seats D suspended from the arms B by hangers *d* *d* upon hooks *d* *z*, the lever L clipping by a knuckle joint the post A and connected with a spring S, and a cord E led over guide pulleys *e* to the seats D. 2nd. The knuckle joint spring lever L clipping the post A by means of the double hinged strap *l* secured at one side of the lever, one hinge *h* being fast, and the hinge *h* *z* being provided with a stirrup *h* *z* attached to a plate *h* *z* provided with slot for adjustment, the lever hung up by a brace *h* *z* and connected to a spring S and a cord or cords E, all substantially as described and for the purpose set forth.

No. 17,116. Improvements in Stuffing Boxes. (*Perfectionnements dans les boîtes à étoupes.*)

Samuel Fox, Toledo, Ohio, U. S., 2nd July, 1883; 5 years.

Claim.—A stuffing box or casing having a series of concentric grooves, in combination with a series of packing blocks placed therein, and a cap secured over said stuffing box or casing and having a series of wedges located within the slots and adapted to propel the packing blocks in a lateral direction toward the rod or plunger, substantially as and for the purpose set forth.

No. 17,117. Mouth Piece for Cornets. (*Embouchure des cornets.*)

Horace E. Jones, Caribou, Me., U. S., 2nd July, 1883; 5 years.

Claim.—1st. The mouth-piece for cornets and similar instruments provided with an adjustable interior cup or tube having means extending through an extension of the mouth-piece and engaging with means on the outside of said extension, to enable the adjustment of said interior cup and tube, substantially as and for the purpose set forth. 2nd. The combination, with the mouth-piece of a cornet having opposite slots in an extension thereof, of the interior tube and cup having the screw-threaded lugs adapted to permit the adjustment of said tube and cup by means arranged on the extension of the mouth-piece and engaging with the said lugs for varying the size of the mouth-piece, as and for the purpose set forth. 3rd. The combination, with the interior tube and cup, said tube having the screw-threaded lugs extending through slots in the extension of the mouth-piece, of the adjusting nut, substantially as and for the purpose set forth.

No. 17,118. Machine for Making Wooden Bowls. (*Machine à faire les bols de bois.*)

Cornelius Neff, Elmore, Ohio, U. S., 2nd July, 1883; 5 years.

Claim.—1st. The combination, with a machine for cutting wooden bowls, of a crane provided with an arm tapering from its upper to its lower edge and carrying a cutting tool, substantially as and for the purpose set forth. 2nd. In combination with the revolving spindle, the arm *r* and the arm *H* provided with an adjustable brace rest adapted to form a support for the said arm in a vertical and horizontal direction, said arms swing from a common axis of motion, substantially as and for the purpose specified. 3rd. In combination with a machine for making wooden bowls, a facing tool consisting of an arm *K*, provided with a series of cutters arranged obliquely in the plane of the said arm and having pivotal studs, whereby it is adjusted in the machine for operating in the manner described and for the purpose specified.

No. 17,119. Improvements in Bed Bottoms. (*Perfectionnements aux sommiers élastiques.*)

Solon E. Moore, Swanton, Vt., U. S., 2nd July, 1883; 5 years.

Claim.—1st. A bed-spring having an elongated upper whirl consisting of circular sides and parabolic or elliptic ends continued from the circular sides by concave bends, the extremity of the elongated whirl being connected to the circular portion of the spring, substantially as specified. 2nd. The combination, with the parallel slats of a bedstead, of a number of spiral springs having oblique parallel elongated upper whirls consisting of circular sides and parabolic ends, whereby the convex side of each spring is opposite the concave bends and elongations of the laterally adjacent springs, and the breadth of the interval between the springs is equalized throughout the spring bearing surface consisting of said elongated upper whirls, substantially as specified.

No. 17,120. Improvements in Lumber Dryers. (*Perfectionnements aux sécheres à bois.*)

John Lynch, Portland, Me., U. S., 2nd July, 1883; 5 years.

Claim.—1st. The described process of drying lumber, namely: first,

stacking it endwise in a suitable chamber or holder and then treating it with live steam, or with live steam and, finally, with hot air applied or admitted at the lower ends of the lumber, all substantially in the manner set forth. 2nd. The described process of treating lumber, for purposes of drying, etc., namely: first, stacking or packing it endwise in a suitable receptacle, and then admitting therein to the lower ends of the lumber live steam which has been duly saturated with some sap or pitch solvent, and afterwards drying by hot air, all substantially as set forth. 3rd. In combination with a steaming and drying structure A operated as set forth, a separating and holding piece F, substantially as set forth. 4th. In combination with the receptacle A adapted to hold the lumber, when stacked as described, the endless belt or carrier I, having catches *i* whereby, in a forward movement, the lumber can be carried into the dryer and, in the reverse movement, taken out, all substantially as and for the purposes set forth.

No. 17,121. Improvements in Stump Extractors. (*Perfectionnements aux arrache-souches.*)

Odilon Mignault, Amqui, Que., 2nd July, 1883; 5 years.

Claim.—1st. The combination of the sides A, cross girts B, bottom C and middle board D, with the chain barrel G, gears F¹ and H, ratchet wheel I, driving pawl *h*, holding pawl *k* and lever J, all arranged substantially as shown and described. 2nd. The combination of the sides A, axle E and travelling wheels *b* *b*, with the straps K and L having the loops or staples *m* *m* and *n*, *n*, substantially as and for the purpose specified.

No. 17,122. Improvements in Car Trucks. (*Perfectionnements aux châssis de chars.*)

Erastus L. Cleveland and Allen C. Milliken, Pittsburg, Pa., U. S., 2nd July, 1883; 5 years.

Claim.—1st. The wheels, axles and cylindrical bearings, in combination with the segmental guides, lever shafts and connecting rod as for the purpose set forth. 2nd. The combination of the wheels and axles mounted in the cylindrical bearings, with the segmental guides, levers, and shafts connecting rods M and N and the coupler, as and for the purpose set forth.

No. 17,123. Improvements in Screw Propellers. (*Perfectionnements aux vapeurs à hélice.*)

John Gartner, Dallas, Texas, 2nd July, 1883; 5 years.

Claim.—1st. The combination, with a vessel having opposite recesses in its sides, of propeller shafts carrying screws located in said recesses and fitted for operation by suitable mechanism, substantially as described. 2nd. The combination of two propeller shafts, each carrying tandem-screws, with a vessel having opposite recesses from about a quarter to a third of the ship's length astern of the bow, the said shafts being operated by suitable mechanism, substantially as described. 3rd. Propellers set in recesses in the sides of a vessel and arranged to work with or independently of the stern propeller, and together or independently of each other, for the propulsion and steering of the vessel, substantially as set forth. 4th. In a boat or vessel, the combination, with a propeller on each side and one at the stern, of the shafts *f* *e* *f* having cranks transversely aligned and connected by rods *c*, whereby all three propellers will operate synchronously and cooperate in each movement of the vessel.

No. 17,124. Cooking and Heating Range. (*Landier de cuisine et de chauffage.*)

Peter Brake, Toronto, Ont., 2nd July, 1883; 5 years.

Claim.—In a cooking range or stove provided with return flues E F G H I and damper P, and a water tank C in the rear thereof, the combination of a damper K with end pieces *k* *k* *z*, a tank seat M with flue N and a damper O, the whole located and arranged substantially as shown and described and operating as set forth.

No. 17,125. Improvements in Root Cutters. (*Perfectionnements aux coupe-racines.*)

Edward L. Byron, Moe's River, Que., 2nd July, 1883; 5 years.

Claim.—The circular steel cutters C with the punches D and the long knife E, also the movable gate B with the pedal H and spring L, all combined as and for the purposes described.

No. 17,126. Improvements in Binding Chains. (*Perfectionnements aux chaînes d'embranchement.*)

Norton Smith, Roscommon, Mich., U. S., 2nd July, 1883; 5 years.

Claim.—1st. In a device for securing binding chains, the combination of a lever provided with an elliptic loop and a locking iron, with a binding chain, the point of attachment of said lever thereto becoming the fulcrum upon which it acts substantially as described. 2nd. The combination, with the chain B, and lever C, the latter provided with an elliptic loop D, of the locking iron G having lever H and diverging arms *a*, clevis F, link E and chain A, the point of attachment thereof with the lever C becoming the fulcrum upon which said lever acts, substantially as described.

No. 17,127. Improvements in Electric Arc Lamps. (*Perfectionnements aux lampes électriques à arc.*)

Charles E. Ball, Philadelphia, Pa., U. S., 2nd July, 1883; 5 years.

Claim.—1st. The combination, with the carbon-holder D and tilting frame I carrying a lever or fan N, of the pivoted dog O having an adjustable link connection P, substantially as shown and described. 2nd.

The carbon-holder D having a spiral thread or worm *dt*, in combination with pinion *k*, substantially as shown and described. 3rd. The hollow carbon-holder D in combination with pellet regulating weights *a*, substantially as described.

No. 17,128. Improvements in Bed Bottoms.
(*Perfectionnements aux sommiers élastiques.*)

Horace B. Howard, Belvidere, Ill., U. S., 2nd July, 1883; 5 years.

Claim.—1st. The combination, with the main supporting frame provided with curved ratchet-bars, of a head-supporting frame made vertically adjustable, said head-supporting frame having a pivotal and linked connection with the main frame by means of side braces, and its lower end having a detent connection with the curved ratchet-bars below its pivotal connection with the side braces, substantially as and for the purpose set forth. 2nd. The combination, with the adjustable head-frame, the side braces or links to which the head-frame is pivoted, and the curved ratchet-bars fixed to the main frame, of a supporting roller mounted upon the adjustable head-frame, below its pivotal connection to the side braces, to engage the stationary curved ratchet-bars, for the purpose set forth. 3rd. The combination of the main frame, the adjustable head-frame, the pivoted side-brace links, the stationary ratchet-bars, the rollers secured to the lower end of the head-frame, to rest upon the ratchet-bars, and the detent to engage the ratchets, substantially as set forth. 4th. The combination, with the main frame and with a vertically adjustable head-frame, of a flexible or an elastic mattress, said mattress having a suitable end connection with the main frame and with the adjustable head-frame, and a central transverse connection with the main frame at a point independent of the connection of the main and head frames, substantially as and for the purpose set forth. 5th. The combination, with the spring-actuated detents employed to engage the ratchet-bars, of a lever to simultaneously disengage the spring-actuated detents arranged upon opposite sides of the frame, substantially as and for the purpose set forth. 6th. The combination, with the detent operating lever and main frame of a catch-hook to receive the free end of the lever to fix the adjustable head-frame in a horizontal position, for the purpose set forth.

No. 17,129. Improvements on Fence Posts.
(*Perfectionnements aux pieux des clôtures.*)

Alexander A. Arthur, Eben F. Spaulding, Boston, Mass., and William Davison, Hoboken, N. J., U. S., 2nd July, 1883; 5 years.

Claim.—1st. A solid or hollow cast iron fence post A having a helical base or foot B terminating in a taper screw point C also having an integral base flange E, and a wrench collar on head D and being provided with buttons for the connection of the fence wires, substantially as described. 2nd. The combination of pronged buttons G having a T or equivalent Shank I, with a hollow fence post having slot J, notch K and lug L, substantially as described.

No. 17,130. Device for Lacing Gloves.
(*Appareil pour lacer les gants.*)

William F. Foster, New York, N. Y., U. S., 2nd July, 1883; 5 years.

Claim.—1st. In combination, the head *a* attached to the glove, the glove material *b*, the lacing *f* and the plate *e*, substantially as and for the purpose set forth. 2nd. In combination, the head *a* attached to the glove, the glove material *b*, the lacing *f*, the plate *e* and the tape *c*, substantially as and for the purpose set forth. 3rd. In combination, the head *a* having the tubular stem *g*, the glove material *b*, the lacing *f* and the plate *e*, substantially as and for the purpose set forth.

No. 17,131. Improvements in the Manufacture of Fuel. (*Perfectionnements dans la fabrication du combustible.*)

George Yale, Hochelaga, Que., 2nd July, 1883; 5 years.

Claim.—1st. A fuel produced by pressing the remains of food found in the guts of animals, after they have been slaughtered, and forming said remains into a solid mass, substantially as described. 2nd. Fuel formed by pressing the remains of food found in the guts of animals, after they have been slaughtered, compressed, but retaining the glutinous matter contained in the said substance, substantially as described.

No. 17,132. Improvements in Bed Bottoms.
(*Perfectionnements aux sommiers élastiques.*)

Edwin W. Grafton, Chicago, Ill., U. S., 2nd July, 1883; 5 years.

Claim.—1st. The combination of the parallel cross-bars A A', detachable spring B, cross-bar C connecting the middle set of springs, longitudinal slats D having apertures at opposite ends, bands or cross-straps E having stirrups J and perforated for the insertion of the buttons, buttons F having transverse holes I and fastening-cords H, the whole constructed and combined substantially as and for the purpose set forth.

No. 17,133. Improvements in Shingle Machines. (*Perfectionnements aux machines à bardeau.*)

Moïse Marcoux, St. Eugène de Grantham, Que., 2nd July, 1883; 5 years.

Claim.—1st. In an automatic shingle cutting machine, the combination of a large circular slicing saw mounted upon the overhanging end of a horizontal spindle for slicing the block, two small cross-cut circular incision saws combined with bevel cutters mounted upon a vertical spindle placed in front and in advance of the slicing saw, and at a distance apart from each other equal to the length of the shingle, a reciprocating carriage mounted in a suitable frame at the rear of, and close to the large slicing saw, the carriage being provided with a fixed and a movable jaw having claw-bars, and feed rollers turned by ratchet wheels actuated by pawls pivoted to radial arms centred

upon the rollers and provided with cam fingers, which come in contact with a roller held in adjustable arms, a foot motion for raising the upper jaw in the carriage consisting of a treadle depressing a lever which is connected by a draw rod to an upper double lever provided with a hook engaging a catch on the jaw, when the carriage is in its rearmost position, the hooked end of the said lever being held down for engagement by means of a spring, a carriage starting and stopping motion consisting of a bent lever guiding a clutch box fettered to the shaft, which drives the crank movement producing the reciprocating motion of the carriage and engaging the loose spur wheel upon the said shaft, the quick return reciprocating movement for the carriage consisting of an intermediate shaft driven by a belt from the main saw spindle, and driving another shaft by a pinion into a loose spur wheel and fettered clutch box, which latter shaft gears by a pinion into a circular spur wheel mounted eccentrically to a lever allowing the eccentric centre to rise and fall so as to keep the pinion and wheel in gear by the weight of the latter and said lever, the said wheel carrying a crank pin to which the pitman connected with the carriage is journaled. 2nd. In an automatic shingle cutting machine, the combination of a circular slicing saw C mounted upon a shaft S, two small circular cross cut incising saws C', combined with bevel or chamfer cutters C₂ C₃ mounted upon a vertical spindle S₂ in front and advance of the slicing saw C suitably guarded, and at distances apart equal to the length of the shingle, the said spindle S₂ receiving motion by belt from an intermediate vertical spindle S₁ driven by half crossed belt from the main saw spindle. 3rd. The combination, with the slicing saw C and the cross cut and bevelling cutters C₁ C₂ C₃, of a table T set close to C and having an inclined portion / provided with a slide T, adjustable on bolts passing through slots for setting close to the face of the saw blade C. 4th. A carriage H mounted in the main frame F₁ F₂ and consisting of upper and lower runners h₁ h₂, the latter provided with grooved castors, the said runners connected by uprights h₃ h₄ carrying jaws consisting of fixed claw-bars J, and journaled feed rollers R provided with ratchet wheels W₁, which are actuated by pawls K pivoted to radial arms K, which are centred on the rollers by sleeves k₁, and the arms K provided with cam fingers k₂, which come in contact with the roller r, the latter being held in brackets r₁ r₂ adjustable in the frame F₃, the upper jaw being heavy and movable in slots in the frames pieces h₃ h₄. 5th. The combination, with the framing and the carriage H, of a foot motion for raising the upper jaw consisting of a treadle L connected to a lever /3 communicating, by means of a draw rod /₂, with a double lever L, the end connected with the latter being held up by a spiral spring, and the lever L having at its other end an open hook / arranged to engage a catch /1 on the jaw bar h₅. 6th. A quick return reciprocating movement consisting of a shaft S₄ suitably journaled and driven at the required speed and carrying on its overhanging end a pinion gearing into an ordinary spur wheel W₄ acting as crank disk and provided with crank pin e, the said wheel W₄ pivoted eccentrically to a lever E centred upon a shaft S₅ and kept in gear by its own weight and that of the lever E, which latter allows the eccentric centre to rise and fall as the distance of the centre from the spur rim increases or decreases in the course of each rotation. 7th. The combination, with the reciprocating movement, of a starting and stopping device consisting of a lever X₁ guiding a clutch box X fettered to the draft S₄ and engaging the loose spur wheel W₂. 8th. The construction and arrangement of an incising cross-cut saw C₁ combined with a chamfering cutter C₁ or C₂ set close together face to face, the cutter having coarse undercut saw teeth of a cross-section sloped forward from the face touching the saw C₁ in the direction in which it is intended to cut, the circumferential edge of the cutter receiving the required sloping toward the centre bevel and an outlet for cutting waste being provided in the blade C₁ by openings or holes, each hole corresponding to a space between two cutter teeth, all substantially as described and for the purpose set forth.

No. 17,134. Process and Apparatus for Freezing Liquid Compositions.
(*Procédé de congélation des compositions liquides et appareil pour cet objet.*)

Edward Kells and Henry L. Church, Cleveland, Ohio, U. S., 2nd July, 1883; 5 years.

Claim.—1st. The described process for freezing and cooling paraffine and all other liquids and liquid substances, the said process consisting of forcing the material through pipes enclosed in a refrigerating body, substantially as and for the purpose specified. 2nd. The tank or vessel A enclosing a refrigerating body and provided with a number of small pipes C C through which the substance is forced or otherwise conducted by or from the large pipe B, substantially as and for the purpose specified. 3rd. The small pipes C C passing through a refrigerating body enclosed in a vessel or tank A, and conducting the substance under treatment through the said refrigerant, substantially as and for the purpose specified. 4th. In combination with the tank or vessel A and pipes C C, the larger pipe B through which the substance is forced or otherwise conducted, substantially as shown and specified.

No. 17,135. Improvements in Tubular Lanterns. (*Perfectionnements aux lanternes tubulaires.*)

Thomas Davidson, Montreal, Que., 2nd July, 1883; 5 years.

Claim.—1st. The combination, with the cap and glass globe, of the hield *g* and rotating ring *i* with pin or catch *k*, all constructed and operating substantially in the manner and for the purposes set forth. 2nd. In combination with a tubular lantern the guard *l* formed in two halves, one of which is secured to both draft tubes *b*, and the other hinged thereto and secured in place by a catch *n*, all substantially as and for the purpose described.

No. 17,136. Drive Chain. (*Chaîne sans fin.*)

James H. Weaver and Martin Beem, Chicago, Ill., U. S., 2nd July 1883; 5 years.

Claim.—1st. In a detachable chain, a link provided at one end with

a hook having a bar or diaphragm connecting the point of the hook with the end bar, substantially as described, and at its opposite end with an open end bar. 2nd. A link provided at one end with a hook having a bar or diaphragm, substantially as described, and at its opposite end with an open end bar in connection with a transverse bar intermediate the hook and end bar, and rigidly connecting the side bars of the links.

No. 17,137. Process for Manufacturing Fish Meal. (*Procédé de fabrication de la farine de poisson.*)

Cathcart Thomson, (co-inventor with Frederic B. Nichols), Halifax, N.S., 2nd July, 1883; 5 years.

Claim.—The process of manufacturing fish meal from dried fish, which consists in, first, heading and splitting the fish, then in removing the back bone, the washing and drying, then chopping, grinding and bolting through sieves, substantially as specified.

No. 17,138. Improvements in Swivel Hooks.

(*Perfectionnements aux crochets à tournants.*)

Charles Dutton and Hiram Merrill, (assignees of John H. Huntress), Jamesville, Wis., U.S., 2nd July, 1883; 5 years.

Claim.—1st. The combination, with an eye, of a hook eccentrically pivoted to said eye, substantially as set forth. 2nd. The combination, with an eye formed at its lower edge with a circumferential shoulder cut away at one side, of a hook eccentrically swivelled to said eye, substantially as set forth.

No. 17,139. Improvements in Harrows.

(*Perfectionnements dans les hersees.*)

Benjamin F. Rix, Kalamazoo, Mich., U.S., 2nd July, 1883; 5 years.

Claim.—1st. The combination, with the tooth support and tooth, of a clip consisting of the loop, which surrounds the tooth, and tooth support provided with the curved extensions catching under the hinging-eye of said support, all substantially as described. 2nd. The tooth having a portion of the bow above the working end concaved from the rear, with the front edge of the convex face thereof describing a straight plane, substantially as set forth.

No. 17,140. Commercial Oxides of Lead, etc.

(*Oxides de plomb, etc., commerciaux.*)

George T. Lewis, Philadelphia, Pa., U.S., 2nd July, 1883; 5 years.

Claim.—1st. The process of manufacturing commercial oxides of lead by subjecting lead fumes to the joint action of carbonate of soda or caustic soda and heat, by wasting in a furnace, substantially as set forth. 2nd. The process of manufacturing commercial oxides of lead by subjecting lead fumes to the action of carbonate of soda or caustic soda, by boiling them together and afterwards heating the resulting carbonate of lead or hydrated oxide of lead in a furnace, substantially as set forth. 3rd. The purification of lead fumes containing sulphuret of lead by addition of bleaching powder, before or during the boiling with carbonate of soda or caustic soda, substantially as set forth. 4th. The process of manufacturing commercial oxides of lead by subjecting fumes from complex lead and zinc ores to the action of sulphuric acid, and afterwards removing the zinc thus made soluble, add then boiling the insoluble sulphate of lead with a solution of carbonate of soda or caustic soda, and wasting the produced carbonate of lead or hydrated oxide of lead in a furnace, substantially as set forth.

No. 17,141. Improvements in Levels.

(*Perfectionnements dans les niveaux.*)

James Macdonald, New York, N.Y., U.S., 2nd July, 1883; for 5 years.

Claim.—1st. The combination, in a levelling instrument, of the tubular standards, each provided with a transparent graduated scale and flexible tube connecting the standards at the lower ends, substantially as and for the purpose described. 2nd. Combination of the tubular standards each provided with a transparent graduated scale, the flexible tube connecting the standard at the lower ends, and the vent valves arranged at the upper ends of the standards, substantially as and for the purpose described. 3rd. The combination of the tubular standards, each provided with a graduated transparent scale, the flexible tube connecting the standards at the lower ends, and the cut-off valves arranged at the lower ends of the standards, substantially as and for the purpose described. 4th. The combination of the tubular standards, each provided with a transparent graduated scale, the flexible tube connecting the standards at the lower ends, and the vent valves and cut-off valves arranged at the upper and lower ends respectively of the standards and connected together to be operated simultaneously, substantially as and for the purpose described. 5th. The combination of the tubular standards, each provided with a transparent graduated scale, the flexible tubes connecting the standards at the lower ends, the vent valves and cut-off valves arranged at the upper and lower ends respectively of the standards and connected together for their simultaneous operation, and the closing spring common to both valves, substantially as and for the purpose described. 6th. The combination, substantially as set forth, in the standard of a levelling instrument, of the outer stationary tube A, the slotted vertically the base B supporting the stationary tube and having a laterally projecting arm L, the vent and cut-off valves E E' arranged in the upper end of the stationary tube and the base respectively, the rotating tube C connecting the valves and slotted vertically to correspond with the outer tube, and the inner transparent tube D held between the valves and marked with a graduated scale opposite to the slot of the valve of the connecting tube, substantially as shown and described. 7th. The combination, substantially as set forth, of the outer stationary tube A, the base B, the valves E E, the cap H of the vent valve, the valve closing spring O, the valve connecting tube C and the inner transparent tube D, for the purpose specified. 8th. The combination, substantially as set forth, of the

outer stationary tube A, the base B, the inner transparent tube D, the vent and cut-off valves E E', the flat valve P and the valve connecting tube C, for the purpose specified. 9th. The combination, with a tubular standard having the laterally projecting arms L grooved or threaded externally, of the flexible tube M and the interior lightening ferrule K, for the purpose specified.

No. 17,142. Improvements in Pulverizing Machines. (*Perfectionnements aux moulins à pulvériser.*)

Ryerson D. Gates, Chicago, Ill., U. S., 2nd July, 1883; 15 years.

Claim.—1st. A roller pulverizing machine comprising a plurality of pulverizing rollers with journals carrying gear wheels, a circular roller enclosing case having inlet and outlet passages and outside bracket supports for the journal bearings of said rollers, suitable chutes, sieves or conductors, a screen and elevator, a driving gear shaft and gears for simultaneously and together operating the rollers, screen and elevators, and mechanism for adjusting a portion of the rollers away from or toward the other portion, all substantially as and for the purpose described. 2nd. In a grinding or pulverizing machine, the combination, with a surrounding enclosing case provided with supply and discharge passages, of a revolving screen β having its periphery formed of a suitable screening material and a pair of crushing rollers arranged within the revolving screen and out of contact with the screening surface, substantially as and for the purpose described. 3rd. In combination with a pair of crushing rollers D D', the frames A A', the bearing E' and means for adjusting the same on said frame, the bearing E, means for adjustably securing the same upon the bearing E', the frame F enclosing the two bearings, the spring γ , nut ρ and adjusting screw G, substantially as and for the purpose described. 4th. The revolving cylindrical screen β provided with elevating partitions β , and the escape passages β , in combination with a pair of crushing rollers arranged within the screen β and acting to crush the substances independent of any crushing action by any portion of the cylindrical screen, substantially as described. 5th. The combination of the revolving screen β , two pairs of crushing rollers D D' D' with a guide sieve for conducting ground substances from the one pair of rollers to the other, substantially as described. 6th. The combination of the revolving screen β and three pairs of crushing rollers D D' D' D' D' D', with a guide sieve which conducts substances from the first to the second pair of rollers, and a guide sieve which conducts substances from the second to the third pair of rollers, the finished substances being screened by the joint action of the sieves and revolving screen β , substantially as described. 7th. The combination of the revolving screen β , crushing rollers D D' and guide sieves H H₂ substantially as and for the purpose described. 8th. The combination of the distributing chute H₁ with the upper sieve H and the upper pair of rollers D D', substantially as and for the purpose described. 9th. A revolving screen β having flanges β and friction rollers ω , in combination with an outer enclosing case A, A' provided with guard flanges α , a supply passage or hopper K and a discharge passage α , substantially as described. 10th. The combination of the revolving screen β , four pairs of crushing rollers D D' D' D', guide sieves H H₂, a central shaft and gearing for revolving the rollers of the respective pairs in the proper directions, substantially as described. 11th. The combination of an outer case, four pairs of crushing rollers D D' D' D', the driving gear C and adjustable bearings outside the case, with a revolving elevating screen β within the case and surrounding the crushing rollers, and suitable gearing for imparting motion to the respective pairs of rollers and to the screen, substantially as described.

No. 17,143. Improvements in Harvesters.

(*Perfectionnements dans les moissonneuses.*)

John P. Manny, Rockford, Ill., U. S., 2nd July, 1883; 15 years.

Claim.—1st. The combination, in a two-wheeled harvester, of the following elements: a floating finger beam, a main frame arranged between the main wheels, a crank shaft mounted on said frame, a gear and sprocket wheel arranged in suitable bearings at the side of the crank shaft and on the same side of the main axle as said shaft, and a chain connecting such sprocket wheel with a driving sprocket wheel arranged between the main wheels, either on the axle or on one of the said wheels, the parts in their combination being arranged to operate substantially as described. 2nd. The combination of the following elements: a main frame arranged between the main wheels, a crank shaft mounted on said frame, a gear and sprocket wheel arranged in suitable bearings at the side of the crank shaft and on the same side of the main axle as said shaft, and a chain connecting such sprocket wheel with a driving sprocket wheel arranged between the main wheels either on the axle or on one of the said wheels, the parts in their combination being arranged to operate substantially as described. 3rd. The combination of the crank shaft, a bevel gear and a chain wheel for driving such shaft, all mounted on a single supporting box in the main frame, substantially as described. 4th. In combination with the crank shaft and the bevel gear and sprocket wheel for driving such shaft, all mounted on a single supporting box on the main frame, a flexible connection with the main axle or a main driving wheel, substantially as described. 5th. The combination of the crank shaft and a bevel gear and chain wheel mounted on bearings at the side thereof, and between the crank wheel and the bevel pinion on said shaft. 6th. The combination of a box mounted on the main frame and constituting a support for the crank shaft and for the chain wheel, and bevel gear for operating the crank shaft, and a coupling frame hinged at one end to such box.

No. 17,144. Improvements in Harvesters.

(*Perfectionnements dans les moissonneuses.*)

John P. Manny, Rockford, Ill., U. S., 2nd July, 1883; 15 years.

Claim.—1st. The combination, in a two-wheeled harvester, of a secondary shaft mounted on the main frame and extending beyond the plane of the driving wheel on the side next the cutters, and a sprocket wheel and bevel gear supported on such secondary shaft and driven by a chain connection with a sprocket wheel on the main axle, between the main wheels, substantially as shown and described. 2nd.

The combination of the main axle carrying a sprocket wheel the secondary shaft mounted on the main frame and extending beyond the vertical plane of the driving wheel, on the side next the cutters, a sprocket wheel and bevel gear supported by such secondary shaft, and a crank shaft mounted on the drag-bar and shoe or their equivalent, substantially as set forth. 3rd. The combination of the secondary shaft mounted on the main frame and projecting laterally so as to cross the path of the main driving wheel, a drag-bar or shoe pivoted to the end of such shaft, and a brace extending from the end of such shaft to the draft frame or pole of the machine. 4th. The combination of the secondary shaft mounted on the main frame and projecting laterally so as to cross the path of the main driving wheel, and a sprocket wheel and bevel gear supported on said shaft and arranged on opposite sides of the path of the driving wheel, substantially as shown and described. 5th. The combination, in a hinged bar harvester, of a shoe and drag-bar, or their equivalent, rigidly attached to the finger beam, a crank shaft mounted in bearings on such shoe and drag-bar, and a tilting hinge independent of the finger beam and arranged in advance thereof. 6th. The combination of a hinged cutting apparatus, a shoe and drag-bar, or their equivalent, rigidly attached to the finger beam, a crank shaft mounted in bearing on such shoe and drag-bar, open slotted guard fingers provided with forked spines, sloped cutters reciprocating from edge to edge of the guards, substantially as and for the purpose set forth, and a tilting hinge independent of the finger beam and arranged in advance thereof. 7th. The combination of the secondary shaft arranged on the main frame and supporting the gearing from which the cutters are operated, and a shoe and drag-bar, or their equivalent, rigidly attached to the finger beam and pivoted at their forward end to such secondary shaft, and at their rear end flexibly connected to the main frame by means of a joint formed at the heel of the cutting apparatus. 8th. The combination of the secondary shaft arranged on the main frame and supporting the gearing which drives the cutters, a drag-bar and shoe, or their equivalent, rigidly attached to the finger beam and pivoted at their forward end to such secondary shaft, and at their rear end flexibly connected to the main frame by means of a joint formed at the heel of the cutting apparatus, and a crank shaft arranged on such shoe or drag-bar in the line of the hinges of the cutting apparatus, whereby the finger beam may be raised, lowered or folded without throwing the gears out of mesh, substantially as shown and described. 9th. The combination of a stop connected with the main frame or axle to limit the vertical movement of the heel of the finger beam, a raising lever mounted on said axle and a raising chain or cord attached to a standard on the finger beam at some point above the plane of such beam, said lever being thereby made capable not only of raising the heel of the finger beam to pass obstructions, but also of lifting the outer end of the beam, when the heel has struck the stop. 10th. The combination of a lifting chain or cord attached at its lower end to the cutting apparatus and a rigid link or brace loosely hinged on the heel of the cutting apparatus and attached at its upper end to such lifting chain, whereby the lifting lever is caused to act more directly on the finger beam without impairing the flexibility of the connection between the cutting apparatus and the main frame. 11th. The combination of the main axle projecting beyond the driving wheel in the direction of the cutters, a rocking sleeve mounted on such extension of the axle and provided with a pendent tubular arm and a connecting rod loosely pivoted to the heel of the cutting apparatus and having free vertical play in such tubular arm, substantially as and for the purpose described. 12th. The combination of a drag-bar, or its equivalent, pivoted at its forward end to a support connected to the main frame, and a rod pivoted upon the heel of the cutting apparatus and supported by an oscillating tubular arm mounted on the main axle, whereby the cutting apparatus is made free to vibrate about the pivot at the forward end of the drag-bar, substantially as described. 13th. The combination of a sleeve mounted on the main axle and provided with a pendent tubular arm, the lower end of which acts as a stop to limit the upward range of movement of the heel of the finger beam. 14th. The combination of a stop connected with the projecting end of the main axle, for limiting the vertical movement of the heel of the finger beam, and a raising chain or cord attached to the finger beam at a point beyond such stop, substantially as and for the purpose described.

No. 17,145. Improvements in Balance Slide Valves. (*Perfectionnements aux tiroirs à vapeur équilibrés.*)

John J. DeLancey, Binghampton, N. Y., U. S., 2nd July, 1883; 5 years.

Claim.—1st. The balance plate D in combination with the slide valve A, face plate C and steam chest, substantially as shown and described. 2nd. The balance plate D formed with flanges and oil grooves, in combination with a slide valve provided with spring actuated packing bars and the face plate C substantially as described, for the purpose set forth. 3rd. In slide valves, the balance plate D fitted for movement with the valve and formed with oil grooves upon its upper side, in combination with the face plate C having a central aperture *n*, substantially as described. 4th. The combination of the slide valve A formed with perpendicular faces, square packing bars *c* fitted in grooves in the upper edges of the valve, the balance plate D provided with grooves upon its upper side, and the face plate C supported by the rests *k*, all substantially as described for operation as set forth.

No. 17,146. Improvements in Railway Frogs. (*Perfectionnements dans les rails de croisement.*)

Joshua Staples, Indianapolis, Ind., U. S., 2nd July, 1883; 5 years.

Claim.—1st. A railroad frog constructed of rolled metal, the several portions thereof being rolled all together and in a single piece, substantially as set forth. 2nd. A railroad frog rolled in a solid piece in the general form in which it is intended to be used, having its ends milled or planed out to correspond with the form of the rails to be used in connection therewith, in combination with the said rails and angle bars or fish plates, which fit into said planed out places and are secured therein, substantially as set forth.

No. 17,147. Improvements in Cots.

(*Perfectionnements dans les lits de camp.*)

Melville B. Church, Grand Rapids, Mich., U. S., 2nd July, 1883; 5 years.

Claim.—1st. In combination with the side piece of a cot-bed, bench or light structure, the folding leg formed with a partly rounded end and the block *c* fitted thereto, adapted to bear against the leg and limit the movement, substantially as described. 2nd. The combination of the side pieces, the partly rounded leg and block fitted thereto, and the cross pieces adapted to brace against the legs, substantially as described. 3rd. The combination of the spring sides, folding transverse cross pieces uniting said cross pieces near the ends thereof, and the transverse cords adjustably attached to the lower corners, substantially as described.

No. 17,148. Process for Rendering Asbestos Impervious to Water. (*Procédé pour rendre l'amiante imperméable à l'eau.*)

Jean B. Amyot, Quebec, Que., 2nd July, 1883; 5 years.

Claim.—1st. The described process of treating or preparing asbestos, or goods or articles made of asbestos, and rendering the same impermeable or impervious to water, by mixing or steeping said material or articles in a heated solution of isinglass, gelatine or glue, glycerine and bichromate of potassium, with or without the addition of silicate of soda, and exposure to the action of sun light or diffused daylight, substantially as specified. 2nd. In the preparation of asbestos, or goods or articles made of asbestos, and rendering the same waterproof, the process described of treating said material or articles by first mixing or steeping the same in a heated solution in water, mainly or wholly composed of isinglass, gelatine or glue, glycerine and bichromate of potassium, in or about the proportions specified, and afterwards expelling the surplus solution from, and drying and exposing to sun light or daylight said material or goods, essentially as set forth.

No. 17,149. Improvements in Window Blinds. (*Perfectionnements aux persiennes.*)

William S. Laycock, Sheffield, Eng., 2nd July, 1883; 15 years.

Claim.—1st. In self-acting blind apparatus, the combination of the roller A, the winding up spring B, or an equivalent weight, the wheel and pinion C and D, and the retaining gear consisting of ratchet wheel and friction plate with spring, substantially as shown and described. 2nd. The combination of the following elements: a hollow roller supported by two axles to one of which is secured a spiral winding-up spring, a stopped tube driven into one end of the roller and holding the axle, a spring on which serves to hold the retaining ratchet wheel against the end of the tube or a plate, all set forth and for the purposes described. 3rd. In self-acting blind rollers, a retaining apparatus consisting of a spiral spring mounted on the axle, carrying the retaining ratchet and pressing a loose friction disk I having a waved or notched surface against a disk of corresponding surface mounted on such axle, all as shown and described and for the purpose set forth.

No. 17,150. Process for Manufacturing Glycerine. (*Procédé pour fabriquer la glycérine.*)

Edmond O. Banjard, Aubervillier, France, 2nd July, 1883; 15 years.

Claim.—1st. The process of extracting glycerine from fatty substances consisting in placing the fatty substances with a suitable quantity of water in a digester, in retaining the mass and in subsequently introducing pure metallic zinc into the mass, substantially as specified. 2nd. The process of agitating glycerine from fatty substances consisting in placing the fatty substances with a suitable quantity of water in a digester, in agitating the mass, in pulverizing or reducing zinc into small particles, in placing the particles of zinc in water, in stirring the zinc and water to keep the particles of zinc separated and in introducing the zinc and water while under the influence of the stirring into the digester, substantially as specified. 3rd. The process of extracting glycerine from fatty substances consisting in placing the fatty substances with a suitable quantity of water in a digester, in agitating the mass by admitting a small stream of steam into the lower portion, in placing zinc reduced to small particles in water, in stirring the zinc and water to keep the particles of zinc separated, in introducing the zinc and water, while under the influence of the stirring into the digester, in subsequently admitting a larger stream of steam into the lower portion of the digester, to raise the pressure therein, and in allowing a slight escape of steam from the digester so that the incoming steam will agitate the contents of the digester, substantially as specified.

No. 17,151. Improvements in Flanging Machines. (*Perfectionnements aux machines à faire les rebords.*)

Alfred Wilbur, Alleghany, Pa., U. S., 2nd July, 1883; 5 years.

Claim.—1st. The combination, with the two flanging-rolls B C, the shaft of the upper roll B being longitudinally movable in its bearings, of the spring *e* or a weight or equivalent mechanism, substantially as and for the purpose set forth. 2nd. In machines for flanging circular metal plates, the combination of the rotary flanging-rolls B C, the upper flanging roll B having its shaft or axis free to move endwise against the resistance of a spring, weight, or other mechanism applied to force it up to its work, and the pivoted shifting table *k*, said table being adapted when raised, to press back the upper-roll and cause it to accommodate itself to the thickness of the plate flanged, substantially as set forth. 3rd. In machines for flanging circular metal plates, the combination of the rotary flanging-rolls B C in which the upper roll B is provided with a series of slight corrugations *f* extending longitudinally across its periphery to catch upon the me-

tal and aid its thickening up as the flange is bent, substantially as set forth. 4th. The upper flanging roll formed of cast metal and having the removable hardened steel front or face *h*, substantially as and for the purpose set forth. 5th. The upper flanging roll having a series of friction-rollers on its front or face, substantially as and for the purpose set forth. 6th. The pivoted shifting table formed of the cast-metal body and wrought metal top or cover secured thereto, substantially as and for the purpose set forth. 7th. In machines for flanging circular metal plates, the combination of the rotary flanging rolls B C, the upper flanging roll B having its shaft or axis free to move endwise against the resistance to force it up to its work, and the pivoted shifting table *k* carrying the large idle-roller *p* mounted therein opposite the lower flanging-roll, said idle-roller being adapted on the raising of the table, to press back the upper roll and cause it to accommodate itself to the thickness of the plate flanged, substantially as set forth. 8th. The combination, with two flanging rolls B C, of the pivoted shifting table *k* having the large idle-roller *p* mounted therein opposite the lower flanging-roll, and series of idle-rollers *l* and the disk *r* longitudinally adjustable in said table, substantially as and for the purpose set forth. 9th. The combination of the disk *r* mounted in a journal-box *s*, within the longitudinal slot *q* of the shifting table, with the bearing-bar *t* extending along said slot and adapted to clamp the journal-box against the side of the slot, substantially as set forth. 10th. In combination with the table having the longitudinal slot *q*, the rotary disk *r* and partible journal-box *s* fitted around the arbor of said disk and sliding within the slot of the table, substantially as and for the purposes set forth.

No. 17,152. Improvements in Flanging Machines. (*Perfectionnements aux machines à faire les rebords.*)

Alfred Wilbur, Allegheny, Pa., U.S., 2nd July, 1883; 5 years.

Claim.—1st. The combination of the shaft *G* carrying the tapering sleeve *h* and flanging head around and supported on said tapering sleeve, substantially as and for the purposes set forth. 2nd. The combination of the shaft *G* carrying the tapering sleeve *h* having the annular rim *h'* at its base, and the flanging head *k* having a hub fitting around and supported on the tapering sleeve and its rim, substantially as and for the purposes set forth. 3rd. The combination of the non-rotating flanging head, the shaft for raising the flanging-head and the stationary guide pin extending within the flanging-head, to guide its movement in flanging, substantially as set forth. 4th. The combination of the shaft carrying the sleeve, the flanging head supported around the sleeve, and the stationary guide pin extending with the sleeve, substantially as and for the purposes set forth. 5th. The non-rotating flanging-head having a series of pressing-faces extending diagonally across its upper surface, substantially as and for the purposes set forth. 6th. The flanging-head formed of the body *m* and removable and interchangeable rings *n*, substantially as and for the purposes set forth. 7th. The combination, with the shaft *G* carrying the non-rotating flanging-head *k*, and the cage *E* having the annular former at its base, of the rotary power-shaft *P* having the tubular or equivalent extension *R* and nut *r* supported at the base of the extension, said nut being adapted to screw on to or off the shaft *G* on the rotating of the power shaft, substantially as and for the purposes set forth.

No. 17,153. Bottles for Aerated Liquids. (*Bouteilles à eaux gazeuses.*)

Hiram Codd, London, and Dan Rylands, Barnsly, Eng., 2nd July, 1883; 15 years.

Claim.—1st. The construction of bottles which are closed at the mouth by internal stoppers with, in addition, a small valve at the side of the neck, substantially as described. 2nd. Forming the hole in the neck of the bottle by means of punching apparatus, whilst the bottle is in a heated state as it comes from the mould, substantially as described.

No. 17,154. Improvements in Dredging Machines. (*Perfectionnements aux machines à draguer.*)

Ralph R. Osgood, Troy, N.Y., U.S., 2nd July, 1883; 5 years.

Claim.—1st. In a dredging machine or excavator, the combination, with the swinging boom or crane carrying the shovel-handle guide, of the pole guides for the clam-shell dipper poles mounted upon said boom or crane, and adapted to operate substantially in the manner and for the purposes set forth. 2nd. In combination with the swinging boom or crane, the guide for the dipper-handle axled upon said boom, and the pole guides also axled thereon on opposite sides thereof, and on opposite sides of the sheaves for the operating chains, substantially as shown and described. 3rd. The described convertible excavator, the same being composed essentially of the boom or crane carrying the movable dipper-handle-guide and fittings, and the clam-shell pole guides mounted upon said boom or crane, the whole being adapted for use substantially in the manner and for the purposes set forth.

No. 17,155. Improvements in Bolt Locks. (*Perfectionnements aux arrête-boulons.*)

D. Franklin Blighton, Buffalo, N. Y., U.S., 2nd July, 1883; 5 years.

Claim.—1st. A track bolt lock consisting of the bolt *a*, a nut *a'* adapted to fit the opening in the fish plate without turning in it, and a tapering thimble having an opening on one side also adapted to fit the fish plate without turning, in combination with a bolt *a''* for the purposes described. 2nd. The combination of the rail, a fish plate *a* and a stationary or fixed nut *a'*, with a bolt *a* and a tapering tightening thimble *a''*, for the purposes described.

No. 17,156. Improvements in Vehicle Wheels. (*Perfectionnements aux roues des voitures.*)

Samuel Whitehall and William Newlin, Attica, Ind., U. S., 2nd July, 1883, 5 years.

Claim.—A wheel-hub made of two sections consisting of the axle box A having the flange A' and extended inclined bearing C formed integral therewith, the inner face of the flange A' being provided with separate radial grooves, the sleeve D provided with a flange E having separate radial grooves formed in its inner face, said sleeve being provided with an extended conical or tapering bearing that fits upon the inclined bearing C of the axle box, and fastening bolts inserted through the flanges and between the spoke grooves, substantially as set forth.

No. 17,157. Improvements in Lanterns.

(*Perfectionnements dans les lanternes.*)

George F. Fisher, St. John, N.B., 2nd July, 1883; 5 years.

Claim.—The combination, with the glass globe, of the open bottom cap A having a slot E, the funnel tube B and the side tubes C C carrying a spring strip F, substantially as shown and described.

No. 17,158. Regulator for Electric Lamps. (*Régulateur des lampes électriques.*)

John J. Wright, Parkdale, Ont., 2nd July, 1883; 5 years.

Claim.—1st. An armature polarized by the action of a current in a derived or shunt circuit around the electrodes, for the purpose of regulating the separation of the electrodes during the operation of the lamp. 2nd. An armature polarized by the action of a current shunted around the electrodes, operating to neutralize the action upon itself of a lifting or reparting magnet in the main circuit, when the electrodes exceed their normal separation, in the manner described and specified. 3rd. The combination of an actuating magnet in the main circuit operating to separate the electrodes, a polarized armature actuated by the current in a derived or shunted circuit around the electrodes and connected in such a manner as to oppose the attractive force of said actuating or separating magnet with a clamping and releasing device operating by the movement of said polarized armature, substantially as described. 4th. The combination of the main magnet M, the polarized armature A with its extended pivots D, shunt coils S, carbon rod E, clamp C and support F, substantially as described. 5th. A safety device consisting of a carbon-holder, a spring to elevate the same, a detent to hold said carbon-holder in position during normal operation of the lamp, an electro-magnet in a derived circuit around the electrodes, an armature actuated by said electro-magnet, whereby the carbon-holder will be held in position while the lamp is burning, but will be released and forced against the opposing electrode on an abnormal increase in the strength of the current in the shunt or derived circuit when, from any cause, the feeding mechanism of the electrodes fails to operate.

No. 17,159. Improvements in Dredging machines. (*Perfectionnements dans les machines à draguer.*)

John Kennedy, Montreal, Que., 2nd July, 1883; 5 years.

Claim.—1st. In an elevator dredging machine where each bucket forms one link in an endless chain propelled by tumblers, a bucket bottom formed with a solid and continuous plane plate on the lower side of the link-eyes and having sides, ends and ribs extending upwards to the body of the bucket, the whole being formed in one piece. 2nd. In combination with a bucket-bottom having a solid and continuous plane plate in the lower side of the link-eyes and having sides, ends and ribs extending upwards to the body of the bucket, a false bottom attached to its upper side and to the body of the bucket. 3rd. A composite intermediate link for the bucket-chain having one or more ribs for the link-eyes, connected together at the base by a solid and continuous plane plate, with suitable strengthening ribs, the whole being formed in one piece. 4th. The combination, with the side disks of the tumbler, of the removable gudgeons E E secured in the centres of said disks by the through bolts K K or by ordinary bolts or rivets, as described. 5th. In an elevator dredging machine having tumblers formed with any number of plane faces, the combination of layers of oak *m m*, or other partially elastic and durable material, with the outer sheathing plates of steel *l l*, the layers *m m* being interposed between the sheathing plates *l l* and the shell of the tumbler H, and the whole rivetted or bolted together.

No. 17,160. Improvements in Adjustable Chairs. (*Perfectionnements dans les sièges pliants.*)

John D. King, Elmira, N.Y., 2nd July, 1883; 5 years.

Claim.—The combination of the curved rod A with the hinged back of the chair rigidly attached to the same and arranged, as described, so that, moving in the arc of a circle, it passes through the arm and seat, also with the rod F, the hinged foot rest, the rod F being pivoted to hinged foot rest, and a fastening device for securing it in any desired position, substantially as described.

No. 17,161. Fastening for Gloves and Mittens. (*Agrafe de Gants et de Mittaines.*)

Benjamin D. Eaton, John S. Ireland, James Ireland and David Ireland, Johnstown, N.Y., U.S., 2nd July, 1883; 5 years.

Claim.—The plates A pivoted together at *a*, the spring *b* secured to one of said plates and extending to a point slightly above to the pivotal point *a*, and the bar *c* pivoted to the spring and extended across above the point *a*, and to the opposite plate, as set forth.

No. 17,162. Cash and Parcel Carrier. (*Distributeur de Monnaie et de Paquets.*)

Gilbert R. Elliot and Milton Clark, Boston, Mass., U.S., 2nd July, 1883; 5 years.

Claim.—1st. The suspended frame adapted to travel a cable, in combination with the tray supported thereto on reels by metallic ribbons, and means, substantially as described, whereby said tray can be drawn down by the movement of the reels in opposite directions, and, when released, drawn up by a reverse movement of said reels, as and in the manner described. 2nd. The frame composed of the hangers having grooved wheels journaled between their top ends, the rectangular base provided with the depending flaring guides, the upright standards D D, one of which is detachable and supporting therein a rod, in combination with the tray and the means described, whereby said tray can be drawn from its seat and restored thereto automatically, as set forth. 3rd. The combination of the frame described with the rod having reel G fitted to one end and adapted to turn therewith, the wooden thimble loosely fitting the rod at the same end with the coiled spring cylinder and reel G, a said cylinder being secured at one end to reel G and at the other end to the thimble, the reels having wound thereon metallic ribbons to the ends of which is suspended a tray, the whole to be operated substantially as set forth. 4th. The rod having the reel G tightly fitted thereto, the cylinder enclosing said rod and fitted to pulley G and on the opposite end, in combination with the thimble and spring the whole arranged in a suitable frame suspended on a cable and supporting a tray, and adapted to be operated substantially as described. 5th. The combination of the frame and operating mechanism described, with the reels oppositely wound with metallic ribbons to the end of which is held a tray, said tray being supported at each end to reverse sides of its centre, as and for the purpose described. 6th. A combined check-block and bumper formed with the inclined plane N, rest O and bumper P, as described.

No. 17,163. Improvements in Sad Irons. (*Perfectionnements aux fers à repasser.*)

William Hilton and Eugene Chilson, Agency, Iowa, U.S., 2nd July, 1883; 10 years.

Claim.—In a smoothing iron, the body A, cover C and lever I spring i and bolt K, in combination with the removal heater B having slotted stud b, the whole constructed and operating substantially as and for the purpose set forth.

No. 17,164. Improvements in Boots and Shoes. (*Perfectionnements dans les Chaussures.*)

Hiram R. Adams, Boston, Norman W. Bingham, Somerville, William H. Kent, William P. Orne, Boston, Mass., U.S.; Charles C. Colby, Charles H. McIntock, Standstead, Walter M. Tomlinson, Sherbrooke, Que., and Guy C. Noble, St. Albans, Vt., U.S., 2nd July, 1883; 5 years.

Claim.—1st. A boot or shoe having an outer sole, inner sole and upper united by staples having holding projections 3 thereon, such as described, the said staples being inserted through the soles and upper with their cross bars next the inner sole, substantially as described. 2nd. That improvement in the art or method of manufacturing boots and shoes which consists in perforating the outer sole, inner sole and upper for the reception of the sole fastenings, inserting the sole fastenings through holes in the inner sole from its upper or tread face placing the perforated portions of the upper and the outer sole over the projecting ends of the sole fastenings, and forcing or pressing the soles and upper closely together, substantially as described. 3rd. The described method of connecting the inner and outer sole and upper of a boot or shoe, which consists in punching holes in the said soles and upper for the reception of the metallic fastenings, and subsequently inserting the metallic fastenings into the inner sole, holding the inner sole with its inserted fastenings upon a thin form f, placing the perforated portion of the upper over the fastenings, applying the outer sole to the said fastenings and then hammering or pressing the outer sole upon the fastenings and forcing the soles together, substantially as shown and described. 4th. The described staple provided with spiral projections, such as described, broadest at their upper ends, substantially as shown and described.

No. 17,165. Inclined Plane and Sled therefor. (*Plan incliné avec traîneau.*)

Robert Steel and Charles Mace, Philadelphia, Pa., U.S., 2nd July, 1883; 5 years.

Claim.—1st. The combination of the inclined plane A having sunken ways a, one or more walks H leading from the terminus B to the platform C, and having hand rails d supported by posts e, to assist persons in their ascent to the platform C, substantially as described. 2nd. In combination with the inclined plane A provided with sunken ways a, the sleds E having friction wheels G in their runners b, substantially in the manner described. 3rd. The combination of the posts f and ropes g, with the inclined plane A, substantially in the manner and for the purpose set forth.

No. 17,166. Black leaf Check Book.

(*Agenda à feuille noire.*)

The Grip Printing and Publishing Company, (Assignee of John R. Carter,) Toronto, Ont., 4th July 1883; 5 years.

Claim.—Two or more black leaves bound in between the leaves, at suitable distances apart, in combination with a waste leaf placed between each black leaf and memorandum leaf, substantially as and for the purpose specified.

No. 17,167. Combined Harness Snap and Buckle. (*Crochet à ressort et Boucle de Harnais combinés.*)

James A. Park and Charles J. Davis, Lansing, Mich., U.S., 4th July, 1883; 5 years.

Claim.—1st. The combination, with the snap provided with an end tuck loop, of a clamping bail or loop hinged to the snap and provided

with means for engaging a strap, substantially as set forth. 2nd. The combination, with the snap provided with an upturned end tuck loop, of a clamping bail or loop provided with a projecting lip and a pin for engaging a strap, substantially as set forth. 3rd. The combination, with the snap provided with a perforated seat for a strap, and an upturned end loop, of a loop or bail hinged to the snap and provided with a projecting lip, and a pin adapted to enter the perforation of said seat, substantially as set forth.

No. 17,168. Improvements in Seeding Machines. (*Perfectionnements aux Semoirs.*)

Jessie O. Wisner, Wareham S. Wisner and Edward L. Goold, Brantford, Ont., 4th July, 1883; 5 years.

Claim.—1st. In a seeding machine in which the gear for operating the feed is cut off by raising the hoes off the ground, a cam-shaped lifter attached to the pivoted roll-casting, in combination with the lever resting in the cam-shaped lifter. 2nd. In a seeding machine in which the gear for operating the feed is cut off by raising the hoes, a dog or lever pivoted in proximity to the roll casting and provided with one or more notches arranged to support the said casting, as described, in combination with a latch pivoted over each notch, substantially as and for the purpose specified. 3rd. In a seeding machine in which the gear for operating the feed is cut off by raising the teeth clear of the ground, the combination of the lifter D attached to the roll casting E and so shaped that the lever supported by it will not be raised, till the teeth connected to the roll-casting have been raised clear of the ground.

No. 17,169. Improvements in Horse Powers. (*Perfectionnements aux manèges.*)

George B. Ellis, (assignee of John Ellis,) Pottstown, Pa., U. S., 4th July, 1883; 5 years.

Claim.—1st. The combination of the chain, the links of which have plates d, with the supporting wheels J having groove or U-shaped rims with flanges h, as set forth. 2nd. The combination of the chain, the links of which have plates d, with the supporting wheels J having grooved rims, and the intermediate supporting wheels H, as set forth. 3rd. The combination of the chain having links with plates d and ribs a, and the wheels adapted to support the plates d and form lateral guides for the ribs i, as set forth. 4th. The combination of the links having interlocking lugs p n, with connecting pins having recesses t, as set forth. 5th. The combination of the links having lugs k with the transverse lugs or strips X bearing against said lugs k, as set forth. 6th. The combination of the transverse lugs or strips X having recesses in the under side, with the links having ribs m adapted to said recesses, as set forth. 7th. The combination of the endless chain with the sprocket wheels having sprockets b, with guard plates v on the outside, as set forth. 8th. The fly-wheel having hollow spokes of V-shaped cross-section, as specified. 9th. The combination, in a fly-wheel, of the hub M having tapered and undercut recesses, the spokes N having plates x adapted to said recesses, and plates y at the outer ends, and the rim P bolted to said plates y, as set forth. 10th. The combination of the hub M having tapered recesses and a rib z, and the spokes N having plates x adapted to said recesses, and held in place therein by upturned portions of the rib z, as set forth.

No. 17,170. Improvements in Door Locks.

(*Perfectionnements aux serrures des portes.*)

William Rowe and John A. Clarke, Haverhill, Mass., U. S., 4th July, 1883; 5 years.

Claim.—1st. The combination, with a tumbler K having the pin n, of the end-forked lever, and the shaft carrying the cross arm P, as and for the purpose specified. 2nd. The combination, with the sliding bolt A, of the united tumblers D arranged on opposite sides of the bolt, and the independent tumblers K K pivoted to the opposite sides of a central partition L, below the bolt, substantially as shown and described, and for the purpose set forth. 3rd. The combination, with the bolt A, of the united tumblers D arranged on opposite sides of the bolt, the independent tumbler K pivoted to the partition L, and the springs M for locking the tumblers K in position, substantially as shown and described, and for the purpose set forth. 4th. The combination, with the bolt A, of the united tumblers D arranged on opposite sides of the bolt, the spring E, the partition L and the independent tumblers K, substantially as shown and described, and for the purpose set forth.

No. 17,171. Improvements in Barbed Wire Fences. (*Perfectionnements aux clôtures en fil de fer barbelées.*)

Andrew Dillman and Edward R. Knowlton, (assignees of John W. Nadelhoffer,) Joliet, Ill., U. S., 4th July, 1883; 5 years.

Claim.—The combination, with the cable A, composed of strands a, crossing each other at intervals and not twisted together, of the barb b, having its prongs b¹ b² passing down between the strands on opposite sides of the point of crossing, and bent entirely around one of the strands, and brought to same side of cable and projecting in opposite directions, substantially as described.

No. 17,172. Improvements in Car-Couplings.

(*Perfectionnements aux accouplages des chars.*)

Lee Anderson and Edward M. Hornstadt, Paris, Texas, U.S., 4th July, 1883; 15 years.

Claim.—The car-coupling consisting of the forked draw-head, having the lateral branches B and the rear under-bevelled bearing D, the pivotal shaft F, and the coupling bar having the inclined rear end H, the longitudinal slot S between the heel and point, and the central hook-lugs K, of less width than the slot, and having the lateral bearings P, substantially as specified.

No. 17,173. Artificial Horizon for Sextants, Octants, etc. (*Horizon artificiel des sextants, quartiers de réflexion, etc.*)

Solon Pattee, (assignee of Thomas Tennent,) San Francisco, Cal., U. S., 4th July, 1883; 15 years.

Claim.—1st. The improved horizon attachment for sextants, octants or quadrants, consisting of the pendulum suspended in vertical position and free to swing within an enclosing case having apertures in top and bottom for the transmission of light through the case, the reflector mounted beneath the end of the case and in line with the aperture, and at an angle of 45° with the face thereof, and a means for attaching said case in vertical position to the frame of the instrument in front of the eye piece in position, as described. 2nd. In a sextant, octant or quadrant, the combination of a suspended pendulum enclosed within a case having openings for the transmission of light, an inclined reflector arranged with relation to the openings and the line of sight in the instrument, whereby the reflected image of the end of the pendulum is visible to the observer through the eye piece, and the portion of the pendulum is determined therefor. 3rd. The case having openings and adapted to hold a body of liquid, and the suspended pendulum held from points of suspension in line with the opening, and the brace for securing it to the frame of an instrument. 4th. The combination, with the case having openings and containing a suspended pendulum in line with said openings, of the inclined reflector arranged in relation to the openings, substantially as described. 5th. The combination, with the case having openings and containing transparent liquid, of the suspended pendulum having the flanges, substantially as described and for the purpose set forth. 6th. The combination, with the case having openings and containing the suspended pendulum, of the upper reflector, movable and adjustable as described. 7th. In a sextant, octant or quadrant, the combination of the enclosed suspended pendulum, the inclined reflector in line with the sight of the instrument, the horizon glass, and the telescope having a half lense secured over a portion of its object glass, whereby a reflected image of the pendulum can be seen through one portion of the object glass, and the reflection of the sun or a star on the horizon glass can be seen through the other portion of the object glass of the same telescope.

No. 17,174. Hay Fork. (*Fourche à foin.*)

The Ney Manufacturing Company, (assignee of Jacob Ney,) Canton, Ohio, U. S., 4th July, 1883; 15 years.

Claim.—1st. The hay-fork A having pivoted to the extremities of its tines, the levers B, with spear-pointed ends and connected to the bars C, in combination with the vertically sliding frame D, which embraces the tines of the fork at its ends to form guides, the bifurcated extension E, connection G and the hooked lever H, pivoted to the frame E and adapted to embrace the connection G upon its under side, substantially as and for the purpose set forth. 2nd. The levers B fulcrumed to the extremities of the tines, said levers having cutting edges, in combination with the frame D, substantially as and for the purpose specified.

No. 17,175. Improvements in Barbed Wire. (*Perfectionnements au fil de fer barbelé.*)

Davidson H. Donovan, (assignee of Orlando P. Briggs,) Chicago, Ill., U. S., 4th July, 1883; 5 years.

Claim.—1st. In combination with the cable wires A and B, the barb wire D having a central spiral coil arranged parallel with the cable-wires, as shown, and the wire E passing through both the cable loop and the coincident eye of the barb D and having its ends bent to cross the ends of the wire D outside the cable-wires, substantially as described. 2nd. In combination with the twisted cable-wires A and B, the two barb wires D and E arranged to intersect each other between the cable-wires and having their ends bent so that the ends of one barb intersect the ends of the other, barb in the form and arrangement of a four-strand braid exterior to the cable-wires, substantially as described.

No. 17,176. Barbed Wire For Fences.

(*Fil de fer barbelé pour les clôtures.*)

Alanson Cary and Edward A. Moen, New York, N.Y., U.S., 4th July, 1883; 15 years.

Claim.—1st. In the construction of barbed fence wires, a wire or wire blank, or rod constructed with arched bosses or enlargements on either or both of its edges at suitable distances apart, substantially as and for the purpose set forth. 2nd. In the construction of barbed fence wires, a wire or metal blank constructed with opposite arched bosses or enlargements on opposite edges of the wire or metal blank, essentially as and for the purpose described. 3rd. In barbed fence wire in which the barbs form integral portion of the wire, a barbed wire made either twisted or straight having its barbs formed of, or from partly longitudinally severed bosses or enlargements in the edge or edges of the wire, essentially as and for the purpose specified. 4th. A barbed fence wire A constructed with longitudinally arched bosses or enlargements b on the same or opposite edges of it, cut as at c for a portion of their length parallel with the body of the wire, and having their partially reversed portions bent to form barbs d, essentially as shown and described. 5th. In barbed fences, the edgewise enlargements of the wire and the longitudinal incision of such enlarged edge to form the barb, as shown and described.

No. 17,177. Improvements in Churns.

(*Perfectionnements dans les barattes.*)

Gilbert L. Potter and John M. Scribner, Sunderland, Ont., 4th July, 1883; 5 years.

Claim.—1st. A churn made into two compartments A and C with a double bottom D, vertical tube C and loose valve R, as described and for the purposes set forth. 2nd. In a churn, the combination of tempered air pump E F G H with the perforated disk I, water spout N and articulated lever K, as described and for the purposes set forth.

No. 17,178. Combined Header, Thrasher and Separator. (*Éléveuse, batteuse et séparateur combinés.*)

William H. Parrish, Salem, and George E. Aiken, Silverton, Oregon, U. S., 4th July, 1883; 5 years.

Claim.—1st. In a header and thrasher having a conveyor A and straw carrier D arranged at right angles to each other, a platform L located at the angle of the conveyor trough and supporting frame of straw-carrier D, whereby the attendant may be within reach and view of the operating parts of the machine, as set forth. 2nd. The combination, with section A and a rim T attached to the reel-stay thereof, of section B having a sickle and draper and a laterally adjustable reel O, the section A and B bring hinged together so that, when section B is raised, its reel will come in contact with rim T of section A, and be thereby adjusted as set forth. 3rd. The combination of sections A and B provided with draperies S, feeder C and cylinder D located at the junction of the section, so as to receive the cut grain from both draperies, substantially as set forth. 4th. The laterally adjustable reel O having slats R and arms S provided with friction rollers a, in combination with circular rim T attached to the reel stay F of section A, substantially as set forth. 5th. The combination of draper S, of section A, self-feeder C and cylinder D attached to the back timber frame of section A, so as to receive the grain straw from said feeder C, substantially as described and shown. 6th. The combination of the grain board W with discharge end of section A, when used for the purpose substantially as described and set forth.

No. 17,179. Machine for Crushing Withes.

(*Machine à écraser l'osier.*)

William Lesslie, jr., Kingston, Ont., 9th July, 1883; (Re-issue of patent No. 8992.)

Claim.—1st. The crushing rollers A A₁ provided for a portion of their length with a tapering spiral groove B B₁ and with small longitudinal grooves n, said rollers geared together direct by spur wheels A₂ A₃ producing an slots surface velocity, said rollers journaled in bearings mounted in slots in suitable frames D D₁ and provided with set screws F, or other means for adjusting the distance between their centres and arranged with suitable gearing for driving by manual or other power, as described. 2nd. In a machine for crushing withes, two tapered crushing rollers longitudinally grooved and having a spiral groove tapering out flat after traversing a portion of their length, as shown and described. 3rd. The process for preparing withes by crushing between two rollers, as specified.

No. 17,180. Improvements in Ventilators.

(*Perfectionnements dans les ventilateurs.*)

Lucius G. Fisher, jr., (assignee of James M. Blackman,) Chicago, Ill., U. S., 9th July, 1883; 5 years.

Claim.—1st. A ventilating fan in which radial blades revolve with a peripheral rim composed of triangular sections, substantially as set forth. 2nd. A ventilating fan provided with blades having peripheral triangular sections d, substantially as set forth. 3rd. The combination in a ventilating fan, of blades having curved radial sections and peripheral sections, substantially as specified. 4th. A ventilating fan provided with blades, each set upon the hub at an angle to the axis of the shaft, the outside edges of the blades being straight and the inside edges curved, the curve increasing at the periphery and having peripheral sections extending from the bodies to the plane of the outside edges, substantially as set forth. 5th. A ventilating fan provided with blades, with the outside straight edges on one plane, and inside curved edges on a parallel plane, the body of each blade being curved to meet a peripheral section d and the curve widening or extending from the outer edge to the inside, substantially as set forth. 6th. A ventilating fan provided with blades curved as set forth and set on the hub to have a forward pitch, substantially as specified. 7th. A ventilating fan in an opening, in a case W arranged opposite an opening in a wall or a frame, as set forth.

No. 17,181. Improvements in Nut Locks.

(*Perfectionnements aux arrête écrous.*)

William S. F. Dillon, Madeira, and Rudolph Brenner, Cincinnati, Ohio, U. S., 9th July, 1883; 5 years.

Claim.—1st. The combination, substantially as set forth, of the bolt A with a two-part nut the parts of which have a continuous thread to engage the thread upon the bolt, one part of the nut being also capable of a limited movement independent of the other, to disarrange the female thread with relation to the male thread. 2nd. The combination, substantially as specified, of bolt A with the nut composed of two parts B C secured by screw-threaded connection for the purpose of locking the parts upon the bolts having the parts C independent of part B.

No. 17,182. Improvements in Nut Locks.

(*Perfectionnements aux arrête-écrous.*)

David Stewart, Walter R. Holden, Wiarnton, and George Bobinson, Stratford, Ont., 9th July, 1883; 5 years.

Claim.—The combination, with the rails A A, fish plates B B, bolts C, nuts D and tie E, of the straight bar F centrally notched, and spike H driven through said notch downward into tie E, whereby the bar is prevented from moving endwise and held in position between the flange of the rails and the nuts, to offer resistance to prevent the nuts from turning loose, as set forth.

No. 17,183. Improvements in Washing Machines.

(*Perfectionnements dans les laveuses mécaniques.*)

Melancthon A. O'Dell and Barnard Mitchel (assignees of Abiel O'Dell,) Bowmanville, Ont., 9th July, 1883; 5 years.

Claim.—1st. The rollers L L₁ L₂ disposed symmetrically below the main roller and the waved rollers, the rollers L being placed centrally and centred in the frame ends, and the rollers L₁ L₂ being placed outside the frame and centred in cross pieces M secured to the frame ends, in combination with the main roller G provided with crank, the waved rollers K K₁ K₂, the frame ends B connected by cap C, bars C₁ and slats D and provided with covers or guards I, casing in ce springs upon the bearings of the main roller, 2nd. The rollers L L₁ L₂ centred in the cross pieces M, in combination with the frame ends B. 3rd. The guards or covers I in combination with the frame ends B, all substantially as described, and for the purpose set forth.

No. 17,184. Improvements in Car-Couplings.
(*Perfectionnements aux accouplages des chars.*)

Joseph P. B. Rarey and Daniel Rarey, Kokomo, Ind., U. S., 9th July, 1883; 5 years.

Claim.—1st. The combination of the draw-head A having the coupling pin B, with the mechanism for operating the same, consisting of the bent rod D slotted at its lower end, rock-shaft F having bent end F₁ inserted through the slotted end of rod D, sliding rod I and crank J having bent arm K engaging the bent end F₁ of rock-shaft F, all constructed and combined to operate substantially as set forth. 2nd. The combination of the mechanism consisting of the bent rod D slotted at its lower end, rock-shaft F bent at its free end F₁, sliding rod I, crank J having bent arm K, with the sliding bumper L M, pitman Q, crank O and handle P, substantially as and for the purpose shown and set forth.

No. 17,185. Lubricator. (*Graisseur.*)

James Allen, Toronto, Ont., 9th July, 1883; 5 years.

Claim.—A piston pump set within an oil reservoir and provided with a discharge pipe leading to the cylinder or steam chest of an engine, in combination with a pitman or rod connected to the cross head or some other moving part of the engine, and arranged to impart the desired reciprocating movement to the piston of the pump in order to draw from the oil reservoir and force into the cylinder of the engine a supply of oil in proportion to the speed of the engine, substantially as and for the purpose specified.

No. 17,186. Combined Rotary Harrow, Stalk-Cutter and Roller. (*Herse rotatoire, coupe-tige et rouleau combinés.*)

James Barker, Emory, Texas, U. S., 9th July, 1883; 10 years.

Claim.—1st. A combined rotary harrow and stalk-cutter made up of a harrow A having beam D and arranged to rotate as described, bifurcated draft bar F, bifurcated reach F₁ and revolving stalk-cutter B, all arranged to operate substantially in the manner and for the purpose described. 2nd. The combination of the rotary harrow A, consisting of a ring a having track at, radial toothed arms b, recessed hub c, cross-beam D having wheel E and king-bolt d, and the bifurcated draft-bar F with the revolving stalk-cutter B, consisting of the heads f having knives e and journals e₁, and the bifurcated reach F₁ having the seat S attached between its forks, substantially as shown and described. 3rd. The combination, with the rotary harrow A having cross-bar D provided with wheel E, king-bolt d and bifurcated draft-bar F, of the revolving stalk-cutter B consisting of the heads f having bearing e and knives e, and the bifurcated reach F₁ having seat S attached between its forks, substantially as set forth.

No. 17,187. Improvements in Creamers.

(*Perfectionnements dans les garde-lait.*)

Albert Stuart, Port La Tour, N. S., 11th July, 1883; 5 years.

Claim.—The combination of tap E with glass indicator D, leaded bottom F and loop G, together with hinged bail handle A and cover B, the whole arranged as shown and described, and for the purpose set forth.

No. 17,188. Fence Locking Device.

(*Mode d'assujétir les clôtures.*)

Abraham C. Scarr, Maryborough, Ont., 11th July, 1883; 5 years.

Claim.—1st. In a fence rail lock, the endless iron wire loop B enclosing the rails A by passing under the bottom rail, close to its junction with the adjoining panel, and thence in a diagonal direction to the top of the panel being first crossed or half twisted between the top and second rails, as shown and described. 2nd. In a fence rail lock, the combination of the endless iron wire loop B strained diagonally across the panel with the key-block C, substantially as and for the purpose set forth.

No. 17,189. Improvements in Geometrical Blocks. (*Perfectionnements aux blocs géométriques.*)

Albert H. Kennedy, Rockport, Ind., U. S., 11th July, 1883; 5 years.

Claim.—1st. The dissected blocks or segments of a sphere, substantially as shown and described, having the channelled sections, the straps or hinges connecting them together, substantially as and for the purpose set forth. 2nd. The combination of the grooves and the embedded strap by which the parts of the several round bodies described are held together and kept in perfect line, and the whole made strong and durable, substantially as and for the purpose set forth.

No. 17,190. Improvements in Brick Machines. (*Perfectionnements aux machines à briques.*)

Lewis B. Kennedy, Keokuk, Iowa, U. S., 11th July, 1883; 5 years.

Claim.—1st. The combination of a belt wheel V, a swinging friction wheel V₁ and a lever W, with friction drive wheels U₁ and wheels U and T₁ arranged so that the machine can be started or stopped by means of the lever W. 2nd. The combination, with a movable brick

mould, of lever G pivoted to the main frame at B and having the slide H, bearing plunger M connected by link I, and lever G₁ pivoted to the main frame at A₁ through link I₁ and having slide H₁ connected with plunger N pivoted to it, all arranged as set forth, so that the mould and series of parts with their joints will come into a direct line between pivots B B₁ at the point of greatest pressure on the brick. 3rd. The combination of lever L and slide P, bearing plunger P₁ with the catch channel in the movable brick mould bottoms N, arranged as set forth, to draw down the bottoms into the moulds after the brick are discharged. 4th. In combination with the discharger lever L, the slide L₁ movable thereon toward or from the centre pivot, so as to increase or diminish the distance of the discharger throw and of the purchase for its movement, substantially as set forth. 5th. The combination of the revolving table D, bearing brick moulds, with an annular channel bearing therefor, adapted to hold it for its lubrication. 6th. The combination of a movable table D bearing brick moulds, and plunger M to press brick therein, with a friction wheel V borne in a movable frame so as to be alternatively brought into or out of action to drive the plunger, and with lock S to hold the table in place for the descent of the plunger provided with guide bar V₁ substantially as set forth. 7th. Lever Q pivoted at a and arranged to receive motion from a cam r, combined with thrust bar Q₁ and a lever Q₁, and with an adjustable joint to adjust the motion of mould frame D, substantially as set forth.

No. 17,191. Dynamo-Electric Machine.

(*Machine electro-dynamique.*)

Daniel A. Schuyler, New York, N. Y., U. S., 11th July, 1883; 15 years.

Claim.—1st. The combination, substantially as described, with four armature bobbins disposed symmetrically with relation to one another in a field formed by a positive and negative pole piece, of a commutator cylinder provided with separate plates or segments to which the same ends of the bobbing are separately connected, positive and negative collecting brushes bearing on said cylinder, and a common ring or electrical joint to which the other ends of the bobbins are connected. 2nd. An armature whose bobbins are divided into two or more independent sets of four bobbins, the bobbins in each set being disposed symmetrically with relation to one another, a commutator ring or cylinder for each set to the segments of which the free ends of each set are connected, and a common electrical joint or connection for the other ends of the set, all arranged and combined in the manner set forth. 3rd. The combination of two field pole pieces, two or more sets of armature bobbins, each set consisting of 4 bobbins symmetrically disposed with relation to one another, two or more independent commutator rings or cylinders, one for each set, to the segments of which the bobbins are separately connected, a common joint or electrical connection for one end of the bobbing in each set, and independent positive and negative collecting brushes for the cylinders, the positive brush of one cylinder being connected to the negative brush of another, all as set forth.

No. 17,192. Improvements in the Production of Insulating Materials. (*Perfectionnements dans la préparation des corps isolans.*)

John A. Fleming, Hampstead, Eng., 11th July, 1883; 15 years.

Claim.—1st. The preparation or production of insulating materials or articles by the employment of wood deprived of its moisture and impregnated under pressure with a mixture consisting of melted bitumen or asphalt incorporated with a substance or substances of the resin type, as set forth, and also with a substance or substances of the paraffine type, or of the anthracine type, or of both the paraffine and anthracine types, substantially as described. 2nd. The preparation or production of insulating materials or articles by the employment of wood or other vegetable fibrous material, as set forth, in finely divided condition, desiccated and saturated or impregnated with a mixture consisting of melted bitumen or asphalt, incorporated with a substance or substances of the resin type, as set forth, in conjunction or not with a substance or substances of the paraffine type, or of the anthracine type, or of both the paraffine and the anthracine types, the whole being moulded under pressure, substantially as described.

No. 17,193. Improvements in Organs, etc.

(*Perfectionnements dans les orgues, etc.*)

James B. Hamilton, Hammersmith, Eng., 11th July, 1883; 5 years.

Claim.—1st. Arranging the parts of a reed musical instrument in the manner and for the purpose described with reference to Figures 1 and 2. 2nd. The constrained reeds constructed as described with reference to Figures 3 4 5 6 7 and 8. 3rd. In reed musical instruments, the combination of the mouth pieces b following the reeds with a tube C and compartments d, arranged alternately as described with reference to Figure 2. 4th. In reed musical instruments, the arrangement, in combination with the reed cavities or mouth pieces, of the compartments d following the same and arranged alternately as described with reference to Figure 9. 5th. The alternating arrangement of mouths or exit chambers for the sound, as illustrated in Figure 11. 6th. The "parallel" pallet carrying bar and pallets arranged and operating as described with reference to Figures 2 and 10. 7th. In reed musical instruments making the pallet board a₂ and chest G in one part, and the divisions B C and D (or such of them as are used) in another part, the two parts being hinged and locked together, as described with reference to Figure 2. 8th. The employment, in reed instruments having a percussion action, of the lever I for both opening the pallets and actuating the percussion, as described with reference to Figure 9. 9th. In reed instruments, the projection f₅ in combination with a pallet operated as described and illustrated in Figure 2. 10th. In reed musical instruments, the combination of pallets preceding the reed with cavities b and stop slides following the reeds as described.

No. 17,194. Improvement in Bed Bottoms. (*Perfectionnements aux sommiers élastiques.*)

William L. Phillips, Brooklyn, N. Y., U. S., 11th July, 1883; 15 years.

Claim.—The construction of a woven wire base having a rigid frame, made in one or more parts with spiral springs mounted thereon and secured thereto, substantially as described.

No. 17,195. Improvements in Electric Telephones. (*Perfectionnements aux téléphones électriques.*)

James H. Robertson, Brooklyn, N. Y., U. S., 11th July, 1883; 5 years.

Claim.—1st. The combination, in an electric telephone transmitter, of the diaphragm A, the electrode C fixed to the diaphragm, the swinging electrode D attached to the armature H, and a magnet G, the poles of which are between the said diaphragm and armature, but not in contact with either, as described, whereby the electrode D is pressed into contact with the electrode C as and for the purpose specified. 2nd. The combination of the diaphragm A, to which is attached the electrode C, the swinging electrode D, attached to the armature H, the magnet G, the poles of which are between the said diaphragm and armature, but not in contact with either, and the keeper I placed and held adjustably on said magnet by magnetic attraction, as and for the purpose specified. 3rd. The combination of the diaphragm A to which is attached the electrode C, the swinging electrode D attached to the armature H, and the magnet G, the poles of which are between the said diaphragm and armature, said armature being constructed and arranged relatively to said magnet as described, whereby the magnet acts to draw the armature downward as well as towards the diaphragm, as and for the purpose described. 4th. The diaphragm A supported and secured in its place in a telephone, at separate joints only, by means of the rubber disks or studs *c c' c''*, as and for the purpose described. 5th. The combination of the diaphragm A, the described electrode consisting of the pin C provided with the flange *p*, point *h* projecting from the said flange, and the elastic disk *e* interposed between said diaphragm and flange, and attached to both, and through an opening in which said disks the said point extends, as and for the purpose described.

No. 17,196. Improvements in Grain Cutting Machines. (*Perfectionnements aux machines à concasser les grains.*)

Hart E. Pryor, Joliet, Ill., U. S., 11th July, 1883; 5 years.

Claim.—1st. A carrier formed with longitudinal grooves *a* of suitable length for only one kernal of grain lengthwise, and with cross-grooves *e*, substantially as described. 2nd. A carrier formed with longitudinal grooves *a* of suitable length for only one kernal of grain, and with the cross-grooves *e*, in combination with cutters *c*, substantially as described.

No. 17,197. Insulator for Electric Wires.

(*Isoloir des fils électriques.*)

Lawrence B. Gray, Boston, Mass., U. S., 11th July, 1883; 5 years.

Claim.—1st. An insulator for electric wires having a cavity provided with an annular projecting rib and a rectangular opening within the base, as and for the purposes set forth. 2nd. An insulator for electric wires having a cavity provided with an annular projection, and a square opening in the base connecting with a conical opening, as and for the purposes set forth. 3rd. A forked spring support adapted to be connected with the interior opening of an insulator, as described and for the purposes set forth. 4th. The combination of the insulator having an inwardly projecting rib, with the forked support having spring side-pieces, as set forth.

No. 17,198. Improvements in Forming the Ends of Conducting or Terminal Wires for the Reception of the Carbon Filaments of Incandescent Electric Lamps and in Apparatus therefor. (*Perfectionnements dans la formation des bouts des fils conducteurs ou terminaux pour la réception des boguettes de charbon des lampes électriques incandescentes, et aux appareils pour cet objet.*)

Alfred Swan, Gateshead, Eng., 11th July, 1883; 5 years.

Claim.—1st. Forming the ends of wires into sockets for the reception of the carbon filament of incandescent electric lamps by flattening and coiling, or twisting the flattened ends of the wire, as described. 2nd. The apparatus for flattening the terminal wires of incandescent electric lamps preparatory to coiling the said apparatus, consisting of the combination of the cam rollers *p p'* formed as described, with means for actuating them, substantially as and for the purpose described and illustrated in Figures 1 and 2 of the drawings. 3rd. The apparatus for coiling or twisting the ends of wires of incandescent electric lamps into flat cylindrical or other shaped sockets for the reception of the carbon filament, the said apparatus consisting in the combination of the spindle *r* carried in a support and provided with a needle *n*, and means for rotating it, and also with a catch piece *s* for retaining and releasing the wire, substantially as described and illustrated in Figures 7 8 and 10 of the drawings.

No. 17,199. Improvements in the Manufacture of Stems Containing the Conducting or Terminal Wires of Incandescent Electric Lamps. (*Perfectionnements dans la fabrication des tiges contenant les fils conducteurs ou terminaux des lampes électriques incandescentes.*)

Alfred Swan, Gateshead, Eng., 11th July, 1883; 5 years.

Claim.—1st. Forming stems for the bulbs or globes of incandescent

electric lamps and imbedding wires (with or without terminal loops formed thereon) in them by pressure in a mould, substantially as described. 2nd. The moulds for forming stems for the bulbs or globes of incandescent electric lamps and securing the terminal wires therein, substantially as described and illustrated in the drawings. 3rd. In forming stems for the bulbs or globes of incandescent electric lamps, insulating portions of the mould and during moulding passing an electric current through the wires to be imbedded in the stems, as and for the purpose described.

No. 17,200. Apparatus for Cutting and Bending the Conducting or Terminal Wires of Incandescent Electric Lamps. (*Appareil pour couper et plier les fils conducteurs ou terminaux des lampes électriques incandescentes.*)

Alfred Swan, Gateshead, Eng., 11th July, 1883; 5 years.

Claim.—1st. In apparatus for bending wires for incandescent electric lamps, the combination of the recessed bed plate *a* and bending piece *f* adapted for bending wire of one thickness and length, or wires of different thickness and different lengths, and forming loops of different widths or formation, substantially as described and illustrated in the drawings. 2nd. In apparatus for cutting and bending wires for incandescent electric lamps, the combination of a cutter lever *c* and bending piece *f* suited for bending wire of one thickness and length, or wires of different thicknesses and different lengths and formation, or loops of different widths, the said parts operating together upon a recessed bed plate *a*, substantially as described and illustrated in the drawings. 3rd. In apparatus for cutting and bending wires for incandescent electric lamps, the combination of the cutter lever *c* and bending piece *f* with a recessed bed plate and a stop *b*, to effect the cutting and bending of wire of one thickness and length, or wires of different thicknesses and different lengths, or different widths and formation of loop, substantially as described and illustrated in the drawings. 4th. In apparatus for cutting and bending wires for incandescent electric lamps, the combination of the cutter lever *c*, bending piece *f*, spindle *d*, recessed bed plate rests *g* and stop *r*, for cutting and bending wire of one thickness and length, or wires of different thicknesses and different lengths, or different widths and formation of loop, substantially as described and illustrated in the said Figures 1 and 2, of the drawings.

No. 17,201. Apparatus for Forming in the Conducting or Terminal Wires of Electric Lamps, Loops or Eyes for the Attachment of the Outer Conductors. (*Appareil pour former les anneaux ou yeux pour assujétir les conducteurs extérieurs des fils conducteurs ou terminaux des lampes électriques.*)

Alfred Swan, Gateshead, Eng., 11th July, 1883; 5 years.

Claim.—The described apparatus for forming loops or eyes in the terminal wires for incandescent electric lamps, the essential feature of which apparatus is the combination of the spindles *r* capable of partial rotation and recessed or slotted, or otherwise formed for the reception of the ends of the wire to be bent into loops or eyes (with stops *h*²) (or the stops *h*² *h*³), substantially as described and illustrated in the drawings.

Alfred Swan, Gateshead, Eng., 11th July, 1883; 5 years.

Claim.—Producing bulbs for incandescent electric lamps by blowing and rotation in moulds, substantially as described.

No. 17,202. Bulbs for Incandescent Electric Lamps. (*Globes des lampes électriques incandescentes.*)

Alfred Swan, Gateshead, Eng., 11th July, 1883; 5 years.

Claim.—Producing bulbs for incandescent electric lamps by blowing and rotation in moulds, substantially as described.

No. 17,203. Improvements on Rock Drills. (*Perfectionnements aux forets de mine.*)

George M. Derby, Astoria, N. Y., U. S., 1883; 5 years.

Claim.—1st. A tubular rock-drill having its bit or cutting edge composed of wedge-shaped teeth, the cutting edges of which are wider than their bases, so arranged that lines joining their outer edges shall form a polygon and having recesses, substantially as described, between said teeth and extending above their bases for the escape of debris. 2nd. The combination, substantially as set forth, of a tubular rock drill, a tubular shank rigidly secured to said drill, mechanism for giving a positive to-and-fro motion to said drill, means, substantially such as described, for supplying air, steam or water through the interior of said shank and drill to the bit of the drill, and a bit or cutting edge to said drill composed of wedge-shaped teeth, the cutting edges of which are wider than their bases, so arranged that lines joining their outer edges shall form a polygon, and having recesses between said teeth and extending above their bases for the escape of debris. 3rd. The combination, with the tubular rock-drill constructed substantially in the manner described, of a tubular shank to which said drill is attached, mechanism for communicating a positive to-and-fro motion to said drill, and a stream of air, steam or water forced through said drill, tubular support and bit.

No. 17,204. Improvements in Pencil Fasteners. (*Perfectionnements aux porte-crayons.*)

Joseph F. Webster, New Bedford, Mass., U. S., 11th July, 1883; 5 years.

Claim.—The improved fastening attachment for pencils and other like articles, composed of a tubular band adapted to enclose the pencil and a spring jaw or lever supported by said band, adapted to bear

at one end with a yielding pressure against the pencil, and projecting outwardly at its other end to form a handle or thumb-piece, whereby the clamping end may be separated from the pencil, thereby permitting the pencil and its attachments to be disengaged from the garment without liability of separating the pencil from the attachment, as set forth.

No. 17,205. Cheque and Account Book.

(*Livret de mandats et de comptes.*)

Alexander Gardner, Toronto, Ont., 11th July, 1883; 5 years.

Claim.—1st. In a cheque-book cover, the slotted spring receiver B bound into the cover, as shown and for the purpose specified. 2nd. In a cheque-book cover, the wire spring E extending through the back of the book, in combination with the slotted spring receiver B, as shown and for the purpose specified.

No. 17,206. Tub and Box Fastener.

(*Cercle de tinette et de boîte.*)

William H. Blake, 2nd, Swanton, Vt., U. S., 11th July, 1883; 5 years.

Claim.—1st. A box and tub fastener composed of a strip of sheet-metal having a tack inserted through each opposite end, and provided with means for holding the tacks in place, substantially as set forth. 2nd. The box and tub fastener composed of a strip of sheet-metal A having a tack B B inserted through each end, and the extreme projecting ends *a a* of the strip doubled upon the heads of the tacks, as shown and described. 3rd. The box and tub fastener composed of a strip of sheet-metal A having a tack B B inserted through each end, said ends with the tacks being doubled upon the under side of the body of the strip, as shown and described. 4th. A box and tub fastener, of the described class and construction, having its doubled ends *a a* soldered down upon the body of the strip, substantially as set forth. 5th. In a box and tub fastener of the described construction, *viz*: having doubled ends *a a*, the fastening-loop or clamp-strip C, constructed and arranged substantially as and for the purpose shown and specified. 6th. The box and tub fastener composed of a sheet-metal strip A having a tack B inserted near each end, and the projecting parts *a a* bent obliquely over and folded down upon the heads of the tacks, forming triangular lips *l b* overlapping the under side of the strip, substantially as set forth.

No. 17,207. Art of Manufacturing Paper Pulp. (*Art de fabriquer la pâte à papier.*)

George Archbold, Oswego, N. Y., U. S., 11th July, 1883; 15 years.

Claim.—1st. The process of disintegrating cellulose or other fibrous vegetable material described, which consists in producing the acid sulphite of lime in the structure of the substances treated by the chemical treatment employed, substantially as set forth. 2nd. The improvement in the art of manufacturing paper pulp described, which consists in, first, cutting the vegetable substance to be treated into suitable pieces, then treating it with dilute milk of lime, then subjecting it to the action of sulphurous acid gas, then subjecting it to steam pressure, and then removing the chemicals used, substantially as set forth.

No. 17,208. Improvements in Pump Valves.

(*Perfectionnements aux clapets des pompes.*)

Joseph Barrett, Petrolia, Ont., 11th July, 1883; 5 years.

Claim.—The combination of the two sections A and B with the second ball and centre stop, substantially as and for the purposes set forth.

No. 17,209. Carriage Shaft Coupling.

(*Arçon de limonière.*)

Lachlan E. McKinnon, St. Catharines, Ont., 11th July, 1883; 5 years.

Claim.—1st. The plate B with a projecting part formed into a hook F, substantially as and for the purpose set forth. 2nd. The block C fastened to plate B by bolt D or otherwise, substantially as and for the purpose set forth. 3rd. The combination of the eye A, the hook F, the block and the packing E, substantially as and for the purpose set forth. 4th. The combination of the eye A, the hook F and the packing E, substantially as and for the purpose set forth. 5th. The combination of the hook F and the block C, either with or without the packing E, substantially as and for the purpose set forth.

No. 17,210 Improvements in the Manufacture of Filling for Mattresses, etc. (*Perfectionnements dans la fabrication de la bourre à matelas, etc.*)

George A. Sammet and George W. Sammet, Boston, Mass., U.S., 11th July, 1883; 5 years.

Claim.—A filling composed of feathers rendered soft, pliant and elastic by curling, crimping, crushing or breaking their quills or stems, and combing their foliage, said filling consisting of one grade only, or of a mixture of grades of feathers so treated, or of one or more grades so treated, combined with a fine grade of feathers not curled, crimped, crushed or broken, as set forth. A carder G in combination with a picker H, an air blast or fan blower E and a series of corrugated or fluted rolls *p q r s t*, constructed to operate substantially in the manner and for the purpose described. The described mode of treating feathers by first passing them through a picker, next in subjecting them to the action of a fan blower or other air blast, then to a series of corrugated or fluted rolls, afterwards to a carder and finally cleansing them by well-known means, as specified.

No. 17,211. Improvement in Pipe Reamers.

(*Perfectionnement des alésoirs à tuyaux.*)

James A. Lancaster, New York, N. Y., U. S., 11th July, 1883; 5 years.

Claim.—1st. In a conical pipe-reamer, the blade C in combination with the set screw D D, substantially as and for the purpose set forth. 2nd. In a conical pipe-reamer, the blade C in combination with the set screw D and adjusting screws E E, substantially as and for the purpose set forth. 3rd. A conical pipe-reamer having the blade C formed out of the reamer itself, substantially as and for the purpose set forth.

No. 17,212. Improvements in Nut Locks.

(*Perfectionnements aux écrous de sûreté.*)

Arthur Dion et Eugène Dubord, Quebec, Que., 11th July, 1883; 5 years.

Requête.—1o. La combinaison d'une noix C avec un anneau D se projetant sur la noix C, tel que décrit. 2o. La combinaison de l'anneau D et des coupes L L, et de la rainure I, tel que décrites pour les fins indiquées.

No. 17,213. Improvement in Brake Shoes.

(*Perfectionnement des sabots de freins.*)

John J. Lappin, Toronto, Ont., 11th July, 1883; 5 years.

Claim.—1st. The manufacture of a brake shoe with deeply chilled portions C in the face thereof, and soft portions D between the chilled parts, in such proportions as to ensure greater durability in wear and prevent the skidding of the wheels, substantially in the manner described. 2nd. The placing of pieces of metal, wrought or cast-iron or steel *c*, in the face of the pattern E of the shoe, prior to the mould being made and filled with the molten metal, said pieces placed and fitted so that on the withdrawal of the patterns the pieces will remain in the mould and be slightly attached to the shoe and will fall off in the cleaning and trimming thereof.

No. 17,214. Improvements in Candlesticks.

(*Perfectionnements aux chandeliers.*)

Charles Sherman and Louis Lackse, Havilah, Cal., U. S., 11th July, 1883; 5 years.

Claim.—1st. A candle-holder consisting of the wires or strips B, fixed to the base A extending up to a point where they are bent inward and downward to form an elastic pendulous inner portion C, with cross supports D, substantially as described. 2nd. The candlestick A B C in combination with the standard F and sleeve H, and the ring I resting upon the edge of the candle and supporting the globe K from the arms J, said ring being attached to and guided by the sleeve H, substantially as described.

No. 17,215. Medicine Syrup. (*Syrup médicinal.*)

Evariste Tremblay, Windsor Mills, Que., 11th July, 1883; 5 years.

Requête.—Un sirop médicinal composé de sulfate de morphine, de teinture de sanguinaire, de vin d'antimoine, de vin d'Ipecac, d'huile d'amande amère, de teinture de digitale et de sirop simple, mélangés ensemble dans les proportions et pour les fins décrites.

No. 17,216. System of Laying Electrical Conductors. (*Mode de posage des conducteurs électriques.*)

John Griebes and John H. Bleoo, Paterson, N. J., U. S., 12th July, 1883; 5 years.

Claim.—1st. The insulating compound described consisting in the hydrate or carbonate of lime mixed with fused rosin, in the manner and proportions substantially as set forth. 2nd. The means of rendering the said composition pliable by the addition of a fixed oil, in the manner and proportions substantially as set forth. 3rd. The improved conduit for electrical conductors consisting in a metallic pipe provided with a lining of our adherent insulating compound, substantially as set forth. 4th. The combination, with the insulated wires enclosed in the conduit of the naked discharging wire connected electrically with the ground and with the insulating coatings of the conducting wires, substantially as and for the purpose set forth. 5th. The devices for enclosing the wires in an insulated casing in the ground, consisting in the conduits A lined with insulating material, as described, and the chambers J insulated within well castings I and connected with the said castings and with the conduits A by the water tight sleeves *a* and packing *b*, as shown and described. 6th. The means for tapping the main conduit for service connections, without boring the same or breaking its insulating lining, consisting in the nipples F inserted in the conduit at suitable intervals, and provided with removable caps G, the nipples and caps being lined with insulating material, substantially as and for the purpose set forth.

No. 17,217. Machines for Manufacturing Felt Boots, Shoes and Stockings. (*Machines pour la fabrication des chaussures en feutre.*)

James Brandy, Lawrence, Mass., U.S., 12th July, 1883; 5 years.

Claim.—1st. The table B carrying the carriage Y and rollers *l l*, in combination with operative mechanism therefor, said carriage and rollers being adapted to move longitudinally at a different speed from the table, substantially as and for the purpose set forth. 2nd. The rollers *l l* provided with the gears *m m*, the shaft *g* having the spline *k* and provided with the gears *h h*, and the carriage *y* having the rack *5*, in combination with the gears W W₁, shaft Z, gear *b* and operative mechanism, substantially as specified. 3rd. The shipping bar *q* provided with the studs *r r*, in combination with the stops *t t*, shipping levers *p p*, gears W₁, rack *5* and operative mechanism, substantially as and for the purpose set forth. 4th. In a machine for making felt boots, shoes or stockings, the following instrumentalities, to wit: a cone or former for receiving the sliver or felting material from the card, a pair of rollers adapted to receive and support the cone and

give it rotary movements, a carriage in which the rollers are mounted, and a table for supporting the carriage, in combination with operative mechanism by which the table, carriage and rollers are moved backward and forward as the sliver is deposited on the cone, the longitudinal movements of the rollers not being in unison with the like movements of the head-stock or support on which the carriage or the rollers is supported, substantially as and for the purpose set forth. 5th. A pair of rollers for supporting the cone on which the boot, shoe or stocking is formed, said roller being mounted in a carriage or support and moving longitudinally in an opposite direction from that of the table on which the carriage is supported, and at a rate of speed which is not uniform with that of the table, substantially as described. 6th. The shaft H, crank J, pitman K, gears M, shaft C, gears E F, shaft Q, gears S S, shafts T T, gears U U W W d c, table B and means for supporting and operating the rollers l l, substantially as set forth. 7th. The cone 6 for receiving the sliver, said cone having the leg-pieces 8 joined at 9, and provided with the feet 7 projecting in opposite directions, in combination with the rollers l l, constructed, combined and arranged to operate substantially as specified. 8th. The carriage Y provided with the rack 5, the rollers l provided with the gears m, and the shaft g provided with the gear r in combination with means for giving said carriage longitudinal reciprocating movements on the headstock X, substantially as set forth. 9th. The shafts T T, each provided with a gear adapted to engage the rack 5 at regular intervals, in combination with operative mechanism, substantially as specified. 10th. The table B pivoted at N and provided with the head stock X, carriage Y and rollers l l, in combination with operative mechanism therefor, substantially as set forth.

No. 17,218. Button Setting Machine.

(Machine à poser les boutons.)

Samuel L. Pratt, Hingham, Mass., U.S., 12th July, 1883; 5 years.

Claim.—1st. In an apparatus for fastening buttons in place, the jaw a provided with the spring c, recess e and slot l, substantially as described. 2nd. The member b provided with the seat d having the grooved and overhanging edge adapted to hold the plate of the fastening firm in position, substantially as described. 3rd. The member a provided with the spring c, recess e and slots l, combined with the member b having the seat for the plate of the hook fastening, substantially as described. 4th. In an instrument for attaching buttons, the member a provided with a spring and a slot, whereby the button is held firmly in place by its shank only, while the button is being attached, substantially as shown and described.

No. 17,219. Improvement in Button Fastenings.

(Perfectionnement des queues de boutons.)

Samuel L. Pratt, Hingham, Mass., U.S., 12th July, 1883; 5 years.

Claim.—A button fastening having the hook a provided with the point e and plate b, constructed and operated substantially as described.

No. 17,220. Improvements in Hydrocarbon Furnaces.

(Perfectionnements dans les fourneaux à hydrocarbures.)

Byron Sloper, Chicago, Ill., U.S., 12th July, 1883; 5 years.

Claim.—1st. A steam boiler provided with a fire bridge, water legs and a bat-wing hydrocarbon injector slotted as described, whereby liquid fuel in connection with superheated steam may be projected into the fire box directly below the fire bridge in a broad thin stratum so as to heat the boiler throughout, substantially as specified. 2nd. In combination with a bat-wing injector and the water legs of the boiler, the steam pipes covered with refractory material and passing above the grate bars backward and forward horizontally directly through a body of incandescent material, whereby the steam is superheated and passed directly in a superheated state to the liquid fuel injector, and discharged in conjunction with the liquid hydrocarbon in a broad thin sheet forwardly and laterally immediately onto the incandescent fuel, directly beneath the fire bridge, substantially as and for the purposes specified. 3rd. The combination, with the outer cylindrical shell of the injector, of the inner cylindrical shell, the two having coincident transverse slots as described, for the purpose of delivering the combustible gases in a lateral as well as forward direction, or in a bat-wing jet to the water legs, as specified. 4th. In combination with the outer and inner shells of the injector having coincident transverse slots, as described, the nut embracing the inner shell and secured by a screw thread to the outer shell and the interposed packing, arranged as set forth.

No. 17,221. Improvements in Buttons for Gloves, etc.

(Perfectionnements aux boutons pour les gants, etc.)

Eugene Pringle, Gloversville, N.Y., U.S., 12th July, 1883; 5 years.

Claim.—In a separable or detachable button, the combination, with the base section C having a stud which is provided with a sloping or semi-spherical head and annular concave groove c below said head of the spherical section D having a stud receiving tube provided with horizontal slot e, and the spring n having its limb n resting in said slot, and its body held within an inclosed chamber surrounding said slotted tube, all for operation substantially as and for the purpose set forth.

No. 17,222. Feeder for Mill Rolls.

(Alimentation des cylindres de moulins.)

Thomas Reid, Walkerville, Ont., 12th July, 1883; 5 years.

Claim.—1st. In a feeding device for mill rolls and in combination with such rolls, a feed roll hopper, a horizontal bar provided with a number of projecting fingers located within such hopper, an upright shaft having an eccentric to which the said bar is connected by a

strap, and suitable gearing connecting the said upright shaft with the power, substantially as described. 2nd. In a feeding device for mill rolls, the combination, with the hopper gate, roll B, agitator C c, the shaft d having eccentric E, strap e connecting the eccentric with the agitator, and the gearing I connecting the shaft d with the shaft of the roll B, substantially as described.

No. 17,223. Stencil Printing Machines.

(Machine à imprimer au patron.)

Albert G. Shannon, Santa Rosa, Cal., U.S., 12th July, 1883; 5 years.

Claim.—1st. In a stencil press, the cylinder A containing cylinder a and rod d, substantially as described and for the purposes set forth. 2nd. The cylinder A having perforations B, groove I and extensions E, substantially as described. 3rd. The cylinders A₁ and a, and rod d, in combination with the handle G and graduations C on extensions E, for the purposes set forth. 4th. In a stencil press, the combination of the cogs F, cloth covered cylinders A and A₂ and extensions E E, substantially as described and for the purposes set forth. 5th. In a stencil press, the combination of the frame M having end set screws O adjustable frame Q and roller P, substantially as described and for the purposes set forth. 6th. In combination with the stencil carrying cylinder A and A₂, the cloth holding screws J and the stencil-fastening springs K, for the purposes described and set forth. 7th. In a stencil press, the cylinder A having a longitudinal groove in combination with the paper cutting knife R, substantially as described and for the purposes set forth. 8th. In combination with the cylinder A, the bifurcated handle S substantially as described and for the purposes set forth. 9th. The cylinders A and A₂ having ink receiving holes H, which holes are closed by screw stoppers, said cylinders containing cylinder A₁ which are also provided with ink-receiving holes h so arranged that the holes H and h can be placed in a direct line when desired, substantially as described and for the purposes set forth. 10th. In a stencil printing machine, the cylinders A and A₂ having ink-receiving holes H which are closed by screw-stoppers, said cylinders containing cylinders A₁ which are also provided with ink-receiving holes h so arranged that the holes H and h can be placed in a direct line by means of the rod d having the handle G, which is designed to be turned when desired on the scale C, the latter indicating the relative position of the holes H and h, the perforations B b in the cylinders being so arranged as to be closed when H and h are opened, all substantially as described and for the purposes set forth. 11th. The cylinders A₂ A₁ having perforations B b, the former cloth-covered and provided with groove I, springs K and knife R, in combination with cylinders A A₁ similarly perforated, covered, grooved, and provided with springs, the groove in cylinder A being adapted for the working of the knife R, and said cylinders A A₂ geared together and adjustably mounted on frame M, in the manner and for the purposes set forth.

No. 17,224. Improvements in Grooming Machines.

(Perfectionnements aux brosses à cheval.)

Robert W. Thompson, East Rockport, Ohio, U.S., 12th July, 1883; 5 years.

Claim.—1st. A flexible grooming-glove having a brush surface conforming to the area of the human hand with or without picker or combing teeth secured to the tips of the fingers, substantially as set forth. 2nd. A flexible grooming brush or sandal conforming to the outline of the human hand with or without picker or combing teeth at the tips of the fingers, and provided with loops c and straps D for securing the brush to the hand of the operative, in grooming as set forth. 3rd. A flexible brush-glove or sandal having curry-combs F on the back of the fingers, or loops c, as set forth.

No. 17,225. Automatic Air Railroad Signal.

(Signal atmosphérique automate de railroute.)

John S. McLeod, Boston, Mass., J.S., 12th July, 1883; 5 years.

Claim.—1st. In a Railroad Signal an air bellows F having its top and bottom made of wood or metal, or both, and flexible sides capable of being compressed and expanded to force air to operate signals at a distance, substantially as set forth. 2nd. The combination, with the rail of a railroad track, of chairs B₄ C₆ or 28, incline bars B or W, fulcrum lever C, guide rod E₁, catch levers C C G₁ and f and bellows F, to force air to valve G to set the block signal H, and valve G₁ to set the train indicators H₁ and H₂, and sound gongs S₂, display sign K and lantern U by a passing train, substantially as and for the purpose set forth. 3rd. The combination, with the rail of a railroad track, of an incline bar and fulcrum levers, and an air bellows from which air is forced to operate gates by a moving train, substantially as set forth. 4th. The connection, with the rail of a railroad track, of an incline bar or bars and actuating levers, by chairs fastened to the rail, as shown, either with or without the key C₆, and the interlocking therewith of an incline bar B by a projection W, substantially as and for the purpose set forth. 5th. An air bellows F to operate a train of wheels actuated by the gravity of a suspended weight or spring force, and operated by a moving train to automatically announce its approach far in advance, substantially as and for the purpose set forth. 6th. The automatic locking of lever G when thrown up, and the combination therewith of the spring E to yield to the sudden action thereon by passing trains, substantially as and for the purpose set forth. 7th. The combination, with the bellows F, of the locking button g and arm f to lock the lever C until automatically released, substantially as set forth. 8th. The combination, with lever C, of a lever C C pivoted at the lower end, and the releasing thereof from lever G, substantially as set forth. 9th. An air bellows F made of iron having grooves, hinges, arms and adjustable guide roller, and a flexible covering e₁ made imperforable by rubber or other coating, and put together by hoops e₃ and hinge pin e₁ to blow air to operate railroad signals or for any other purpose, applicable substantially as set forth. 10th. An expansion or contraction air valve G having an imperforated flexible diaphragm made and put together, substantially as and for the purpose specified. 11th. A flexible covering for an air bellows or diaphragm valve made air tight by a coating of rubber or

any other suitable substance, substantially as set forth. 12th. The combination, in a railroad signal, of an air bellows F, shifting box F₃, lead pipe e, valves G G₁ and G₂, substantially as and for the purpose set forth. 13th. The combination, with an air bellows F, valve G and lever C, of a shifting mechanism D D₁ a d b and c to automatically direct the flow of air from the bellows by a train passing in either direction to operate signals (as may be desired), substantially as set forth. 14th. The automatic shifting of the direction of air to operate signals in either direction from the same pipe, by a train passing to and from the same track, substantially as and for the purpose set forth. 15th. The connection of the bellows F and shifting air box F₃, and the expansion valve G₁ with another bellows, at any desired distance therefrom by a pipe, substantially as and for the purpose set forth. 16th. The connection, with a pipe leading to a crossing or station signal, of a shifting air box F₃ to cause the said signal to be operated by an approaching train and not to be operated by a train going from the signal on the same track, substantially as set forth. 17th. The plate N₃, arms N₂ and n, fulcrum lever L, disengaging arm n₃, catch lever m₃, releasing lever n₂ and valve G₁₁ and setting valve G, in combination with bellows F, springs E and lever C to set the "block" signal H by a passing train and release the same when passing another bellows at a suitable distance away by the track, to prevent collision in that section, substantially as set forth. 18th. The automatic setting and locking of the "block" signal H by a train passing along on a railroad track by means of an expansion valve G, lever I and catch m to prevent collision from a following train, and the automatic releasing thereof by the train while passing another bellows in advance by means of valve G₁₁, substantially as set forth. 19th. The protection of levers C D D₁ C₂ C₃ and rod B₃ bellows F and its operating mechanism by an iron sheathing and house, substantially as and for the purpose set forth. 20th. The iron sheathing or covering C₄, "block" signal standard and bellows house for protecting the levers and signal operating mechanism, substantially as and for the purpose set forth. 21st. The combination, in railroad signal, of a lever C, bellows F, pipe e, valve G₁, disks H₁ H₂, gong S₂, sign K and lantern U, substantially as and for the purpose set forth. 22nd. The combination, with a valve G₁, of disks H₁ H₂, substantially as and for the purpose set forth. 23rd. The combination, with a "block" signal H and mechanism, of a valve G₁, train indicators H₁ H₂, sign K, weight S and gong S₂, substantially as and for the purpose set forth. 24th. The combination of a railroad signal or gate L and crank M, mounted and operated, substantially as and for the purpose set forth. 25th. The combination, in an automatic signal, of an inscribed movable sign K or L capable of being automatically concealed and displayed, substantially as set forth. 26th. The combination, in a railroad signal, of a spring g₁, rod n, weight N and spring d₃, substantially as and for the purpose set forth. 27th. The automatic simultaneous sounding of a gong S₂ and displaying of a disk or disks H₁ and H₂, sign K and lantern U to announce approaching trains, substantially as set forth. 28th. The combination, with the bellows F, pipe e and valve G₁, of the different colored disks H₁ and H₂, operated by the same valve, substantially as and for the purpose set forth. 29th. The combination, in railroad signal, of a set and movable and distinctive operating disks or indicators H₁ H₂ H₃ H₄, whereby the signal H₁ will indicate safety to the approaching engineer, and signal H₂ indicate danger to any person opposite thereto, and if two trains should approach each other the red signal H₃ will cover signal H₁ and thus indicate danger in advance to both engineers, substantially as and for the purpose set forth. 30th. The combination, with the signal H₁ and H₂, of a catch m and valve G₁₁ to use said signals as "block" signal when desired, substantially as and for the purpose set forth. 31st. The combination of a transparent disk H₂ to indicate danger, and non-transparent disk H₁ provided with opening 3 to indicate safety, substantially as and for the purpose set forth. 32nd. The movable signal disk H₄ provided with glass 4, substantially as and for the purpose set forth. 33rd. The light S₁ placed in a railroad signal, to show in both directions to indicate safety or danger, substantially as and for the purpose set forth. 34th. The lighting of an automatic signal by gas or otherwise, and the automatic adjustment, concealment-displaying thereof, substantially as and for the purpose set forth. 35th. The combination, in a railroad signal, of one or more reflectors S₅, substantially as and for the purpose set forth. 36th. The combination, with a railroad signal, of a clock mechanism to automatically light the lamps or burners and extinguish them at any desired given time, substantially as set forth. 37th. The automatic setting in advance by a moving train of an indicating signal light and sounding a gong at a crossing of railroads, whereby the first approaching train will show danger to block all other trains until it passes the crossing and releases its sign, substantially as set forth. 38th. The automatic revolving of an indicating lantern or sign to signal moving trains on railroad track, substantially as and for the purpose set forth. 39th. The combination, in a railroad signal, of an automatic revolving light or indicative sign, substantially as and for the purpose set forth. 40th. The combination, with an air bellows F, tube e and expansion valve g₁, of an indicative lantern capable of being automatically revolved, substantially as and for the purpose set forth. 41st. The combination, in a railroad signal and also in a clock mechanism, of a spiral wire U₁ to transmit revolving motion in any desired direction, substantially as set forth. 42nd. The combination of an automatic revolving light or signal U and sounding gong S₂ in an automatic signal, substantially as set forth. 43rd. The automatic operation of a visible and audible railroad signal by a clock mechanism operative by the gravity of a weight and wound up and actuated by a passing train, substantially as set forth. 44th. The automatic releasing of clockwork mechanism to operate signals in advance of an approaching train, by air forced by the pressure of a train passing over bar B to actuate lever C, bellows F and valve g₁, substantially as set forth. 45th. The automatic winding and stopping of a signal mechanism by a train moving along a railroad track, substantially as set forth. 46th. The combination, with the wheel T and weight S, of a ratchet S₁ playing free on the shaft and having one set of teeth to engage with a winding pawl X, and another set of teeth to engage with the catching pawl g₁ attached to the wheel T, to automatically wind the weight S and give wheel T a revolving motion, substantially as set forth. 47th. The combination, in a railroad signal, of a wheel T, pin p₁ and pin or prong r, to automatically display a sign and sound a gong, substantially as set forth. 48th. In an automatic winding mechanism of a railroad signal, the drum ratchet S₁, pawl X and rope

S₁, gripping button and key V₅, rod V, guide V₂ and the yielding springs, substantially as and for the purpose set forth. 49th. The combination of a drum ratchet S₁, plate or lever X₂ rod V, pitman V₁ and crank or lever Z, to automatically wind and stop the signal mechanism, substantially as set forth. 50th. The combination, in a railroad signal, of a lever C₂, rod V, spring V₁, guard V₂, pitman V₁, pawl X, carrier or plate X₂, ratchet drum S₁, weight and spring S, wheels T and T₁ and pawl S₁, to automatically wind and operate railroad signals by a train moving along a railroad track, substantially as set forth. 51st. The combination, in an automatic railroad signal, of a wheel T₁, collar r₁, recess i₃, pin p, prong or prongs r and lever r₁, to automatically operate visible and audible signals by the revolving of a wheel, substantially as set forth. 52nd. The combination, in a railroad signal, of an adjustable regulator J and segment R₁ to control the operation of signals, substantially as and for the purpose set forth. 53rd. The combination, in a railroad signal, of a segment R₁, whereby the signals are kept in constant operation for a given time or until stopped by a passing train, substantially as set forth. 54th. The combination, with the wheel T, of the spring t and g₁, substantially as and for the purpose set forth. 55th. The combination, in an automatic railroad signal, of a catch k, to lock and release the mechanism, substantially as set forth. 56th. The combination, with a clock mechanism, of an air bellows F, pipe e and valve G₁, to automatically release the operating mechanism, substantially as set forth. 57th. The operation of signals by means of air passing from valve G₁, substantially as and for the purpose set forth. 58th. The combination, with the bar B₂, lever C₂, rod V and weight S, of the guide or arm V₂, locking lever V₃ and rod V₄, whereby the pressure of the car wheels passing over bar B₂ will wind up the mechanism until the weight S engages with an arm V₂ and rod V₄, to keep bar B₂ below the actuating contact with the following wheels, and also pressing lever V₃ into engagement with plate X₂, substantially as and for the purpose set forth. 59th. In a railroad signal apparatus, an iron frame constructed and milled and having an arm whereby the same pattern will answer for back and front, and the connection thereto of one or two independent sets of clock mechanism, whereby the approach of a train is automatically announced from either direction by the same gong and signals, substantially as set forth. 60th. The combination, in a railroad signal, of a double clock or gear mechanism, whereby the approach of a train from either direction is announced by the same audible and visible signals, substantially as set forth. 61st. The automatic announcement by the same signal of an approaching train moving in either direction on a railroad track by means of a double clock work mechanism in the same signal, substantially as set forth. 62nd. The operation of signals by a train moving on either track by means of a rod or shaft B₃ and offset or crank B₃, and lever C₅, substantially as and for the purpose set forth. 63rd. The combination of a railroad signal with one or more tracks by a shaft B₃ provided with one or more universal joints, to prevent binding or unnecessary friction, substantially as and for the purpose set forth. 64th. The combination, in a railroad signal, of an iron post provided with flanges, doors, cams, lugs and gong hood, to connect, support and protect signal mechanism, substantially as set forth. 65th. The combination, with the bellows F, pipe e, valve G₁, weight S and wheel T, of a vertical swinging gate M₃, substantially as and for the purpose set forth. 66th. The combination, in a railroad gate, of a weight S to shut the gate, substantially as set forth. 67th. The automatic closing and opening of a gate M₃ by the pressure of a moving car or carriage actuating the bellows F, valve G₁, rod V, substantially as set forth. 68th. The described combination to automatically operate gates, substantially as and for the purpose set forth. 69th. The combination of the signal brace and lantern M₃ E₁ M₅ M₆ and M₇ with an automatic operating gates, substantially as and for the purpose set forth. 70th. The combination, in a railroad signal or an automatic gate, of an iron frame M₂, substantially as and for the purpose set forth. 71st. The combination, in an automatic gate, of a hinge P and spring P₂, substantially as and for the purpose set forth. 72nd. The combination, in a railroad signal, of a gear wheel mechanism capable of being operated by the gravity of a suspended weight, to automatically strike repeated strokes on a sounding gong, display a movable sign disk or revolve a lantern or sign, shut and open a gate either separately or simultaneously, and wound up, operated and stopped by a train passing along on a track, to automatically indicate its movement in advance both by visible and audible signals, substantially as set forth. 73rd. The combination, in a railroad signal, of a rod V, guide V₂, weight S and rope S₁, whereby the forward wheels of a train causes the mechanism to wind up automatically and remove the mechanism from the contact with following wheels, substantially as and for the purpose set forth. 74th. In an automatic signal, a segment or circle R₁ and spring R₃, to regulate the time desired to operate the signal, substantially as and for the purpose set forth. 75th. In an automatic signal, a lever Q, catch p₁, pawls R and X and spring R₃, substantially as and for the purpose set forth. 76th. A combination, with a fulcrum lever, of a spring E or V₁, to ease the action on the mechanism and reset the levers, substantially as set forth. 77th. The releasing of a "block" signal H by a roller or wheel attached to a car or truck, and a combination, with a locomotive, car or truck, of a special wheel or revolving pulley, to automatically operate block signal, substantially as set forth. 78th. An automatic audible and visible signal S₂ and K at stations, to announce the approach and indicate the moving direction of trains, as set forth. 79th. The combination, with a gong S₂ and sign K or M, a spiral U to operate signals, as set forth. 80th. The combination, in signals, of a shaft m₃ and transparent and non-transparent disks, as set forth. 81st. Bar B, lever C, catch C C, crank f f, spring E E, to automatically operate railroad signals, gates or switches. 82nd. The combination, in a railroad signal, of a bar B, levers C and I and catch m, to automatically set and lock "block" signal H by a train moving along on a railroad track, and combination therewith of a valve G₁₁, to release the same, as set forth. 83rd. The combination, in a railroad signal, of a wire rope S₁ to suspend a weight to a drum wheel or shaft, to give it revolving motion, as set forth.

No. 17,226. Improvements in Life Boats. (Perfectionnements aux bateaux de sauvetage.)

Henry F. Coombs, Charlottetown, P.E.I., 12th July, 1883; 5 years.

Claim.—1st. In a life-boat having a double hull, the starboard and port longitudinal boat sides A pressed in dies and united together through the flanges B, as described and shown. 2nd. In combination, in a life-boat such as described, the air tubes E and cork wedge L, as shown and for the purpose set forth. 3rd. The locking device O provided with hinges O and thumbscrew O₂ for securing the tubes E, and shown as described. 4th. In a boat made of two longitudinal pressed boat sides, the longitudinal plate F when rivetted between the two boat sides, as shown and described and for the purpose set forth. 5th. In combination with a double hulled boat, a bulkhead having a slanting face, as shown for the purposes set forth. 6th. In a life-boat having a double hull and constructed as described, the covering strip L, as shown and for the purposes set forth. 7th. In a life-boat, the square or oblong tube M fitted to the outside of the gunwale, as shown and for the purposes set forth. 8th. The rowlock P with threaded shank flanged nut slotted in thread, provided with pinching screw, as shown and described and for the purposes set forth.

No. 17,227. Improvements in Air Fixture Brackets. (*Perfectionnements aux consoles atmosphériques.*)

Ferdinand Gross, Montreal, Que., 12th July, 1883; 5 years.

Claim.—1st. The combination of the case A, disk B, stem C having disk D, and thumb-screw E having perforated wings F, for holding the wire stems G, as set forth. 2nd. The spiral spring H in combination with the stem C, case A and disk D, for releasing disk B, as set forth. 3rd. The tubular stem T with gas burner and having nut J, in combination with the stem C having screw-thread for securing the stem T removably, as set forth. 4th. The spit wire-holder K fixed to case A for holding a card, as set forth. 5th. The hook I fixed to case A, to hold a suspended body, as set forth.

No. 17,228. Improvements in Rail Fences. (*Perfectionnements aux clôtures de perches.*)

William C. Scarr, Maryborough, Ont., 12th July, 1883; 5 years.

Claim.—1st. The combination of a rail fence with a combined lock and brace binding together and bracing the adjoining panels of a rail fence, in the manner shown and described. 2nd. In a rail fence, the combined lock and brace consisting of a single wire B passing over the top rail A at the junction of two fence panels, thence obliquely downward across them, the ends of said wire being secured to the bottom rails of said panels, substantially as shown and specified.

No. 17,229. Improvements in Pipe Wrenches. (*Perfectionnements aux clés à tuyaux.*)

Alfred W. Case, Manchester, Ct., U.S., 12th July, 1883; 15 years.

Claim.—In a pipe-wrench having fixed and flaring jaws, the combination of the grasping jaw having the curved back and the curved and serrated face, with the bearing jaw having the straight bearing face, all substantially as described.

No. 17,230. Improvements in Saws. (*Perfectionnements dans les scies.*)

Emanuel Andrews, Williamsport, Pa., U.S., 12th July, 1883; 5 years.

Claim.—1st. The combination, with the curved handle A having a shoulder at a, the plate C provided with bolt b and groove e, which holds the blade, and removably and adjustably secured to said handle, as and for the purpose set forth. 2nd. The plate C removably and adjustably secured to the handle A which is curved and has a shoulder as described, in combination with hook-bolt f and blade B, the hook-bolt f passing around the blade B and adjusted as described.

No. 17,231. Feed Regulator for Grinding Mills. (*Régulateur d'alimentation des moulins à blé.*)

Melvin B. Church, Grand Rapids, Mich., U.S., 12th July, 1883; 5 years.

Claim.—1st. In a grinding-mill, a garner, a chamber B below the garner, a throat leading from the garner to said chamber, a feed-screw located in said chamber properly driven and having a close case covering it at the discharge end, said case leaving about one-half of the screw uncovered and exposed to contact with the material fed to the chamber, all the parts being combined substantially as described. 2nd. The combination of the screw d, the box or chamber containing the material to be fed, the casing f open at both ends and covering only part of the screw as described, and suitable driving mechanism connected to that driving the stone, as set forth.

No. 17,232. Improvement in Coating and Painting Exterior Surfaces. (*Perfectionnement dans le mode d'enduire et peindre les surfaces extérieures.*)

Melvin B. Church, Grand Rapids, Mich., U.S., 12th July, 1883; 5 years.

Claim.—The improved process of covering exposed surfaces or walls consisting in, first, coating said surfaces or walls with the described mixture of pulverized gypsum and glue, and then painting them, substantially as described.

No. 17,233. Improvements in Fire-Escapes. (*Perfectionnements aux sautoyeurs d'incendie.*)

John W. Cooney, Arnprior, Ont., 12th July, 1883; 5 years.

Claim.—The combination of a reel consisting of side or cheek pieces A A held together by stays B which also act as friction bars, a rotat-

ing centre C constructed with flanges C₁ upon which is coiled the webbing H, and which centre is provided with a crank handle D, a thumb screw F passing through the cheek piece A and pressing against the flange C, if desired, a spring hook E secured to one of the cross-stays B, to hold and support the body strap or girt G and the person placed therein, substantially as described and for the purpose set forth.

No. 17,234. Improvements in Newspaper Wrappers. (*Perfectionnements dans les bandes des papiers-nouvelles.*)

Georgiana Fay, Richmond, Va., U.S., 12th July, 1883; 5 years.

Claim.—1st. A wrapper for newspapers and like matter consisting of a strip of paper or muslin to or in which is held a wire, the ends of which project beyond the edges of the strip and which are formed with loops, substantially as and for the purpose set forth. 2nd. The combination, with the wrapper A and strip D of paper or muslin, of the wire B secured between the wrapper A and strip D, and having loops C at its projecting ends, substantially as and for the purpose set forth.

No. 17,235. Improvement in Hat-Holders. (*Perfectionnement des portemanteaux.*)

John White, Goderich, Ont., 12th July, 1883; 5 years.

Claim.—1st. The combination of the top piece A with the back piece B, substantially as and for the purpose set forth. 2nd. The combination of the lower horizontal bar D with the prongs F F and the knobs G G, substantially as and for the purposes set forth.

No. 17,236. Improvements in Hydrants. (*Perfectionnements dans les bornes-fontaines.*)

William H. Fromm, Elizabethtown, N. J., U.S., 12th July, 1883; 5 years.

Claim.—1st. The hydrant constructed, substantially as shown and described, with the elbow-coupling E having two partitions G H dividing it into two compartments, and provided with valve-openings K L and an outlet opening f, in combination with the valves M N with their stems O P provided with right and left screws U V and pinions a Z, with which engages the pinioned shaft b c having an operating wheel or lever, substantially as and for the purposes set forth. 2nd. The elbow-coupling E made, substantially as shown and described, with two partitions G H dividing it into two compartments and provided with two valve-openings K L and an outlet opening f, substantially as shown and described.

No. 17,237. Dampening Bath for Press Copying. (*Bain pour copier à la presse.*)

Norman C. Stiles, Middleton, Ct., U.S., 12th July, 1883; 5 years.

Claim.—The tank A combined with the rolls B B arranged upon one edge of the tank, and the crank A₁ for imparting rotary movement thereto, with the cover H arranged in rear of the rolls and so as to serve both as a cover to the box and receiver for the cloths, substantially as described.

No. 17,238. Improvements in Sewer Joints. (*Perfectionnements aux joints des égouts.*)

John Dineen, Oshawa, Ont., 12th July, 1883; 5 years.

Claim.—The hollow truncated conical cap A with the inverted conical waste E and liquid tubes F, and the fitting of the same into the faucets of sewer pipes with vegetable packing and tar or other analogous substance, to form an impermeable and indestructible joint, substantially as set out.

No. 17,239. Hydraulic and Plastic Cement. (*Ciment hydraulique et plastique.*)

William McKay, Winnipeg, Man., 12th July, 1883; 5 years.

Claim.—1st. A hydraulic cement produced from a drab-colored clay or calcereous earth found at from two to four feet below the surface soil, in the Province of Manitoba and the North-West Territories, and consisting of carbonate of lime, silica, alumina and iron prepared and made substantially as described and set forth. 2nd. As a new article of manufacture, a hydraulic cement of strong adhesive power produced from a drab-colored clay or calcereous earth consisting of carbonate of lime, silica, alumina and iron, with the addition of from one to fifty parts of carbonate or hydrate of lime or magnesian lime, three parts of carbonate of soda or carbonate of soda and potash, three parts (more or less) of coke or charcoal (or both), from one to three parts of chloride of sodium and three parts of each of sulphate and oxide of iron, mixed and prepared substantially as described and set forth.

No. 17,240. Improvements in Lamps. (*Perfectionnements dans les lampes.*)

Thomas M. McLeod, London, Ont., 12th July, 1883; 5 years.

Claim.—A bevelled cog-wheel I secured on the shaft G, in combination with a bevelled cog-wheel J, adjustable upright girt K and bracket L, substantially as shown and described and for the purpose specified.

No. 17,241. Improvements in Recording Devices. (*Perfectionnements aux appareils à contrôler.*)

Ebnathan M. Asselstine, East Saginaw, Mich., U.S., 12th July, 1883; 5 years.

Claim.—1st. The combination, in a ticket-recorder, of a single receiving roll constructed and arranged to receive two strips of paper

and deliver the same across the table and on opposite sides of a carbon ribbon, arranged above said table with a winding apparatus, for drawing both of said strips of paper off the rolls and winding one strip inside the case, and delivering the other outside thereof, substantially as described. 2nd. In a ticket register in which a single roll stores and delivers two strips of paper across a table, the combination of such single roll and table with a roll M arranged to feed a carbon slit between and at right angles with the line of travel of both paper strips, as set forth. 3rd. In a ticket register, the combination of the single roll A, the roll D and the record roll G, with the hinged arm H, the transverse carbon roll M and the spring I, as and for the purpose set forth. 4th. A registering device provided with a single drum carrying two strips of paper, a table over which both strips are carried and separated by a single strip of carbon paper fed from a roll transversely across such table, means for diverting one of such strips of paper outside the case to be severed into pieces of equal lengths, and means for conducting and winding the other strips upon a record roll, as set forth. 5th. The combination of a roll A, roll D and table with the transverse roll M, roll F, friction roll G and spring I and with the operating keys, whereby both strips are wound upon and fed from a single roll A, as set forth.

No. 17,242. Felloe and Spoke Tighteners.

(*Serre-jante et Serre-rayon.*)

Archimedes Galbraith, Amadore, Mich., U. S., 12th July, 1883; 5 years.

Claim.—1st. A felloe tightener consisting of a right and left threaded screw, two internally threaded bars, two pairs of serrated clamping jaws and two pairs of fastening or clamping bars H attached to said bars by bolts and nuts, substantially as and for the purpose described. 2nd. In a felloe tightener, the combination, with the right and left threaded screw A and bars B, of the serrated plates E, bolts *f* and nuts *g*, as shown and described. 3rd. In a felloe tightener, the combination, with the right and left threaded screw A and bars B, of the plates E provided with a serrated portion *e*, bolts *f* and nuts *g*, substantially as shown. 4th. The combination, with the screw A and bars B, of the fastening bars H and the bolts *h*, as shown and described. 5th. In a felloe tightener, the combination, with the right and left hand screw A and bars B, and clamping jaws E, of the fastening or clamping bars H and bolts *i* and *h*, for securing the jaws E upon the felloe, substantially as shown and described. 6th. The combination, with the screw A and bars B of the straps D provided with threads for the engagement of said screw, substantially as described. 7th. The combination, with the bars B of the cushions K, as shown and described for the purpose specified. 8th. The device for tightening spokes consisting of a cup adapted for passing on the end of the spoke and carrying a screw, substantially as shown and described. 9th. The combination of the cup *c*, screw *m* and nut *n*, substantially as described, for use as a spoke tightener or felloe expander.

No. 17,243. Improvements in Pulleys.

(*Perfectionnements dans les poulies.*)

Wallace H. Dodge and George Phillon, Mishawaka, Ind., U. S., 12th July, 1883; 5 years.

Claim.—1st. A band pulley having a solid continuous rim A, and a hub B having a slit D in the plane of the axis and extending to an equal or unequal distance on either side thereof, and the two opposite radial arms C, and the clamping bolts E close to the hub, substantially as and for the purposes set forth. 2nd. A separable pulley whereof, when the meeting ends of the rim are in contact, the meeting faces of the spoke bar and hub are slightly separated, as described, combined with clamp bolts G, whereby said hub is clamped upon the shaft in the manner set forth. 3rd. A separable pulley whereof, when the meeting ends of the rim are in contact, the meeting faces of the spoke bar and hub are slightly separated, and clamping G combined with a separate thimble H to be placed intermediate to the shaft and pulley, as set forth. 4th. A separable pulley whereof, when the meeting ends of the rim are in contact, the meeting faces of the spoke bar are slightly separated and clamp bolts G combined with a separable split-thimble interposed between said shaft and pulley, substantially as set forth. 5th. A separable pulley A composed of wooden segments *a b c*, etc., as set forth, provided with a divided spoke-bar B, the meeting faces whereof are slightly separated, and clamp bolts G, whereby said parts may be drawn towards each other, for the purposes set forth.

No. 17,244. Improvements in Bretzel Cutters.

(*Perfectionnements aux découpoirs de craquelles.*)

Theodore H. Butler, George W. Earhart and William M. Crawford, Columbus, Ohio, U. S., 12th July, 1883; 10 years.

Claim.—1st. A flat die for cutting bretzel having the bow *a*, the loops *a1 a*, the intermediate twisted portion and the ends *a3 a4* and provided with the central creaser *a6*, side cresers *a5 a5* and end cresers *a7 a7* projecting into the bow *a*, substantially as shown and described. 2nd. The combination of a die A, perforated as described, for the reception and passage of scraps and for the expelling studs F with said studs, the guide rods C, the base B provided with feet or projections *h*, the springs *h*, perforated plate D and the hand-piece E, substantially as shown and described. 3rd. A flat bretzel-shaped die having three off-bearing internal scrap passages or channels and perforations, for the expelling studs, in combination with the expelling studs, substantially as shown and described.

No. 17,245. Improvements in Wire Coiling Machines.

(*Perfectionnements aux machines à rouler le fil de fer.*)

Edward W. Durkee, Mason, Ill., U. S., 12th July, 1883; 5 years.

Claim.—The combination, with the wire feeding and guiding devices and the spirally-grooved former, of the cap I having the form of a segment of a hollow cylinder, and fitted to the former and tightly secured thereto, as shown and described.

No. 17,246. Improvements in Match Machines.

(*Perfectionnements aux machines à allumettes.*)

Herbert L. Hapgood, Athol, Mass., U. S., 12th July, 1883; 5 years.

Claim.—1st. The holder M provided with the trunnions *j j1* and means of holding a gang of spur cutters *i* and the planing cutters *r* and *r1*, in combination with one or more removable washers *s* fitted to each trunnion, substantially as and for the purposes described. 2nd. The combination of the slide F provided with the abutments V and V1, the holder M mounted by its trunnions *j* and *j1* in bearings on said slide, and provided with means of holding a gang of spur-cutters *i*, and mechanism for imparting to said holder an intermittent oscillating motion. 3rd. The combination of the reciprocating slide F, the holder M, the forked and slotted lever N, the stops O and P, and means of locking the lever N in a vertical and an inclined position. 4th. The combination of the slide F, the holder M, the forked lever N provided with the curved slot *n*, the pin *l*, the stops O and P, the spring Q provided with the detent notches *p* and *p1*, and the roll *q*, all arranged and adapted to operate substantially as and for the purpose described. 5th. The combination of the slide F, cutter-holder M mounted by its trunnions in half boxes formed in said slide, the removable half boxes *t*, the pivoted caps T, the lips *u u*, the section F1 of the slide F pivoted as set forth, and the screw *w*, all arranged and adapted to operate substantially as and for the purposes described. 6th. The combination of the slide F, the holder M, the lever N, the stop-levers O and P, the springs *k* and *k1* and the stops or abutments *o* and *o2*, all arranged and adapted to operate substantially as described.

No. 17,247. Pneumatic Grain Elevator.

(*Élévateur pneumatique des grains.*)

Lyman Smith, Kansas, Mo., U. S., 12th July, 1883; 5 years.

Claim.—1st. The combination of the elevating grain tube, the exhaust tube with a combined vacuum chamber and receptacle, the said tubes being enlarged at their connecting ends with the said chamber, said chamber having a baffle plate, and the exhaust pipe having a deflecting lip *o*, substantially as described. 2nd. In an elevator for grain or other material, the combination of the exhaust chamber provided with a baffle plate, an elevating tube, an exhaust tube, the latter being slightly above the former and having a downwardly projecting lip by means of which baffle-plate, lip, &c., position of tubes, the heavier material is made to take a downward current, while the lighter particles are separated therefrom and made to take an upward current, substantially as described. 3rd. In an elevator for grain or other material, the combination, with a vacuum chamber forming a receptacle for the grain, of the elevating and exhausting tubes connected therewith and the tubes *f1*, the latter being provided with air-induction and eduction valves, substantially as described. 4th. The combination, with a combined vacuum chamber and grain receptacle, of the tubes *f1* and with air communicating tubes arranged to be alternately opened and closed for destroying the vacuum in the said tubes, substantially as described. 5th. The combination, in an elevator consisting of the combined vacuum and receptacle chamber, the tubes *f1*, said tubes being provided with inwardly and outwardly opening valves arranged to open automatically, said tubes communicating with the exhaust chamber by independent means, as set forth. 6th. The combination, in a grain elevator, consisting of the vacuum and grain receiving-chamber, the tubes *f1*, the alternating opening and closing valves and the air cut-off valves G G1, all operating together in the manner set forth. 7th. The combination, in a grain elevator, of the tubes *f1*, the mechanically connected opening valves G G1, 3 and 4, and the air-pressure closing valves 1 and 2, substantially as described. 8th. The combination, in a grain elevator, of the tubes *f1* and the automatically operating valves 1, 2, 3 and 4, and the slide-valves G G1, arranged to open and close duplex air parts by the movement of the said valves 3 and 4, as set forth and described. 9th. The process described of elevating and delivering grain consisting in, first, elevating it by automatic power, then separating it from the air current equalizing the pressure in the induction tube and vacuum chamber, then shutting off the vacuum pressure from said tube and admitting air above the grain to be delivered. 10th. The combination, with a grain elevator, of a separating trap or vessel interposed between the vacuum-chamber and the blower, whereby the grit, sand, chaff and other foreign substances are prevented from entering the blower, substantially as described. 11th. The combination, in a pneumatic grain operator, of the vacuum-chamber and a blower with the dust trap arranged on the exhaust pipe between the vacuum chamber and blower, the trap being provided with a dust separating device in the manner shown and specified. 12th. The combination, in a pneumatic elevator consisting of the vacuum-chamber, the blower, the trap arranged between the said blower and chamber, said trap being provided with valves for discharging its contents without interfering with the air current passing through the trap, substantially as shown and described. 13th. The combination, in a pneumatic elevator consisting of the vacuum-chamber, the blower and the trap interposed between the blower and chamber, and in communication therewith, the said trap being provided with a separating device and discharge valves, in the manner shown and described. 14th. The combination, with the suction feed-pipe of a pneumatic grain elevator, of the mouth-piece having an outer air supply-pipe closed at its bottom and open at its top, the said outer pipe being sufficiently below the grain pipe to permit the air to be sucked in below the grain, thereby utilizing its power, said pipes having grain inlet apertures, substantially as described. 15th. The combination, in a grain elevator, of the air supply pipe with a grain controlling valve or thimble, for graduating the grain supply to the feed pipe, substantially as described. 16th. The combination, in a grain elevator, of the air inlet pipe, the grain inlet tubes or apertures, the controlling thimble or valve with the flexible tubing having contracted sections for increasing the velocity of the contents passing through the tubes, substantially as set forth. 17th. A pneumatic tube consisting of straight and bent sections or elbows, the said bent sections being contracted for the purpose of increasing the velocity of the contents of the tube passing through them, substantially as specified. 18th. The combination, in a grain elevator, of the air supply pipe, the mouth-piece of the grain

elevating pipe, the latter being connected to the former by grain inlet tubes with a grain supply controlling device, substantially as described. 19th. The combination, in a grain elevator, of the air tube D1, the grain inlet tubes *a*, the mouth *d*, the grain supply controlling device, a suction feed, a flexible tube and a non-flexible contracted portion for increasing the velocity of the substance passing through the tube, substantially as set forth. 20th. The combination, with a vacuum-chamber or a receiver, of a separating trap or device interposed between the vacuum-chamber or receiver and the blower or exhausting machine, as set forth. 21st. The combination, with a vacuum-chamber or a receiver, of a separating trap or device interposed between the vacuum-chamber or receiver, and the blower or exhausting mechanism, as described. 22nd. The method of separating extraneous matter from grain cereals while being elevated by pneumatic process, the same consisting in conducting the foreign matter from a compartment into which the grain has been received into a trap or device, thence separating the air from the foreign matter and preventing the latter from entering the blower or exhauster, in the manner shown and described. 23rd. In combination with the vacuum-chamber A, a safety valve for preventing the collapse of the vacuum valve, and a vacuum gage for indicating the pressure within the vacuum chamber, as described. 24th. In combination with the grain induction *F*, the eyes or pup-holes *R*, by means of which the operation within the tubes may be observed.

No. 17,248. Improvements in Boots. (*Perfectionnements dans les bottes.*)

Edward Roos, Galt, Ont., 12th July, 1883; 5 years.

Claim.—1st. In a felt boot having an outer leather foot, the combination of a leather covering extending from the leather foot up the felt leg and quilted by stitches passing through the leather and felt, substantially and for the purpose specified. 2nd. In a felt boot having an outer leather foot, the combination of a covering extending from the leather foot upwardly for about five inches on the leg and composed of pieces of leather joined together by stitches passing through the leather and felt, for the purpose of quilting them together.

No. 17,249. Improvements in Felt Boots and Shoes. (*Perfectionnements dans les chaussures en feutre.*)

William M. Weeks, Woonsocket, R. I., U. S., 12th July, 1883; 5 years.

Claim.—A boot, shoe, or removable lining made from a single blank, cut from a sheet of felt stretched upon a last and stitched together, and having a separate sole attached thereto, all as set forth.

No. 17,250. Improvements in Match Machines. (*Perfectionnements aux machines à allumettes.*)

Charles F. Bonhack, New York, N. Y., U. S., 12th July, 1883; 5 years.

Claim.—1st. In a match-splint setting machine, the combination of a reciprocating setter having a series of fixed equidistant push-pins, a fixed perforated guide-plate, a removable trough for the bunch of match-splints, a reciprocating splint-guiding frame having vertical strips, and a removable splint-clamping frame having horizontal strips, all substantially as and for the purpose set forth. 2nd. In a match-splint setting machine, the combination of a reciprocating setter having a series of fixed equidistant push-pins, a fixed perforated guide-plate, a removable trough containing the match-splints in front of the guide-plate, means for clamping the splints in the trough, and a compound splint-holding frame formed of a reciprocating guide-frame having vertical strips, and a detachable clamping frame having horizontal strips, and means for locking the compound frame rigidly in front of the trough, substantially as and for the purpose specified. 3rd. In a match splint setting machine, a compound frame for receiving the splints consisting of a fixed frame having vertical serrated strips, and of a removable splint-clamping frame having horizontal strips bevelled at the edges and fitting closely to the vertical strips, and means for locking the frames together, substantially as set forth. 4th. In a match-splint-setting machine, a splint-clamping frame consisting of horizontal clamping-strips bevelled at their inner edges and separated at the ends by intermediate layers of elastic fabric, and of means for clamping the strips or releasing the same, substantially as described.

No. 17,251. Improvements in Hay Elevators. (*Perfectionnements aux élévateurs à foin.*)

Peter F. Chambard, Fayette, Ohio, U. S., 12th July, 1883; 5 years.

Claim.—1st. The track composed of two outer and an inner or centre section having the space H and end-piece D3, as and for the purpose set forth. 2nd. The described car having pivoted latch-arms curved at their outer ends, in combination with the vertically sliding trip-bar, as and for the purpose set forth. 3rd. The described car having hangers provided with rollers at their upper ends, grooved pulleys at its lower corners, and pivoted latch-arms connected to and operated by a vertically sliding trip-bar, as set forth. 4th. The combination, with the track composed of two outer and an inner section having the space H and end-piece D3, of the car having hangers provided with rollers at their upper ends, grooved pulleys at its lower corners, and pivoted latch-arms operated by a vertically sliding trip-bar, as set forth. 5th. The blocks consisting of the cheeks, the straps at the outer sides of the same, the connecting bolts and the pulleys, as set forth. 6th. The combination of the cheeks, the connecting bolts and tubular braces arranged upon the said bolts so as to space the cheeks, substantially as set forth. 7th. The combination of the cheeks, the connecting bolts, the tubular spacing braces and the pulley journalled upon one of the said braces, as set forth. 8th. The combination of the cheeks having bevelled flanges provided with notches near their upper ends, the connecting bolts, tubular braces and pulley, and a bail secured upon the upper connecting bolt and

resting in the notches, near the upper ends of the flanged cheeks, as and for the purpose set forth. 9th. The trip-mechanism consisting essentially of a frame, a hook pivoted at the lower end of the same, a vertical rod secured in said frame, a latch-bail sliding vertically upon the said rod and having a bevelled and perforated lower end to engage the trip-hook, a spring forcing the said latch-bail downwardly and a trip-rope, all arranged and operating substantially as set forth. 10th. The combination, with a pulley-block constructed, as described, with straps secured to the sides of its cheeks, of the trip-mechanism constructed as described, the frame of said trip mechanism being pivoted upon the lower connecting bolt of the straps, as set forth. 11th. A hay sling consisting of several ropes or strands connected together at one end, having a loop at the connected end, and provided with a loop at the free end of each strand, as set forth. 12th. In a hay sling, the combination, with several strands connected at one end and having loops at the connected and free ends, of rigid space bars connecting the several strands at any desired distance from the connected end, as set forth. 13th. In a hay sling, the combination of a heart-shaped loop, having a shank provided with an eye at its outer end, a rope or cord passed thorough said heart-shaped loop and around said shank, so as to form two separate strands having loops at their free ends, a central strand secured to the heart-shaped loop and having a loop at its free end, and rigid spacing bars connecting the several strands at any desired distance from the connected end, substantially as set forth. 14th. The combination, with the pulley-blocks provided respectively with a pivoted hook and with trip-mechanism as described, of the hay sling consisting of strands connected at one end and having a loop for attachment to the pivoted hook, said strands having also loops at their free ends for attachment to the trip-hook, as set forth. 15th. As an improvement in hay elevators, the combination of the track consisting of two outer and a central section having space H and end-piece D3; the car having hangers provided with rollers, grooved pulleys at its lower corners, and pivoted latch-bars operated by a vertically sliding trip-bar, the pulley blocks constructed as described and provided respectively with a pivoted hook and with trip-mechanism as described, the hoisting rope, the sling and the trip ropes, the whole constructed and arranged to operate substantially as and for the purpose set forth.

No. 17,252. Improvements in the Manufacture of Flour. (*Perfectionnements dans la fabrication de la farine.*)

Louis Gathmann, Chicago, Ill., U. S., 12th July, 1883; 5 years.

Claim.—The process described of reducing tobed grain to middlings and flour, which consists in first splitting the grain through the crease, next scouring the fragments produced by splitting, then removing the impurities detached by such scouring, and finally subjecting the cleaned fragments to the grinding action of millstones, substantially as described.

No. 17,253. Improvements in Kerosine-Oil Lamps. (*Perfectionnements aux lampes à kerosine.*)

Thomas P. Thompson, Franklin Grove, Ill., U. S., 12th July, 1883; 5 years.

Claim.—1st. The combination of a series of fonts connected horizontally by gas pipe suspended in rods and swivels, as and for the purpose set forth. 2nd. The font B having a recess, and above said recess with threaded inlet and outlets and with threaded opening for a burner, as set forth. 3rd. A font provided with a threaded inlet on its side to adapt it for connection with a horizontal pipe, a recess extending below such inlet and a threaded opening for a burner, as set forth. 4th. In a set of lamps, the combination of the fonts with threaded inlets and outlets, threaded tops and recesses, a pipe, adjustable swivel, a rod and a tank or reservoir, as and for the purpose set forth.

No. 17,254. Improvements in Spinning Wheels. (*Perfectionnements aux rouets.*)

Arthur S. Beauchemin, St. Hyacinthe, Que., 12th July, 1883; 5 years.

Reclame.—La combinaison de la périphérie d'une roue de machine à filer avec un bandage métallique, laminée et pliée en rainures circumférentielles pour retenir la courroie, et muni de bordages pour l'attacher à la périphérie de la roue, tel que décrit pour les fins désignées.

No. 17,255. Improvements in Cots.

(*Perfectionnements dans les lits pliants.*)

Melvin R. Church, Grand Rapids, Mich., U. S., 13th July, 1883; 5 years.

Claim.—1st. A frame for cot-beds and the like consisting of spring side pieces formed of elastic board set on edge, and pieces adapted to hold said side-pieces in vertical position, and a cloth or flexible covering attached to the upper edge of said side-pieces, as set forth. 2nd. The side frames A, A formed of elastic boards set on edge, hinged end pieces *a* and covering of cloth or other flexible material attached to the edge of the side-frames, substantially as set forth. 3rd. The combination of the side-pieces A, A formed of boards set on edge, end-pieces adapted to extend said side-pieces, flexible covering attached to the upper edge of said side-pieces, and the removable legs adapted to the cleats on the outside, as set forth.

No. 17,256. Ventilator and Draft Regulator.

(*Ventilateur-régulateur du tirage.*)

Melvin R. Church, Grand Rapids, Mich., U. S., 13th July, 1883; 5 years.

Claim.—A ventilator-pipe connected to the draft-pipe of the stove at the outside thereof, extending downward toward the floor and opening into the apartment only, in combination with the horizontal valves adapted to be opened upward by the draft, and to close by gravity, substantially as described.

No. 17,257. Improvements in Grinding Mills.*(Perfectionnements aux moulins à blé.)*

Melvin B. Church, Grand Rapids, Mich., U.S., 13th July, 1883; 5 years.

Claim.—1st. A lower stone adapted to be driven and formed with its face perfectly plain from centre to skirt, in combination with an upper stone, said stones having a substantial smooth dress and the upper stone dished substantially from eye to skirt in the manner described, whereby the spaces between the stones in zones of a given width on any part from centre to skirt are made of equal capacity, all as set forth. 2nd. The improvement in the art of grinding which consists in feeding the material to be ground between the stones, the lower one revolving and having a plain face, and the upper one having a dished face, the dishing giving equal capacity to zones of equal width at different distances from the centre, in adjusting and regulating the feed to the speed of the stone, keeping them crowded full, in adjusting the speed of the stone to accord with the pressure necessary to the degree of fineness required and in discharging the finely and uniformly ground material by centrifugal force, substantially as described.

No. 17,258. Combined Child's Carriage and Cradle. *(Voiture d'enfant et berceau combinés.)*

John W. Krueger, Cincinnati, Ohio, U.S., 13th July, 1883; 5 years.

Claim.—1st. A combined baby-carriage and swinging cradle consisting of the carriage body A, the front and rear springs N, the side-pieces C bent upward at front and rear, and united near their ends so as to form single stocks D and provided with eyes a, and the swinging body E having the outwardly projecting pins F at front and rear to rest in said eyes, as shown and described. 2nd. In a combined baby-carriage and cradle, the fastening device consisting of the cross girt G, locking-screw c, and the plate e, having the recess d, and secured to the carriage-body E, substantially as shown and described.

No. 17,259. Dryer and Cooler for Grain, &c.*(Séchoir et rafraichissoir à grain, etc.)*

Frederick H. C. Mey, Buffalo, N.Y., U.S., 16th June, 1883; 5 years

Claim.—1st. A drier or cooler having a drying surface consisting of an endless apron composed of properly disposed connected links and a series of transverse horizontal slats, said apron being constructed to operate within a closed compartment into which the drying or cooling medium is forced by suitable mechanism, substantially as specified. 2nd. An endless apron for a drier and cooler consisting of a series of carrying-links, a series of links connecting said carrying-links and a series of slats, said carrying-links being supported upon an anti-friction device, substantially in the manner as and for the purpose mentioned. 3rd. In driers and coolers, a compartment having its side-walls downwardly bent into the shape of the letter U inverted, in combination with an endless drying surface composed of a series of slats having upturned ends entering the space formed by the downwardly bent sides, substantially as and for the purpose stated. 4th. In drying-aprons for grain and the like, the carrying-links Q, consisting of the perforated head Q₁, body proper and the tails b b₁, said links being adapted for operation upon a carrier, substantially in the manner as and for the object specified. 5th. In drying apparatus, an endless apron consisting essentially of a series of carrier-links Q, a series of connecting-links Q₁ having plates R, another series connecting-links Q₁ also provided with plates R, and a series of slats P fixed to the plates of the links Q₁, substantially as and for the object stated. 6th. The combination, with the compartment E, of the supports G having gudgeons H and carrying-wheels J, of the endless apron having carrying-links the bases of which pass over the carrying-wheels, as described and stated.

No. 17,260. Improvements in Washing Machines. *(Perfectionnements dans les laveuses mécaniques.)*

Melvin Huffman, Toronto, Ont., 13th July, 1883; 5 years.

Claim.—1st. In a steam washing machine having a boiler A with a cover B, the combination of a cylinder D, constructed as shown and described, and operating as set forth. 2nd. In a steam washing machine having a boiler A with a cover B, the combination of a reservoir C, constructed as shown and described and operating as set forth. 3rd. In combination the boiler A, cover B, reservoir C and cylinder D, constructed substantially as shown and described and for the purposes set forth.

No. 17,261. Hydro-Carbon Vapour Generators and Burners. *(Générateurs et foyers à gaz d'hydrocarbures.)*

Israel R. Blumenberg, Washington, D. C., and Henry W. Whiting, Philadelphia, Pa., U.S., 13th July, 1883; 5 years.

Claim.—1st. The globulous chamber entered by induction pipes and having a small outlet within the bulbous base forming a part of, and in combination with the conical cylinder b and burner-tip c, the whole forming a vapour generator and burner substantially as shown and described. 2nd. The flame-expander k provided with wings m spirally adjusted thereon, in combination with the vapour generator and burner B, substantially as shown and described. 3rd. The diaphragm h having a passage h₁, in combination with the vapour generator and burner B, substantially as shown and described. 4th. The combination of globulous chamber a, orifice a₂, chamber b, in a device for generating hydro-carbons, substantially as shown and described. 5th. The combination of chamber b and diaphragm h, in a device for generating and burning hydro-carbon vapour, substantially as shown and described. 6th. The combination of globulous chamber a, orifice a₂, chamber b and diaphragm h, in a device for generating hydro-carbon vapour, substantially as shown and described. 7th. The diaphragm h having a vapour passage h₁, for use in a device for generating and

burning hydro-carbons, substantially as shown and described. 8th. Hydro-carbon generator and burner consisting of a globulous chamber within a bulbous base, a conic cylindrical chamber, a burner-tip having perforations for the exit of the vapour, and induction steam and oil-pipes, substantially as shown and described. 9th. The combination of globulous chamber a, orifice a₂, chamber b and burner tip, in a device for generating and burning hydro-carbons, substantially as shown and described. 10th. The combination of the globulous chamber a₁, orifice a₂, chamber b, diaphragm h, passage h₁ and burner tip, substantially as shown and described. 11th. The combination of the globulous chamber a, induction steam and oil pipes d and e, chamber b, diaphragm h, vapor passage h₁ and burner tip c substantially as shown and described. 12th. The combination of the globulous chamber a₁, induction steam pipes d and oil pipes e, orifice a₂, chamber b and burner tip c, substantially as shown and described. 13th. In combination, the induction steam pipes d, oil pipes e, air blast o, globulous chamber a₁, orifice a₂, chamber b, diaphragm h, passage h₁ and burner tip, in a device for generating and burning hydro-carbon vapours, substantially as shown and described. 14th. In combination, a device for generating and burning hydro-carbons and a flame expander secured to the end thereof substantially as shown and described. 15th. In combination, adjustable burner tip c and a flame expander, in a device for generating and burning hydro-carbon vapour, substantially as shown and described. 16th. In combination, the burner tip c having perforations n, at the end thereof, as shown and a flame expander, as shown, in a device for generating and burning hydro-carbons, substantially as shown and described. 17th. In combination, the flame expander burner tip c, perforations n, diaphragm h, vapour passage h₁, chamber b, orifice a₂, chamber a₁, induction pipes d and e and air blast pipe o, in a device for generating and burning hydro-carbon vapours, substantially as shown and described. 18th. In combination, the flame expander-burner tip c, perforations n, chamber b, orifice a₂, chamber a₁, induction steam and oil pipes d and e and air blast pipe o, in a device for generating and burning hydro-carbon vapour, substantially as shown and described. 19th. In combination, the flame expander-burner tip c, perforations n, mingling chambers b and a₁, orifice a₂ and induction steam and oil pipes d e, in a device for generating and burning hydro-carbons, substantially as shown and described.

No. 17,262. Improvements in Fence Posts.*(Perfectionnements aux pieux des clôtures.)*

Alexander A. Arthur, Eben F. Spaulding, Boston, Mass., and William Davison, Hoboken, N.J., U.S., 13th July, 1883; 5 years.

Claim.—1st. A fence post made of angle or T-iron bar and having two or more tapered prongs formed by splitting the bar along the angle or angles, and bending the split prongs, all as set forth and for the purposes described. 2nd. A fence post formed with feet of two or more tapered prongs, one or more of which are armed with lateral barbs, all as set forth and for the purposes described. 3rd. In combination with a fence post made of angle or T-iron, the fastenings E F for wire strands, substantially as described.

No. 17,263. Improvements in Railroad Brakes. *(Perfectionnements aux freins de railroutes.)*

Dolphus Torrey, New York, N.Y., U.S., 13th July 1883; 5 years,

Claim.—1st. The automatic brake apparatus, substantially as described. 2nd. In a brake either actuated or operated by stress from the draw-bar or buffers, the combination of the receiving and working levers 3 4 swinging in parallel planes, substantially as described. 3rd. The combination of the adjusting-bar lying in the line of a chord of the arc described, by the working lever, with the working lever, substantially as described. 4th. The adjusting-bar 6 supported by pins passing through inclined slots in the said bar, whereby it is made to rise or fall whenever it is moved longitudinally. 5th. The combination of a receiving lever with the draw-bar or buffer, and a spring arranged so that while the compression of the draw-bar or buffer is accompanied with a firm engagement with the lever, its pulling out has no effect upon it other than to correct its adjustment. 6th. The combination of the lock bar 7 with the adjusting bar 6, substantially as and for the purpose set forth. 7th. The combination with the receiving lever 3, of the working lever 4, adjusting bar 6 and hangers 8, substantially as set forth. 8th. The combination, with the receiving lever 3, of the working lever 4, and a connection with the brake apparatus attached to the working lever at a point in its length approximately close to where it receives the stress from the receiving lever. 9th. The combination of the adjusting bar 6 with the pivoted lever 16, substantially as and for the purpose set forth. 10th. The combination of the lever 16 and latch 19, for governing or determining the action of a momentum brake apparatus, substantially as set forth. 11th. The combination, with the lever 16, of the latch 19 and catch 20, substantially as set forth. 12th. The combination of the emergency pull chain coupling with a momentum brake apparatus, for causing an automatic application of the brakes to a car detached from a train while under motion, substantially as explained. 13th. A take-up for railroad brakes in which the two ends of the severed line of chain are attached respectively to the two parts of a rotating clutch so related that, when the stress is being transmitted to the brakes, the parts of the clutch rotate together, and when the stress is discontinued the same parts of the clutch rotate backward together until the working part is stopped, after which the receiving part may continue to rotate until it draws the line taut by which it is pulled into action. 14th. In a rotating take-up, a stop disk having a ratchet for engaging with a pawl and a slot recess, or projections for engaging with the working pulley of the clutch, for determining the amount of slack which is allowed when the shoes are off. 15th. The combination of the clutch and stop disk with clutch pulleys uniting two parts of a chain for the purpose of taking up the slack therein, substantially as set forth. 16th. The combination of the clutch 111 112 and disk 113, with the shaft 125, substantially as and for the purpose set forth. 17th. The combination of the clutch 111 112, disk 113, shaft 125 and frame 124, substantially as and for the purpose set forth. 18th. The combination of the receiving and working levers having two sets of lugs for effecting the alternate engagements of said levers by the

compression and expansion of the draw-bar or buffer respectively. 19th. A device for reversing the connection between the balanced brake-beams and the adjusting-bar consisting of a reversing link operated by the brake-beams through the medium of a pitman and crank, and a connecting rod adjustable in said link, substantially as set forth. 20th. The combination, with the reversing link and a connecting rod adjustable in relation thereto, of a bell-crank for effecting the adjustment of the said rod. 21st. In combination with a reversible connection between the brake-beams and the adjusting-bar of the engaging levers, a rotating shaft bearing at one end a crank for effecting the reversing adjustment, and at the other end a lever for operating it. 22nd. The combination of a lever actuated by the movement of the draw-bar, a brake chain connection actuated by engagement with such lever, and an adjusting device determining the engagement or disengagement of the said lever and chain connection by the direction of wheel rotation, or by the will of an operator.

No. 17,264. Improvements in Railroad Brakes. (*Perfectionnements aux freins de railroutes.*)

Dolphus Torry, New York, N.Y., U.S., 13th July, 1883; 5 years.

Claim.—1st. The accumulator brake apparatus, substantially as described. 2nd. A brake actuating apparatus having two springs, one serving as an accumulator to receive and store power derived from the rotation of the wheels, the other receiving power from the first when this is released, and holding such power to apply the brakes when it is itself released. 3rd. The combination of a pair of spring levers, a connection with the wheel or axle applying a strain to one of said levers by the rotation of the wheels, and a connection between the levers applying strain to the second by the reverse movement of the first lever when released. 4th. A pair of levers moved in opposite directions by springs catching and tripping devices acting alternately on said levers, to lock and release the same, a connection putting the spring of the first lever under strain by the rotation of the wheels, a connection between the levers putting the spring of the second lever under strain by the reverse movement of the first when released, and a connection from the second lever applying the brakes by the reverse movement thereof when released. 5th. In combination with a pair of levers or springs, a pivoted catch, the opposite arms of which alternately receive and hold the levers or springs, and a pivoted keeper which determines by its engagements the retention or release of the respective levers or springs. 6th. The combination of a pair of levers or springs, a pivoted keeper having two teeth facing in opposite direction, said teeth having inclined faces which engage with a latch, and a latch having notches set in reverse relation to the keeper for controlling the movement of the same. 7th. The combination of a pair of levers or springs, a vibrating catch or keeper for alternately locking or holding the same under strain, and a vibrating latch to retain the catch or keeper against the pressure of the levers in opposite directions. 8th. The combination, with a pair of levers or springs, of a latch controlling the movements of a catch or keeper, which itself determines the retention or release of the levers or springs, and an electro-magnet controlling the said catch or keeper. 9th. An automatic car brake having the corresponding ends of two brake-beams connected to opposite ends of rotating shafts mounted in the car timbers longitudinally to the car, substantially as described. 10th. A brake actuating apparatus having two springs, one connected with the draw-bar or buffer serving as an accumulator, to receive and store power derived from the movement of the draw-bar or buffer, the other receiving power from the first when this is released, and holding such power to apply the brakes when it is itself released. 11th. A pair of levers moved in opposite directions by springs catching and tripping devices acting alternately on said levers, to lock and release the same, a connection putting the spring of the first lever under strain by the movement of the draw-bar or buffer, a connection between the levers putting the springs of the second lever under strain by the reverse movement of the first when released, and a connection from the second lever applying the brake by the reverse movement thereof when released. 12th. A releasing clutch composed of a shaft bearing a crank and a ratchet, which ratchet, by engaging with a pulley, compels the shaft to rotate when the pulley is rotated by stress from the draw-bar or other source of power, and permits the crank to rotate independently of the pulley after it has passed its centre. 13th. The combination of the releasing clutch with a receiving spring of a brake actuating apparatus, substantially as set forth. 14th. A brake apparatus having receiving spring strained by any suitable source of power, a working spring strained by the recoil of the receiving spring and serving to apply the brakes when released, and a catch for holding the working spring under constraint controlled by a hand-cord or by air pressure, or other means, at the will of the engineer or attendant.

No. 17,265. Art of, and Apparatus for Working and Vulcanizing Compounds of Caoutchouc and Analogous Gums. (*Art de travailler et vulcaniser les compositions de caoutchouc et les gommes analogues et appareil pour cet objet.*)

Albert C. Eddy, Providence, R.I., U.S., 13th July, 1883; 15 years.

Claim.—1st. The improvement in the art of working and vulcanizing articles or goods of great length composed wholly or in part of vulcanizable gum compounds, which consists in delivering said articles or goods directly and continuously from gum working mechanism to a vulcanizing chamber, and subjecting the same to a vulcanizing heat during their transit within and through said chamber, substantially as described. 2nd. The process of progressively and continuously vulcanizing compounds of caoutchouc and analogous gums, substantially as described, by moving them through a heated vulcanizing chamber of sufficient length and at such speed as will enable said compounds to be properly vulcanized during their transit, as set forth. 3rd. The process of progressively and continuously vulcanizing articles of great length composed in whole or in part of

vulcanizable compounds, substantially as described, by moving said articles, without tension thereon, through a heated vulcanizing chamber of sufficient length and at such speed as will enable the compounds to be properly vulcanized during their transit, as set forth. 4th. The combination, substantially as described, of a vulcanizing chamber having suitable apertures for feeding and discharging, and a movable bed extending throughout said chamber, whereby vulcanizable goods may be continuously fed to, and discharged from said chamber. 5th. The combination, substantially as described, of a vulcanizing chamber having an induction and education aperture, and an intervening bed and coiling or winding apparatus whereby articles of great length can be vulcanized during their passage through said chamber and thereafter coiled or wound in a finished condition. 6th. The combination, substantially as described, of a vulcanizing chamber having an induction and education aperture, a movable bed and coiling or winding apparatus whereby goods of great length can be passed through said chamber and vulcanized in transit without tension thereon. 7th. A tubular vulcanizing chamber provided with a series of steam jackets, each having independent steam induction and education pipes, substantially as described, whereby the whole or any portion of said chamber can be heated for service, as set forth. 8th. A tubular vulcanizing chamber open at each end and provided with steam jackets, and with the air vents having caps or valves, substantially as described, whereby the heat can be retained in or freely discharged from said chamber at various points throughout its length. 9th. The combination of the tubular vulcanizing chamber open at each end for feeding and discharging and a tubular steam jacket slip jointed thereon, substantially as described, whereby said chamber and jacket are independently enabled to longitudinally expand and contract, as set forth. 10th. The combination, substantially as described, of mechanism for working vulcanizable gum compounds into proper form for vulcanization and a vulcanizing chamber containing a movable bed, and adapted to continuously receive the product of said gum working mechanism, and to vulcanize the same during its passage through said chamber. 11th. The combination, substantially as described, of mechanism for working vulcanizable gum compounds into articles of great length composed wholly or in part of said compounds, a coiling or winding mechanism and a vulcanizing chamber interposed between the gum working and the coiling mechanism, whereby the product from the gum working mechanism is delivered to, and drawn through said chamber, is vulcanized therein, and then coiled in a finished condition. 12th. The combination, substantially as described, of mechanism for working vulcanizable gum compounds into articles of great length composed wholly or in part of said compound, coiling or winding mechanism, and a vulcanizing chamber containing a movable bed whereby the product of the gum working mechanism is delivered to, and carried through said chamber, is vulcanized therein without tension, and is coiled in a finished condition on leaving said chamber. 13th. A tubular vulcanizing chamber open at each end for the entrance and exit of articles to be vulcanized therein, a flat bed within and extending throughout the length of said chamber, and a steam jacket substantially as described.

No. 17,266. Improvement on Carriage Body Supports. (*Perfectionnement dans la suspension des caisses de voitures.*)

Patrick G. Clancy, Lexington, Miss., U. S., 13th July, 1883; 15 years.

Claim.—1st. The combination, with the two end springs A A₁, of the semi-elliptical spring bars B B having their ends jointed to the ends of the end springs, a spring connection interposed between the middle of the spring bars and cross-bar C C fixed to the spring bars between the spring connection and the ends of said bars, whereby the spring bars find an abutment against each other and rock upon said spring connection, as described. 2nd. The combination, with the two inwardly curved semi-elliptical spring bars B B and the cross-bars C C, of the additional cross-bar C₁, spring stirrup E and U-shaped spring plate F having its branches connected respectively to the two spring bars, as described. 3rd. The combination, with the two semi-elliptical spring bars B B having a rocking abutment against each other, of the cross-bars C C connected to each spring bar by sets of bolts or clips g g, and made adjustable to or from the ends of the spring bars, as described. 4th. The combination, with the duplicate end springs A A₁, of the duplicate spring bars B B and the axles having duplicate seats for the duplicate end springs, as and for the purpose set forth. 5th. The plate H having slotted legs, in combination with the spring A, the axle, the clip I and the bolts j securing the said legs to the axle, as described.

No. 17,267. Improvements in Mowing Machines. (*Perfectionnements aux faucheuses.*)

Charles W. Love, Fairpoint, Ohio, U.S., 13th July, 1883; 5 years.

Claim.—1st. A mowing-machine track-clearer having a coupling hinged to the end-shoe of the finger-bar, two boards at an angle to each other and to the ground, and two slightly bent rods, one attached to the rear of inclined boards and the other to the hinged coupling, as shown and described. 2nd. The combination, with the hinged coupling D having an inwardly projecting arm, of the board F, bolted at its forward end to said arm placed at an angle of about forty-five degrees to the surface and inwardly inclined, as shown and described. 3rd. The combination, with the board F arranged as described, of a board G inclined upwardly toward its outer edge, as and for the purpose set forth. 4th. The combination, with the boards F G arranged as described, of the two curved rods I K, one attached to the rear of boards and the other to the hinged coupling D, as shown and described.

No. 17,268. Apparatus for Treating Artificial Butter, &c. (*Appareil de traitement du beurre artificiel, etc.*)

John Hobbs, Boston, Mass., U.S., 13th July, 1883; 5 years.

Claim.—1st. A cooler which consists of a tank having two or more

compartments, one or more of which are adapted to contain ice, and one or more of which contain only clear water, said water being free to flow from one compartment to another, substantially as and for the purpose specified. 2nd. A cooler which consists of a tank divided into two or more compartments by grating, screen, or their equivalent, said grating being adapted to separate the ice from one or more of said compartments without impeding the passage of the water, substantially as and for the purpose specified. 3rd. In a cooler, the combination of the tank, screen or grating, and means to hold said screen or grating in position in said tank, substantially as and for the purpose specified.

No. 17,269. Improvements in Horse Collar Pads. (*Perfectionnements aux colliers de cheval.*)

Edward L. McClain, Greenfield, Ohio, U.S., 13th July, 1883; 5 years.

Claim.—1st. As an attachment to a horse collar pad or other harness pad, and as a means of adjustably attaching a pad to a horse-collar or other part of harness, the elastic single-roll or single-curve spring S constructed, arranged, attached and operating substantially in the manner shown or described. 2nd. The combination, with a horse collar pad, of elastic single-roll springs S, substantially in the manner shown or described and for the purposes set forth. 3rd. As an attachment to a horse collar pad, and as a means of adjustably attaching a pad to a horse collar, or other part of harness, the elastic two-roll spring S constructed, arranged, attached, and operating substantially in the manner shown or described. 4th. The combination with a horse collar pad, of an elastic two-roll spring S, substantially in the manner shown or described, and for the purposes set forth.

No. 17,270. Improvements in Snow Ploughs.

(*Perfectionnements aux chasse neige.*)

Robert Shorts, Portage La Prairie, Man., 13th July, 1883; 5 years.

Claim.—1st. In a railroad snow-plough, a series of cross-bars attached to one or more endless belts caused to travel by the action of a suitable motor carried on the plough, for the purpose of raising snow from the track to an elevation, whence it may be discharged clear of the track, substantially as and for the purpose specified. 2nd. In a railroad snow-plough having flaring sides to gather in the snow, the combination of cross-bars arranged to travel upwardly for the purpose of conveying the snow gathered in by the plough to an elevation, whence it may be discharged clear of the track, as specified. 3rd. In a railroad snow-plough having a series of cross-bars arranged to travel upwardly upon, and supported by the frame forming the track-plough, the combination of a frame carrying similar cross-bars and hinged to the top of the track-plough, so as to receive the snow discharged therefrom and convey it to a higher elevation, substantially as and for the purpose specified. 4th. In a snow-plough in which the snow is gathered from the track by the upward movement of travelling cross-bars, the combination of a receiving box D having an adjustable bottom formed of the plates F, and spouts G, arranged and operating substantially as and for the purpose specified.

No. 17,271. Improvements in Faucets.

(*Perfectionnements aux robinets.*)

Michael Magin, Rochester, N.Y., U.S., 13th July, 1883; 5 years.

Claim.—In combination with an ice-box, a beer-faucet provided with an outer non-conducting jacket and an inner cold air space, substantially as and for the purposes set forth. 2nd. In combination with an ice-box, a beer-faucet provided with an outer non-conducting jacket and an inner cold air space having one or more orifices communicating with the external air, substantially as and for the purposes set forth.

No. 17,272. Lubricator for Loose Pulleys.

(*Boite à graisse pour les poulies folles.*)

Ezra W. Van Duzen, Newport, Ky., U.S., 13th July, 1883; 5 years.

Claim.—1st. The combination, with an oil receptacle or shell having an orifice in its side, of a plug or stopper for closing this orifice, having a channel opening at its side and at its inner end so that, when the plug is partially out of the orifice, the receptacle can be filled with the lubricant without separating the parts, as and for the purpose set forth. 2nd. In combination with a hollow ball or shell, a plug having an opening in its side by which the oil is supplied to the chamber within the ball or shell without removing the plug as set forth. 3rd. The combination, with a hollow ball or shell having a screw threaded orifice, of a plug having a screw threaded hollow shank and a longitudinally disposed filling opening, as and for the purpose set forth. 4th. The plug having the hollow inner end and the opening through its shank, as and for the purpose set forth. 5th. The plug or stopper having a filling orifice or opening and formed with the securing and feeding stem, as and for the purpose set forth. 6th. The combination, with a shell or ball having an orifice in its side, of a combined plug or stopper for this orifice, and a securing and feeding stem having a filling orifice or opening in the side of the plug, as and for the purpose set forth.

No. 17,273. Improvements in Log Rollers.

(*Perfectionnements aux alimentateurs des scieries.*)

Lewis T. Kline, Alpena, Mich., U.S., 13th July, 1883; 5 years.

Claim.—1st. In a device for rolling logs from a skid to a log carriage, the actuating of the log turner by the direct application of steam, substantially as set forth. 2nd. In a log-turner and in combination with the skids A, the shaft D carrying two or more log-turners or series of arms E, F and G, which are actuated by the direct application of steam to one of said arms, substantially as specified. 3rd. In a log-turner and in combination with the guides A and shafts D, one or more series of arms E, F and G, cylinder H and connecting

rod H, when constructed, arranged and operating substantially in the manner and for the purposes described.

No. 17,274. Improvements in Car-Couplings.

(*Perfectionnements aux accouplages des chars.*)

John C. Blocher, Lima, Ohio, U.S., 13th July, 1883; 5 years.

Claim.—1st. A draw-head having upon its top and rear part a boss D, which projects vertically above the draw-head, and said boss provided on its front side with a vertical slot c, which has within it on each side a vertical groove g, in combination with a coupling-pin having a lower straight end i to engage with the link and provided above the lower straight end with a rear projecting part r to slide in the slot on the front side of the boss, and said rear projecting part having a key whose ends slide in the vertical grooves, as set forth. 2nd. A draw-bar having an upward projecting boss provided with a vertical slot c, and within the slot on each side a vertical groove g closed at the upper end, and a key-hole, in combination with a coupling-pin provided with a rear projecting part to slide in the slot, and having a key whose ends slide in the grooves, as set forth. 3rd. The combination and arrangement of a draw-head having a notch 4 in its top adjoining the pin-hole, an upward projecting boss provided with side-grooves closed at the top, and a coupling-pin provided with a key whose ends slide in the vertical side-grooves, as set forth. 4th. A draw-head having in its top a slot d, and at the rear end thereof an intersecting slot with a vertical wall f, and in the bottom of its mouth a horizontal seat which, with the vertical wall, forms a right-angled notch 6, in combination with a coupling-pin having a rear projection provided with a lower horizontal edge 1 and a rear vertical edge et, as set forth.

No. 17,275. Improvements in Car-Couplers.

(*Perfectionnements aux accouplages des chars.*)

Job Thighpen, Greenville, Ala., U.S., 13th July, 1883; 5 years.

Claim.—1st. The combination, with the coupling-hook, of the hooked lever, both of which are pivoted upon a common fulcrum, the said lever having an elongated slot in its forwardly projecting portion and adapted to bear at its hooked end against the back of the hook, substantially as and for the purpose specified. 2nd. The combination, with the open-ended draw-bar having, in one of its chambers or slots, the upwardly curved projection or cam, of the coupling hook and hooked lever bearing against the coupling-hooks and having its forwardly projecting portion provided with an elongated slot, both of which (the coupling-hook and lever) and pivoted upon a common fulcrum, substantially as and for the purpose set forth. 3rd. The combination, with the draw-bars A of different cars, said draw-bars having open ends or slots across which are arranged pins or bars, of the coupling hook and the hooked lever, both being fulcrumed upon one of said pins while the lever rests against a cam projection of a draw-bar, bears against the back of the coupling-hook and is provided, at its forwardly-projecting end, with an elongated slot, substantially as and for the purpose set forth.

No. 17,276. Improvement in Horse Shoes.

(*Perfectionnement des fers à cheval.*)

Harold Holland, Lynn, Mass., U.S., 13th July, 1883; 5 years.

Claim.—1st. The body A having the thickened raised portions K provided with the grooves i i, at their inner corners, the plate D provided with the shoulders j j and groove x, the calk B and pin n, constructed, combined and arranged to operate substantially as set forth. 2nd. The body A having the thickened or raised portions K provided with the grooves i i at their inner corners, the plate D provided with the shoulders j j and groove x, the calks C C B and pins a a n, constructed, combined and arranged to operate substantially as described. 3rd. In a horse-shoe having a detachable toe-calk and a removable plate for protecting the frog of the horse's foot, a pin adapted to fasten or lock both the toe-calk and plate, substantially as shown and described.

No. 17,277. Improvements in Animal Slinging Railways.

(*Perfectionnements aux appareils de suspension dans les abattoirs.*)

Richard J. Davis, Cambridge, Mass., U.S., 13th July, 1883; 5 years.

Claim.—1st. In combination with the hanger terminating at bottom in a clasp or chair, having opposite side walls to enclose and support the rail in an upright position, a set-screw screwing through one of said walls and adapted to clamp the rail against the opposite wall. 2nd. In combination the hanger terminating at bottom in clasp or chair to uphold and steady the rail, the rail with its groove or indentation and the set-screw screwing through one side or wall of the clasp and adapted to enter the groove of the rail, and to clamp such rail between it and the opposite side or wall of the clasp.

No. 17,278. Improvements in Windmills.

(*Perfectionnements aux moulins à vent.*)

Harvey W. Hill, Pontiac, Mich., U.S., 13th July, 1883; 5 years.

Claim.—1st. The combination, with the wind-wheel A and turntable D, of the arm K, the wind-wings I and connections, substantially as described, between said wings and a governor deriving its motion from the rotation of the wind-wheel, substantially as and for the purposes specified. 2nd. The combination, with the wind-wheel A, shaft B, a governor for controlling the movement of the wheel, and the gear wheel E, of the pinions F G I, all meshing in the order given for the purpose of operating the governor and conveying power from the wheel, substantially as described. 3rd. The combination, with the wind-wheel A, of the turn-table D, arm K, pivoted wings L, rod M, bell crank N, rod O, slide P, and a governor deriving its motion from the rotation of the wind-wheel. 4th. The combination, with the wind-wheel A, the turn-table D, arm K, wings L, rods M O, bell crank N, slide P and a governor, of the guide-plate R and pin c on the side P moving in said guide-plate, substantially as described.

No. 17,279. Automatic Window Screen.*(Ecran automate de fenetre.)*

John M. Bryant, (Assignee of Richard J. Barrett,) Whitby, Ind., U.S., 13th July, 1883; 15 years.

Claim.—1st. The roller *a* having notch *n* in one end, in combination with bracket *t* having slotted socket *m*, shafts *h* and springs *b*, substantially as described. 2nd. The combination of the screen *e* attached to the lower sash *f*, the roller *a* having notch *n* in one end, the brackets *t* having slotted socket *m*, shafts *h* and springs *b*, substantially as described.

No. 17,280. Improvement in Sad Iron Holders.*(Perfectionnements des poignees de fers à repasser.)*

John O'Neil, Boston, Mass., U.S., 16th July, 1883; 5 years.

Claim.—1st. The improved sad iron holder herein described, the same consisting of the pad or body C, shield E and wire D, the shield being joined to the pad by the wire, and the wire provided with the loops K, for attaching the holder to the handle, substantially as set forth. 2nd. The pad C provided with the narrow extension I, in combination with the wire D and shield E, substantially as and for the purpose specified. 3rd. A shield for protecting the hand from the heat of the iron, said shield being hinged to the pad or body of the holder by means of a wire, which also forms the loops for attaching the holder to the iron, substantially as set forth. 4th. The wire D provided with the loops K, the loops and body of the wire being integral or composed of one piece, substantially as set forth.

No. 17,281. Improvement in Fire-Escapes.*(Perfectionnements des sauteurs d'incendie.)*

John T. Hodson, Cambridge, Mass., U.S., 16th July, 1883; 5 years.

Claim.—1st. The improved fire-escape described, the same consisting of the plates A connected by the rods B C D and provided with the brackets D; the sack S provided with the chains R, the cylinder E provided with the shaft G, spring H, pulleys J and cords *x*, the lever K provided with the chains Q M and pull L, the lever N provided with the shoe P, and the bracket arms T provided with the jaws *a* *h*, hole *p*, spike *r*, teeth *l*, pawl *r* and pin *r*, constructed, combined and arranged to operate substantially as set forth. 2nd. A sack or carriage attached to a frame work and adapted to hold one or more persons, a cylinder mounted in the frame work and adapted to revolve therein, a brake for regulating the revolutions of the cylinder and a cord or cords passing around the cylinder for suspending the frame work and sack from a building, substantially as shown and described. 3rd. The bracket-arm T provided with the jaws *g* *h*, and means for holding the jaws in contact with the frame work of the window, substantially as specified. 4th. The cylinder E in combination with the sack S, cords *x*, and means for regulating the revolutions of the cylinder, substantially as set forth. 5th. A brake consisting of the levers N K, chain M, pad P and pull L, combined and arranged to operate with the cylinder E, substantially as described. 6th. The chain Q for locking the pad P against the cylinder E, substantially as set forth. 7th. The projection O provided with the hole *p*, in combination with the arm T and spike *r*, substantially as shown and described. 8th. The spring H in combination with the shaft G, cylinder E and cords *x* adapted to retard the fall of the sack or carriage as it descends from the building, and to elevate the sack or carriage by winding up the cords when the carriage is relieved of its load and released, substantially as described.

No. 17,282. Improvements in Small Boats.*(Perfectionnements aux canots.)*

James Dean, Detroit, Mich., U.S., 16th July, 1883; 5 years.

Claim.—1st. The sheathing-planks having portions of their adjacent edges crushed in longitudinally, adapted to be secured together, as shown, the crushed portion swelling where exposed to the action of water beyond the uncrushed surface forming a stop-water at each joint, as specified. 2nd. The sheathing-planks C having portions of their edges crushed in, as shown at *dz*, combined with each other and with a boat-skeleton, and adapted to serve as and for the purposes set forth. 3rd. A boat having its sides sheathed with narrow planks said planks being all of the same pattern each straight upon one edge and curved upon the other edge, substantially as described. 4th. A boat having its sides sheathed with narrow planks, said planks being all of the same pattern, each straight upon one edge and curved upon the other edge, said planks bent edgewise into contact and in this position secured to the frame of the boat, substantially as described.

No. 17,283. Hydrocarbon Vapour Generator and Dianton Hydrocarbon Burner for Furnaces.*(Générateur à gaz d'hydrocarbures et foyer à hydrocarbures de Dianton pour les fourneaux.)*

Israel B. Blumenberg, Washington, D.C., and Henry W. Whiting, Philadelphia, Pa., U.S., 16th July, 1883; 5 years.

Claim.—1st. The method of moistening and thus preserving the crown sheets of the boilers and other metal parts exposed to hydrocarbon flame, by throwing a jet of steam thereon, through a pipe or conduit connected with a steam-boiler, and secured in and passing longitudinally through and out beyond the burner-tip of a hydrocarbon vapour generator and burner, substantially as shown and described. 2nd. The method of throwing a continuous flood of fresh steam upon metal portions of boilers, furnaces, &c., exposed to hydrocarbon flame by conducting it through, and in advance of the flame, in ejecting it thereon from a steam conduit or pipe longitudinally adjusted and by the ends secured in a conical cylindrical hydrocarbon vapour generator and burner having a small neck and terminating in a hemispherical head, by which means the parts exposed to the flame

are kept moist in a perspiration and are thus preserved from destruction by burning, substantially as shown and described. 3rd. In a device for generating and burning hydrocarbon vapour, the method of simultaneously introducing steam and oil into one common conical cylindrical chamber having a small neck terminating in a hemispherical head and surmounted by a numerous perforated vapour burner, and converting the two into a highly combustible hydrocarbon vapour, by thoroughly mingling and bringing them in contact with a metal pipe longitudinally adjusted therein, and heated by a continuous current of steam passing therethrough, substantially as shown and described. 4th. A conical cylindrical hydrocarbon vapour generator having a small neck and provided with hemispherical or saucer shaped removable head surmounted with a broad circular burner-tip provided with numerous perforations for the passage of vapour directed to one common centre beyond, with a view to concentrating the flame at one point, in combination with a steam conduit and heating tube secured in the ends and adjusted longitudinally through the vapour generating chamber and arranged to pass beyond the burner-tip for throwing a flood of steam into the parts of metal, &c., exposed to the flame, substantially as shown and described. 5th. A conical cylindrical hydrocarbon vapour generator and burner for furnaces and other mechanical purposes, having a small neck and provided with a removable hemispherical or saucer shaped head, in combination with a broad circular burner-tip having numerous perforations for the passage of the vapour directed to a common centre beyond for concentrating the flame, a steam conduit and heating pipe secured in the ends and extending longitudinally through the vapour generating chamber and the burner tip, and passing beyond for throwing a flood of steam into the metal exposed to the hydrocarbon flame, also with the perforated circular base-disk, substantially as shown and described. 6th. In combination, broad burner-tip *h* with perforations tending to a common centre steam duct and heating pipe *a*, hemispherical top *g*, conical cylinder *e*, base *c*, steam induction pipe *b*, oil induction pipe *d* and steam pipe *a* in hydrocarbon burners, substantially as shown and described. 7th. In hydrocarbon vapour generators and burners, the combination of the conically shaped chamber *e*, the broad burner-tip *h* having numerous vapour exit perforations *i* tending to a common centre, the steam conduit and heating pipe *a* secured in the ends of the burner, passing longitudinally therethrough and extending beyond the burner-tip and induction steam and oil pipes, substantially as shown and described. 8th. In hydrocarbon vapour generator and burner, the combination of conically shaped cylinder *e* chamber *e*, induction pipes *b* and *d*, steam heating pipe and conduit *a* and burner tip *h* having perforations *i*, constructed and arranged substantially as shown and described. 9th. In hydrocarbon burners, the combination of steam and oil induction pipes *d* and *b*, steam heating pipe *a* and steam supply pipe *a*, chamber *e*, cylinder *e* having a small neck *e*, hemispherical burner top *g*, broad burner *h* and projecting end of steam pipe *a*, substantially as shown and described. 10th. In a device for generating and burning hydrocarbons as well as protecting boilers, furnaces, &c., against destruction by fire, in combination steam induction pipe *b* having a stop-cock or valve *f*₁, oil induction pipe *d* having stop-cock or valve *f*₂, steam supply pipe *a* having valve *f*, base of burner *c* having small steam and oil perforations *b*₁ and *d*₁, conically shaped cylinder *e*, chamber *e*, steam conduit *a*, hemispherical burner top *g* and perforated burner tip *h*, constructed and arranged substantially as shown and described.

No. 17,284. Knife for Peeling Potatoes.*(Couteau pour peler les patates.)*

William Addison, Hamilton, Ont., 16th July, 1883; 5 years.

Claim.—A knife to be used with either the right or left hand, having two blades D and E uniting in a shank C, said blades being curvilinear-shaped alike right and left as shown, the peeling edges F F coming nearly together at an angle with a parallel space between, as described, also the cutting edges H H and the points I, all combined and operating substantially as set forth.

No. 17,285. Improvements in Car Brakes.*(Perfectionnements aux freins des chars.)*

Simon P. Weller, Silvanus Wane and George R. Roesch, Denver, Col., U.S., 16th July, 1883; 5 years.

Claim.—1st. The rod A, equalizer A₁, rod F, lever B, in combination with the rods B₁, and H, the whole being constructed and operated in the manner and for the purposes set forth. 2nd. The rod A, equalizer A₁ and F, lever B, rods B₁ and H, in combination, the cylinder T, levers S K and rod R, substantially as described and for the purposes set forth.

No. 17,286. Machine for Washing Textile*(Machine à laver les tissus.)*

Richard Troy and Albert A. Fisher, Oshawa, Ont., 16th July, 1883; 5 years.

Claim.—1st. The vibrating grooved board B. 2nd. The endless chain of wood rails E. 3rd. The combination of the tub A with the vibrating grooved board B, and the endless chain of wood rails E with the soap-holders I and the rollers F and G.

No. 17,287. Automatic Metallic Packing for Piston Rods, &c.*(Garniture métallique automatique pour les tiges de piston, etc.)*

Samuel M. Weale, Boston, and Tilden G. Abbott, Watertown, (Assignees of Henry P. Weale, Boston,) Mass., U.S., 16th July, 1883; 5 years.

Claim.—The combination, in a stuffing-box, of the internally tapered shell, the series of tapered packing rings and the rings F G at the ends of said series of packing rings, these rings F and G having annular flanges F₁ G₁ and the ring G, an annular groove to receive a rubber gasket, all substantially as and for the purposes set forth.

No. 17,288. Apparatus for Changing and Storing Photographers' Back Grounds and other Movable Scenery. (*Apparatus pour changer et emmagasiner les fonds de photographie et autres décors mobiles.*)

Charlotte F. Lindop, (Assignee of William E. Lindop,) Saint Thomas, Ont., 16th July, 1883; 5 years.

Claim.—1st. A series of stalls adapted for storing photographers' back grounds and other scenery, and having rails or ways on which to run the back grounds or other scenery in and out, in combination with a gate having ways to correspond with the ways of the stalls and capable of swinging from one to the other, and with back grounds or other scenery provided with rollers and adapted to roll along the ways of the stalls and the gate, substantially as described. 2nd. The combination of flexible back grounds *v* with the stalls and gate, substantially as described. 3rd. The gate *a b* for supporting and changing the back grounds arranged on a double-jointed hinge *f g h* in combination with a series of stalls for storing the back grounds, the said back grounds, gate and stalls being arranged for rolling the back grounds along the gate and stalls, substantially as described. 4th. The combination of a spring *m* with the double-jointed hinge *f g h* and gate *a b*, substantially as described.

No. 17,289. Improvements in Hand Cars.

(*Perfectionnements aux chars à bras.*)

The Sheffield Velocipede Car Company, (Assignee of George S. Sheffield,) Three Rivers, Mich., U.S., 16th July, 1883; 5 years.

Claim.—1st. In combination with the walking beam of a hand car provided with a central rock shaft hole, a rock shaft adapted to pass through the hole in the beam, these two parts being secured together adjustably and detachably by means of a thread on the rock shaft and a clamping nut, as set forth. 2nd. In combination with the walking beam of a hand car, a turned wrist pin rigidly attached thereto, and a pitman provided with a head or plate, a journal box formed of two parts, an approximately U-shaped bar *X* and nuts *Y*, as and for the purpose set forth. 3rd. A main driving-gear for a hand-car provided with a radial recess for the crank arm, as set forth. 4th. The combination, with the main driving gear, of a cross-bar *Z* and lugs *A* forming a recess for the crank arm, as set forth. 5th. The combination, with the brake-shoes and toggle-levers, of a foot-rod provided with a retracting spring and having a step upon which the weight of a person may be thrown, so as to brake both front and rear wheels on one side of the car, as and for the purpose set forth.

No. 17,290. Improvement in the Manufacture of Oleomargarine Butter.

(*Perfectionnement dans la fabrication du beurre d'oléomargarine.*)

John Hobbs, Boston, Mass., U.S., 16th July, 1883; 5 years.

Claim.—1st. The described process for the manufacture of artificial butter which consists in mixing what I call "vegetable stearine" or "margarine," obtained substantially as described, with what is called "animal oleomargarine," and emulsifying the said mixture with milk, cream, or other watery fluid. 2nd. The described product which consists of the compound of vegetable stearine or margarine, with what is known as "animal oleomargarine."

No. 17,291. Improvements in Sleds.

(*Perfectionnements dans les trainsaux.*)

Albert Sanford, Oshkosh, Wis., U.S., 16th July, 1883; 5 years.

Claim.—1st. The combination, with the runner, of the plate *b* made broader than the runner and having the central projection, the plate *c* on the under side of the beam having the cavity corresponding to the projection on the plate *b*, and the cut-away portions *a* for the accommodation of the pins *p p*, the beam having the grooves *g g* in its sides, and the pins *p p* for holding the parts together, substantially as described. 2nd. The ball *f* in combination with the plate *p* and the runner, substantially as described for the purpose specified.

No. 17,292. Improvements in Sash-Holders.

(*Perfectionnements aux arrête-croisées.*)

William C. Carson, Denton, Texas, U.S., 16th July, 1883; 5 years.

Claim.—In a window-sash lock, the combination of the following elements, viz., a revolving locking block spirally grooved on its face and mounted centrally in a frame having seats or grooves for its journals, and a locking plate fitting into the said frame directly under said locking block, and adapted to be thrust out or in by the action of the spiral groove in said block, on the upwardly projecting centrally placed spur on said plate, said spur coming directly under said blocks, all as set forth.

No. 17,293. Improvements in Clothes Pins.

(*Perfectionnements aux épingles américaines.*)

Michael B. O'Neill, Windsor, N.S., 16th July, 1883; 5 years.

Claim.—1st. A clothes pin having two slits, each having a flaring mouth and tapering narrower towards the top, leaving a comparatively thin and flexible tongue *B* between comparatively stiff and solid sides *d e*. 2nd. A clothes pin having two slits to receive respectively the clothes line and the article to be suspended therefrom without the latter being hung over or wrapped around the line. 3rd. The combination of a clothes pin *A* having a central flexible tongue *B* and comparatively stiff sides *d e* produced by a wide slit *a* and a narrow slit *b*, both slits having flaring mouths and tapering upwards, all substantially as described and for the purpose set forth.

No. 17,294. Automatic Lamp Extinguisher.

(*Eteignoir automate des lampes.*)

William H. Kimball, Boston, Mass., U.S., 16th July, 1883; 5 years.

Claim.—1st. A self-extinguishing lamp consisting of a reservoir having a vertically adjustable wick-tube provided with a numbered scale, whereby it may be adjusted with reference to the cap plate through which it works, so as to indicate the position of the tube in the oil reservoir and the corresponding number of hours the lamp will burn, substantially as and for the purpose set forth. 2nd. The combination, with a reservoir *A* and burner *B*, of the vertically adjustable screw-tube *E* surrounding the lower portion of the wick-tube and provided with a scale, whereby the exact depth of the wick-tube in the oil reservoir may be indicated, substantially as described for the purpose set forth. 3rd. The combination, with the reservoir *A* and burner *B*, of the cap plate or collar plate provided with the pin *C*, and screw-threaded tube *E* surrounding the lower portion of the wick-tube and provided with a scale ranging from zero to the highest number of hours the lamp is adapted to burn, substantially as and for the purpose shown and described.

No. 17,295. Improvement in Nut-Locks.

(*Perfectionnement des arrête écrous.*)

Michael Angelo W. Meagher, New York, N. Y., U.S., and James C. Anderson, Winnipeg, Man., 16th July, 1883; 5 years.

Claim.—A nut-lock having a body composed of wire having three sided loops, in combination with a flexible cap wire consisting of a spiral spring in the middle, as set forth.

No. 17,296. Medicinal Compound.

(*Composé médicinal.*)

George F. Day, Musquodoboit Harbor, N.S., 16th July, 1883; 5 years.

Claim.—The described composition of materials to be used for the cure of asthma, hay fever and all pulmonary diseases, consisting of iodide of potassium, tincture of lobelia, ethereal tincture of lobelia, tincture of assafœtida and syrup, in the proportions specified.

No. 17,297. Improvements on Pillow Sham-Holders. (*Perfectionnements aux portefaux orillers.*)

Augustus H. Phelps, East Saginaw, Zephaniah S. Moore and James Neden, Jackson, Mich., U.S., 16th July, 1883; 5 years.

Claim.—1st. The rod or shaft *B* consisting of sections *C* having slots *D*, in combination with the sleeve *E* and set-screws *F*, as set forth. 2nd. The shaft *B* consisting of a sleeve *E* and adjustable or extensible sections *C* having bails *G*, in combination with the frame *H* consisting of bars *I* and adjustable connecting straps *J* having hooks *K*, substantially as set forth. 3rd. The spring hinge or holder *L* consisting of the arm *N* having loops *O*, hook *P*, eye *Q*, spring *R* and spring finger *S*, all substantially as set forth. 4th. The described improved device for holding pillow shams consisting essentially of the spring hinges or holders *L*, a shaft *B* having pins *T* and bails *G*, and the swinging frame *H*, all substantially as and for the purpose set forth.

No. 17,298. Improvement in Mowing Machines. (*Perfectionnement des faucheuses.*)

William Gause and John H. Bass, Fort Wayne, Ind., U.S., 16th July, 1883; 5 years.

Claim.—1st. The tubular main frame with its casing for enclosing the main driving-gear, in combination with the pivoted sleeves and shoe brace connecting the cutting apparatus with said frame, substantially as described. 2nd. The tubular main frame surrounding the main axle, in combination with the crank-shaft casing sleeve *G* hinged thereto, in line with the secondary or pinion shaft, the shoe-sleeve *G* hinged to said crank-shaft casing sleeve, the hinged tongue and the levers for adjusting said frame sleeves and cutting apparatus, substantially as described. 3rd. The sleeve to which the inner shoe of the cutting apparatus is connected provided with the internal gear, in combination with the pinion on the crank-shaft wrist for actuating the sickle-bar, substantially as described. 4th. The crank-wrist which actuates the sickle-bar attached to a pinion on the crank-shaft, in combination with the internally geared sleeve surrounding said shaft for actuating said pinion and crank-wrist, whereby the latter is adapted to move in right lines, for actuating the sickle-bar, substantially as described. 5th. The reciprocating sickle-bar in combination with an actuating crank-wrist connected with said bar, and mechanism for operating said crank-wrist, whereby the latter is reciprocated in right lines, substantially as described. 6th. The travelling pinion on the crank-shaft wrist, in combination with the crank-pin with which the sickle-bar is connected, secured to said pinion by ball and socket joint, substantially as described. 7th. The travelling pinion on the crank-shaft wrist provided with a crank-pin for actuating the sickle-bar, in combination with the swivelling rod connecting said crank-pin with the sickle-bar head, substantially as described. 8th. The travelling pinion for actuating the sickle-bar, in combination with the internally cogged-sleeve for actuating said pinion, and a cap or head for covering and protecting said pinion and sleeve, substantially as described. 9th. The crank-shaft sleeve hinged to and adjustable around the secondary shaft, in combination with the sleeve to which the inner shoe is connected, pivoted to and turning upon the crank shaft sleeve, the hinged brace connecting the shoe with the tubular main frame and the hinged pole or tongue, substantially as described. 10th. The casing sleeve or yoke *G* on said sleeve provided with a lever arm with which the draft rod is connected, in combination with the pivoted shoe-brace connected with said arm, substantially as described. 11th. The tongue-brace and seat support provided with the tool-box, and a pivotal support for the lifting lever formed in one piece, substantially as described. 12th. The combination with the main drive-wheel axle, of the tubular casing frame *C*, the crank-shaft casing sleeve *G*, the sleeve *G*2 to which the shoe is

rigidly connected, the hinged shoe-brace *C*, the hinged tongue and tongue-brace, and the adjusting levers, arranged and operating substantially as described. 13th. The internally ratcheted hub or rim on the driving wheel, in combination with the pawl plate *A*, the pawls *c* provided with the spur *c*₁ and *c*₂, and the springs *c*₃, arranged and operating substantially as described. 14th. The reversible pawls *c* provided with the spurs *c*₁ and *c*₂, in combination with the springs *c*₃ connecting said pawls in pairs, substantially as described.

No. 17,299. Improvements in Cutter-Heads.

(*Perfectionnements aux porte-lames.*)

S. J. Shimer, Milton, (Assignee of G. J. Shimer, Freemansburg,) Penn., U.S., 16th July, 1883; 5 years.

Claim.—1st. A head of a cutter-head tool formed with bit seat chambers alternately arranged on opposite sides of the single flange, and the bolt-hole structures formed or provided with keys or splines, substantially as described. 2nd. The combination, substantially as described, of the head formed with inclined bit-seats alternately arranged on opposite sides of the flange, circular bits and fastening-bolts with key-ways or their equivalent; substantially as described. 3rd. The organized cutter-head composed of the solid head, with the formed bit-chambers with the double inclined surfaces and alternately arranged, the circular bits arranged in series which partially overlap each other on the inner line of the cut, and the fastening-bolts and nuts with locking means for preventing the turning of the bolts, substantially as described.

No. 17,300. Improvements in Grate-Fire Places.

(*Perfectionnements aux foyers à grille.*)

John M. Cook, Cincinnati, Ohio, and John Builder, Danville, Kentucky, U.S., July, 1883; 5 years.

Claim.—1st. The combination, substantially as specified, of the perforated front frame *A* and the inwardly projecting backward shell *B* with the fire box *C* secured between the parts *A* and *B*, and having a thimble *D* projecting through the back shell. 2nd. The combination of the parts *A* and *B* with the corrugated shell *C*, thimble *D* and fire-tiles *e*, the parts *C* and tiles having a space between them for the passage of air from the ash-pit to the fire-chamber, substantially and for the purpose specified.

No. 17,301. Improvements on Sickle-Bars.

(*Perfectionnements aux lames des moissonneuses.*)

Christian Schmidt and John Stocker, Meanisburg, Ohio, U.S., 16th July, 1883; 5 years.

Claim.—1st. The combination of the bars *C* and *D* grooved at *E* and *F* and forming recess *Q*, rod *G* adapted to hold the blades in position, cutter blades *A* and fastening-screw *O*, substantially as shown and set forth. 2nd. The combination of the bars *C*, *D* grooved at *E* and *F*, having screw-holes *S* and forming recess *Q*, rod *G* adapted to hold the blades in position, cutter-blades *A* having slots *T*, screws *R* and fastening screw *O*, substantially as shown and set forth. 3rd. The blades *A* having square bases *B* and slots *T*, the upper bar *C* having longitudinal groove *E*, screw-holes *S* and screw threaded recess *M* in one end, the lower bar *D* having offsets *H* and *I* oblique on the inside forming recess *Q*, longitudinal groove *F*, screw-holes *S* and screw-threaded recess *N*, rod *G* having nut *K* in one end and screwed into the cross-piece *L* at the other end, cross-piece *L* having screw-holes for the reception of one end of rod *G* and for screw *O*, screws *O* and *R*, all constructed and combined substantially as shown and set forth.

No. 17,302. Improvements in Hammocks.

(*Perfectionnements dans les hamacs.*)

Charles E. Hiester, Harrisburg, Penn., and Harry L. Horton, New York, N.Y., U.S., 16th July, 1883; 5 years.

Claim.—1st. A hammock having two cords at one end and four cords at the other end, two of the latter cords being located at a distance from that end equal to one fourth the entire length of said hammock, substantially as set forth. 2nd. The method of suspending a hammock from the wheels of a vehicle which consists of passing the cords around the rims at suitable points and holding the loose ends in position by devices independent of and supplemental to the rims, substantially as set forth. 3rd. A hammock having two cords at each end and two additional cords at a distance from one cord equal to one fourth the entire length of said hammock adapted to be suspended from the wheels of a vehicle, substantially as specified. 4th. A hammock having two cords at each end and two additional cords at a distance from one end equal to one fourth the entire length of said hammock, in combination with rods or spreaders for counteracting the inward pressure of the wheels of a vehicle from which it is adapted to be suspended, substantially as specified. 5th. A hammock *G* having two cords *H* *H* at one end, and four cords *E* *E* *E* *F* at the other end, the cords *E* *E* being located at a distance from that end equal to one fourth the entire length of said hammock, substantially as set forth. 6th. A hammock *G* having two cords *H* *H* *F* at each end, and two additional cords *E* *E* at a distance from one end, equal to one fourth the entire length of said hammock, in combination with sockets *R* *B* attached to the cords and rods or spreaders *D* *D* for counteracting the inward pressure of the wheels *A* *A* of a vehicle from which the hammock is adapted to be suspended, substantially as specified.

No. 17,303. Improvements in Draw Bars and Car-Couplers.

(*Perfectionnements aux barres de traction et aux attelages des chars.*)

Thomas J. Hilliard, Conway, Arkansas, U.S., 16th July, 1883; 5 years.

Claim.—1st. The curved grappling hooks or double hooked grapplers, each having an under and an upper hooked shoulder, in combination with the bevelled catches formed on the solid part of the head of the draw bar to which said coupling hooks or grapplers are pivoted, substantially as described. 2nd. The embodiment in the same draw-bar of my improved double hooked grappler and engaging devices, and an ordinary link and pin coupling device, as and for the purpose set forth.

No. 17,304. Improvement in Grain Dryers.

(*Perfectionnements des sécheries à grain.*)

Henry Cutler, North Wilbraham, Mass., U.S., 16th July, 1883; 5 years.

Claim.—1st. The cylinder having the hollow steam head *B* with the apertured plates *a* *d*, partition plates *b*, four chambers in each side of plate *a*, the pipes *f* *a* and the disk *C*, as shown and described. 2nd. The cylinder head *B* having chambers *c* *c* *i*, hollow journal *i* with inclined passages *m* and bearings *j*, in combination with a plug *D* having the central steam passage *k*, lateral water passage *l* and openings *kl*, as shown and described. 3rd. The combination, with the head *B* having passages *m*, back plate *d* and the plate *a*, of the chambers *c* connected at their inner ends to form pockets *n* and communicating with said passages, as shown and described. 4th. The combination, with the packing of the gland *p*² around the outer end of the plug *D*, the bail *o* and rod *p*¹ passing through the centre of plug, as described. 5th. The combination, with the steam head *B* having the hollow journal *i* and passages *m*, of the steam plug *D* provided with the separate passages *k* *l* for steam and water, substantially as shown and described. 6th. The steam head *B* constructed with the separate steam and water chambers and the hollow journal *i* in one piece, substantially as described. 7th. The steam plug *D* having the passages *kl* and provided with the packing *o* *p*, in combination with the hollow journal *i*, substantially as described. 8th. The combination of the buckets *u*, plates *x* and trough *v*, substantially as described, for operation as set forth. 9th. The feed buckets *u* for supplying the cylinder, in combination with the cylinder *A* and trough *v*, substantially as shown and described.

No. 17,305. Improvement in Screw Cutting Tools.

(*Perfectionnement des filières.*)

James H. Lancaster, New York, N.Y., U.S., 16th July, 1883; 5 years.

Claim.—1st. An improved screw-cutting tool constructed, substantially as shown and described consisting of a stock holding one or more adjustable dies or cutters and provided with a central tubular slotted collar adjustable pipe or bolt guides, and a guide adjusting ring, all arranged and operating substantially as set forth. 2nd. The combination, with the stock body *A*, of the collar *D* having vertical slots *d* and ears *f*, pivoted guides *E* and ring *F*, substantially as and for the purpose set forth. 3rd. In a crew cutting tool, the bolt or pipe guides *E* constructed with convex inner faces and with exterior thumb pieces or their equivalents, substantially as shown for the purpose set forth. 4th. The combination, with the stock body *A*, of the adjustable handle *B* provided with ball tipped fingers *L*, substantially as shown and for the purpose described. 5th. The combination, with the stock body *A* and adjustable handle *B* provided with ball *m*, of the die *G* having a hemispherical socket *m*, substantially as shown and described. 6th. The combination, with the stock body *A* provided with slotted collar guides, guide-adjusting ring and adjustable handle, as set forth, of the adjustable pipe cutter *O* and blanks *P*, substantially as and for the purpose set forth. 7th. The blanks *P*, with cutting edges or rounded ends, in combination with the stock body *A*, substantially as and for the purpose set forth. 8th. In a thread or screw-cutting tool, a die or dies having threads cut in the same at two or more different angles, substantially as and for the purpose set forth. 9th. In a thread or screw-cutting tool, a master top having threads cut on same at two or more different angles, substantially as and for the purpose set forth. 10th. In a thread or screw-cutting tool the die *A*⁶ having its face *B*⁶ angled or curved from point *d*⁶ to *e*⁶, and parallel from *e*⁶ to *f*⁶, and provided with threads, as shown substantially as and for the purpose set forth. 11th. In a thread or screw cutting tool, the die *A*⁶ having its face *B*⁶ angled from point *d*⁶ to *e*⁶ and slightly angled from point *e*⁶ to *f*⁶, substantially as and for the purpose set forth. 12th. In a thread or screw-cutting tool the hub or master top *H*⁶ with angular curved part and straight or angled part, substantially as and for the purpose set forth.

No. 17,306. Improvements in Net Knitting Boards.

(*Perfectionnements aux métiers à confectionner les rets.*)

Nathaniel D. Sollers, Cove Point, Maryland, U.S., 16th July, 1883; 5 years.

Claim.—1st. A knitting board for making nets having a holder for the meshes and a hook to prevent the meshes from slipping while the knot is being tied, substantially as set forth. 2nd. A knitting board having a perforation through which a finger of the hand may be inserted, in combination with an adjustable holder and a hook secured to the board, to hold the thread in tying the knot, substantially as set forth.

No. 17,307. Improvements in Fire Extinguishers.

(*Perfectionnements aux extincteurs d'incendie.*)

Abel F. Spawm, San Francisco, Cal., U.S., 16th July, 1883; 5 years.

Claim.—1st. A fire-extinguisher wherein are combined twin tanks a common generating chamber, pump cylinders having connection with generating chamber and communication with tanks and a cross head to which the pump plungers are connected so as to be operated together, substantially as described. 2nd. The combination together of twin tanks each being an independent compartment, a common generating chamber, the perforated partitions in the tank, the pump

cylinders having their suction ends carried down into said tanks below partitions, the pump rods and a cross-head and handle for operating the same, substantially as described. 3rd. In a portable fire extinguisher, the combination of tanks adapted to hold two independent bodies of water, a common generating chamber, a suction pump cylinder fixed in each tank and having connection with said generating chamber outside and means by which the plungers of said pump cylinders are reciprocated simultaneously and holding devices outside of said tanks to hold cans or receptacles for acid and alkali, substantially as described. 4th. A fire-extinguisher consisting of twin tanks with removable covers, a generating chamber, pump cylinders having pump rods and a common cross head and handle, the carrying bail and removable receptacles, substantially as described. 5th. The construction, with the receptacle for acid and alkali in a dry state, of an interposed wrapping or case between the sides of the receptacle and the substances therein, substantially as described.

No. 17,308. Improvement on Wood Grinders for Making Paper Pulp.

(Perfectionnement des machines à moudre le bois pour faire la pâte à papier.)

The Canada Pulp Company, Montreal, Que., (assignees of Stephen M. Allen, Duxbury, Mass., U.S.) 16th July, 1883; 5 years.

Claim.—1st. A wood grinder, for making paper-pulp, having the grinding surface composed of blocks with their edges in close contact and with the joints broken, substantially as described. 2nd. A wood grinder having a grinding surface of emery or artificial stone blocks separately compacted and laid so as to break joints and connected, substantially as described.

No. 17,309. Method and Device for Taking Coal in Locomotive Tenders while in Motion.

(Mode de déposer le charbon sur les tenders de locomotives en mouvement et appareil pour cet objet.)

Michael H. Lantz and Nelson T. Cleverger, Marionville, Miss., U.S., 16th July, 1883; 5 years.

Claim.—1st. The method of taking coal in locomotive tenders while in motion consisting in forcing the same by the velocity of the train into and through a tube that will change the angle of incidence, until a right angle to the former path of the coal is reached, when its momentum is destroyed and its falls by its own gravity into the tender, as set forth. 2nd. In a device for taking coal on locomotive tenders while in motion, a tube having an elliptical quadrantal guide wall, as set forth. 3rd. The combination, with a locomotive tender, of a hinged curved tube adapted to take in coal while the tender is in motion, as set forth. 4th. The combination, with the locomotive tender having a fulcrum standard, of a hinged curved tube for taking in the coal and an operating lever for lowering and elevating the tube as set forth. 5th. The combination, with a hinged tube having a pin of a substantially T-shaped lever having a slotted end, an operating end and a shank or stem working and sliding in a vertical fulcrum standard, as set forth. 6th. The combination of the tender having a vertical bifurcated slotted standard and longitudinally slotted vertical guide O, the hinged curved tube having the pin and a T-shaped lever having a slotted operating end U, an operating end S and a stem having pins as and for the purpose set forth. 7th. The combination of the platform parallel with the track, a hinged tube on the tender having an elliptical quadrantal guide wall and an operating lever, as set forth.

No. 17,310. Machine for Cutting Wooden Plates.

(Machine pour découper les plaques en bois.)

The Smith Manufacturing Company, (assignee of Seth H. Smith, Delta, Ohio, U.S.) 16th July, 1883; 5 years.

Claim.—1st. A machine for cutting concavo-convex shells continuously from a block of wood, the same comprising in its construction a revolving curved knife having both its ends attached to the driving shaft, and a facing knife attached radially to a shaft located at an angle to the driving shaft, substantially as set forth. 2nd. In a machine for cutting concavo-convex shells continuously from a block of wood, the combination of a revolving curved knife having both its ends attached to the driving shaft, a facing knife attached to the driving shaft, a facing knife attached radially to a shaft located at an angle to the driving shaft, and mechanism for feeding a block intermittently to the said knives after the throw of the cutting knife and before the throw of the facing knife, substantially as set forth. 3rd. The combination of the frame box having a collar upon its rear end, the feed screw journaled longitudinally in the said frame box projecting through said collar and carrying a ratchet wheel, a hub mounted upon the said collar and having two arms, one of which carries a spring pawl engaging the ratchet wheel while the other has a radially adjustable wrist-pin, a disk mounted upon a shaft parallel to the feed screw and having a radially adjustable wrist-pin, a pivoted rod connecting the two wrist-pins and suitable operating mechanism, substantially as and for the purpose set forth. 4th. The combination of the main shaft, the band wheel mounted loosely upon the same and having a clutch, a clutch collar sliding upon the shaft, a horizontal lever operating the said clutch collar, a vertical shaft having at its lower end an arm supporting the rear end of the lever between two vertical pins, and at its upper end an inwardly projecting arm, and the follower having a longitudinally adjustable stop stud, substantially as set forth.

No. 17,311. Improvements in Grease Cups.

(Perfectionnements aux boîtes à graisse.)

Barnim F. Ortman, Leander, G. Gilbert and Edwin G. Miller, Buffalo, N.Y., U.S., 16th July, 1883; 5 years.

Claim.—1st. The combination, with a grease cup, of a central discharge tube or rod extending into the cup, a piston arranged in the cup around the discharge tube or rod, and mechanism whereby the piston is moved toward the discharge opening of the cup and the greased compacted against the discharge tube or rod, substantially as set forth. 2nd. The combination with a grease cup of a piston, and a spring whereby the piston is forced toward the discharge opening of the cup and the lubricating material automatically and gradually expelled from the cup, substantially as set forth. 3rd. The combination, with a grease cup, of a discharge tube or rod extending into the cup, a piston arranged in the cup around the discharge tube or rod, and a screw whereby the piston is moved toward the discharge orifice of the cup, substantially as set forth. 4th. The combination, with a grease cup, of a discharge tube or rod extending into the cup, a piston arranged in the cup around the discharge tube or rod, a spring whereby the piston is automatically moved toward the discharge opening of the cup, and an adjusting device whereby the position of the spring can be regulated, substantially as set forth. 5th. The combination, with a grease cup A, of a discharge tube or rod b, a piston c, an adjusting stem E provided with a stop f, and a spring g and an adjusting device h, substantially as set forth.

No. 17,312. Improvements in Steam Injectors.

(Perfectionnements aux Injecteurs de vapeur.)

The Desmond Injector Company (assignee of John Desmond), Jackson, Mich., U.S., 20th of July, 1883; 5 years.

Claim.—1st. The combination of the wall secured by rods and thumb-screws, pipe B, steam spreader S and nut a, substantially as shown and for the purpose described. 2nd. In a steam injector, the pipe B having bushing or walls b, steam spreader S, rod h adjustable in nut a, and transverse bar a', and partitioned chamber A, substantially as shown and for the purpose described. 3rd. The combination of steam spreader S, pipes A, B, D, E and F, funnels C and H, and partitioned chamber A, substantially as shown and for the purpose described. 4th. A steam injector constructed and arranged, substantially as shown and described.

No. 17,313. Improvements in Wire Fence Machines.

(Perfectionnements aux machines à clôture en fil de fer.)

Charles A. Everett, St. John, N. B., (assignee of Joseph Ash, Quincy, Ill., U.S.) 20th July, 1883; 5 years.

Claim.—1st. The combination, with the twisting mechanism for twisting the wires between the slats, of the swinging clamp shuttle provided with pivoted spring-actuated jaws between which the wires pass, substantially as described. 2nd. The combination of the rotary drum upon which the fence is wound, with the wire twisting mechanism supporting the wires in pairs and spreading them apart so as to allow the slats or pickets to be inserted between each pair of wires and the swinging shuttle carrying pivoted spring-actuated jaws adapted to adjust the slats and bring the wires together thereon, substantially as described.

No. 17,314. Improvements in Iron Fences.

(Perfectionnements aux clôtures en fer.)

Friend F. De Voe, Lima (assignee of Benjamin G. DeVoe), Kenton, Ohio, U.S., 20th July, 1883; 5 years.

Claim.—1st. In an iron fence having wrought rods and malleable ornaments, the means for securing the ornament to the picket rod, which consists in casting said ornament with an indentation thereon, as described, and having the metal of the ornament indented or driven into the rod by a punch, substantially as set forth. 2nd. In an iron fence having a channel T-shaped rail punched for the picket rods, an ornament provided with two loops one above and one below the rail, each enclosing the picket rod and extending rearward and downward in parallel lines, the upper loop resting upon the top surface of the rail behind the picket rod, and operating in connection with an angular bearing which supports the front flange of said rail, as a means for allowing the adjustment of the latter to grade, substantially as set forth. 3rd. In an iron fence having punched rails and malleable ornaments, a picket ornament provided with an angular bearing to support the front flange, and a downward and rearward extending loop enclosing the rod above the rail, and resting upon the rear upper surface of the latter behind the rod, whereby an upper and lower bearing of said rail is secured at diagonally opposite points, substantially as set forth. 4th. In an iron fence having punched rails and malleable ornaments, a picket ornament provided with diagonally opposite bearings for the upper and under surface of the rail, which latter is adjustable thereon, and having its enclosing loops extended rearwardly and downwardly in the same direction, substantially as set forth.

No. 17,315. Under ground conduits for Electric Wires.

(Conduits souterrains pour les fils électriques.)

Josiah S. Dubois, Haddonfield and Dillwyn P. Pancoast, Camden, N.J., U.S., 20th July, 1883; 5 years.

Claim.—1st. A conduit for electric wires, having tiers of ledges for holding the wires, and an upper platform for the motor, in combination with a motor running on said platform, a carriage for wires running on one of the lower ledges, and a rod D pivotally connecting said motor with said carriage, substantially as set forth. 2nd. A conduit having smooth upper platform C for the motor, and tiers of lower ledges attached to its sides, and provided with vertical partitions for separating the wires, substantially as set forth. 3rd. The lower conduit G, for electric wires, consisting of an open trough provided at the upper edge of each side with an inwardly and an upwardly extending flange, in combination with the upper conduit A, constructed to fit between the inwardly and upwardly extending flanges, substantially as set forth. 4th. The underground conduit for electric wire

having tiers of ledges and the motor and carriage for the wires, said motor and carriage being connected by a hinged or pivoted rod, substantially as and for the purpose set forth.

No. 17,316. Improvements on Sad Irons.

(*Perfectionnements aux fers à repasser.*)

Henry C. Fox, Evansville, Ind., 21st July, 1883; 5 years.

Claim.—1st. The combination of the iron A, having recessed boss *g* in front, with locking holes *n*, the handle arm B₂ having projection *l*, the screw *h* connecting the handle arm to the body of the iron, and the locking lever *k* having its lower end covering the screw *h*, and provided with a locking pin *l* passing through the handle arm into the iron, as set forth. 2nd. The combination, with the iron A, of a rotary adjustable handle having arm B₁ connected to the iron by a grooved ring *d* and studs *e*, and having the arm B₂ connected by a screw *h*, with a locking lever *k* overlapping the head of said screw, substantially as shown and described.

No. 17,317. Improvements in Car Couplings.

(*Perfectionnements aux attelages des wagons.*)

Charles A. Huth, Maynard, Ohio, U.S., 20th July, 1883; 5 years.

Claim.—1st. The combination, with the lever latch *g*, of the pin lifting drum having the shoulder *h*, whereby the pin may be held up, as described. 2nd. The combination, with lever latch *g*, of the pin-lifting drum having the notch *n*, whereby the drum cannot turn forward beyond said notch, as described. 3rd. The combination, with the pin lifting drum having the shoulder *h*, of the bar *t*, whereby the drum cannot be accidentally turned farther back than said shoulder, as described. 4th. The pin raising and setting drum having shoulders *h*, *n* and *o*, in combination with latch *g* and a stop *t*, and being mounted with relation to the coupling-pin, and having said pin connected to it by a chain, substantially as described. 5th. The pusher *j* and spring *k*, in combination with latch *g*, drum *d*, chain *f* and coupling pin *e*, said drum being arranged over the coupling pin and on a crank-shaft, substantially as described. 6th. In a car-coupling, having a setting-drum, tripping-latch and a pusher *j*, to actuate the pusher by the car to be coupled on, the said pusher secured in its place by a head confined between the two parts of the draw-bar fastened together, substantially as described. 7th. The combination, in a car-coupling, of a setting and a tripping drum, the coupling-pin connected to said drum by a chain, housings for the support of the drum, and an inclosing cover *p* and door *q* of the housings, substantially as described.

No. 17,318. Improvements on Peg Cutters.

(*Perfectionnements aux râpes des cordonniers.*)

Albert Hauck, Jewett, Ohio, U.S., 21st July, 1883; 5 years.

Claim.—1st. In a shoe rasp or peg cutter the combination of a rotary shaft *a*, provided with a socket bearing in its upper end, and with a gearing surrounding the open end of the socket-bearing, a stem *b* placed loosely in the socket-bearing, a rasp pivoted on the outer end of the stem *b* and having a bearing on its underside adapted to engage with the gearing on the end of the rotary shaft, and means for rotating the shaft *a*, as and for the purpose set forth. 2nd. The combination, substantially as described, of a shaft constructed with the slot *a*, and notch *a*₅ projected therefrom, a gear wheel secured on the end of the shaft, the stem provided with circumferential groove *b*₁, a bracket pivoted to the stem and having a rasp journaled thereon, and the sleeve *c* and pin *c*₁, as specified. 3rd. The combination with a hollow shaft, and a gear-wheel secured thereon of the stem, the pin *b*₃ and the bracket having the rasp journaled thereon, and constructed with the slot *d*₁, and an extension arranged to extend over the edge of the slot *d*₁, substantially as described and for the purpose set forth. 4th. The combination, substantially as set forth, of the shaft constructed with slot *a*₄, and the notch *a*₅, the gear-wheel *a*₃, the shaft having the groove *b*₁, the pin *b*₃, the bracket constructed with the extension *d*₂ and having the slot *d*₁ formed through it, and the rasp journaled on the bracket, substantially as set forth. 5th. In a shoe-rasp machine, the combination of the hollow shaft, a bevel-gear-wheel secured on the end thereof, a stem placed within the hollow shaft, a bracket pivoted to end of the said stem, a rasp journaled on the said bracket, and series of internal and external teeth formed on or otherwise secured to the under side of the rasp, as and for the purpose specified.

No. 17,319. Commutator and Regulator for Dynamo-Electric Machines.

(*Commutateur et régulateur pour les machines électro-dynamiques.*)

John J. Wright, Parkdale, Ont., 21st July, 1883; 5 years.

Claim.—1st. In a commutating apparatus for dynamo-electric generators a disk or arms revolving with the armature coils and carrying flexible strips of copper, or other metal, each connected to a free terminal of the armature coil, and adapted by centrifugal action or otherwise to bear upon the segments of a divided and adjustable circular collector, in the manner specified and set forth. 2nd. In a commutating apparatus for dynamo-electric machines, the combination of a disk or radial arms revolving with the armature, and counterbalanced brushes revolving with said disk or arms and adapted by the action of centrifugal force upon the counterbalances to press inwards towards a point concentric with their arc of revolution. 3rd. In a commutating apparatus for dynamo-electric machines, a contact brush or brushes attached to each free terminal of the coils of a revolving armature, and adapted by centrifugal action or otherwise to bear upon a collector or collectors placed concentrically with the axis or revolution of the armature. 4th. A collector to which positive and negative connections may be made and consisting of two rings, of two active and two neutral segments each, the corresponding active segments of each ring being in electrical connection and adapted to move upon each other to increase or diminish the length of brush contact on each segment with the object of varying the electro-motive

force of the machine. 5th. The combination of a current collector, consisting of two rings, of two active segments each, the corresponding or positive and negative segments of each ring being in electrical contact or connection, with an electro-magnet, the actuating wire of which is in the main circuit, or a shunt derived from the main circuit of the generator, and with mechanism adapted to move one ring of the collector in relation to the other backwards or forwards, to lengthen or shorten the effective contact of each brush terminal of the armature coils, and so vary the electro-motive force of the current produced. 6th. The combination, with a disk carrying the brush terminals of the armature coils of a dynamo-electric machine, of a series of blades adapted by their centrifugal action to produce a current of air through the segments of an adjustable collector for the purpose or preventing injurious heating of the collector segments. 7th. In a commutating current collector, the combination of the insulating disk V, the flange Y, and the rings S S₁, in the manner specified. 8th. In a current collection and regulating apparatus for dynamo-electric machines, the combination of the disk Q, carrying the fan blades F, and balanced brushes B, each connected to a coil terminal of the armature, the segment current collectors S S₁, mounted upon the carrying flange Y, and the insulating disk V, the regulating magnet M, and core C, with dash pot D₁ and lever L attached to adjustable collector segments S S₁. 9th. A regulating device, consisting of an electro-magnet or helix in the main, or a shunt derived from the main circuit of a dynamo-electric generator adapted to vary the working length of each segment in a collector composed of adjustable positive and negative segments. 10th. The combination, with stationary or adjustable circular collectors for dynamo-electric machines, of the automatic oiler I and groove or trough R, with capillary tubes *i*, which allow the oil to flow down through the collector upon the revolving brush terminals of the generator.

No. 17,320. Improvements in Centrifugal Flour Bolts.

(*Perfectionnements des blutoirs centrifuges.*)

Abel P. Holcomb and August Heine, Silver Creek, N.Y., U.S., 20th July, 1883; 5 years.

Claim.—1st. The combination, with a flour bolt composed of a revolving bolting cylinder and revolving beaters arranged within such cylinder, of a preliminary disintegrating and separating mechanism, composed of a spiral brush and a perforated trough in which the brush rotates, and means whereby the fine material which is driven through the perforations of the casing is conducted into the flour bolt, and the coarse material excluded from the flour bolt and discharged separately, substantially as set forth. 2nd. The combination, with a revolving bolting cylinder B and revolving beaters *f*, of a head D, arranged at the feed end of the bolting cylinder and provided with the central opening *k*₂, ribs *k*₃ and a deflector L, whereby the material is fed into the bolt at or near its axis, a hood J and collar *j*, substantially as set forth. 3rd. The combination, with a rotating bolting cylinder and rotating beaters, of a feed device, consisting of a head D provided with a central opening *k*₂, ribs *k*₃, a deflector L and hood J, whereby the material is fed into the bolt near its axis, and a discharge device consisting of a head D₁, having a central opening *m*, ribs *m* and deflector *m*₃, whereby the coarse residue is discharged from the bolt, substantially as set forth. 4th. The combination, with a rotating bolt and rotating beaters *f*, of a feed device composed of a head D, having a central opening *k*₂, ribs *k*₃, a deflector L and a hood J, substantially as set forth. 5th. The combination, with a revolving bolt and revolving beaters, of means whereby the residue is discharged at the tail end of the bolt, near the axis thereof, and a receptacle which receives the residue and is provided with one or more automatic valves which exclude the air from the bolt, substantially as set forth. 6th. The combination, with a revolving bolt, revolving beaters, and an inclosing case formed with an air inlet opening at the head of the bolt, of a residue discharge and one or more automatic valves, which exclude the air from the tail end of the bolt substantially as set forth. 7th. The combination in a flour bolt, with a head having a tapering marginal flange K₁, and a detachable tapering hoop *v*₄ surrounding said flange, of the bolting cloth and a strip to which the bolting cloth is attached and which is arranged between the flange *k*₁ and the hoop *v*₄, and provided with a raised outer edge *v*₃, which bears against the tapering hoop, substantially as set forth. 8th. The combination, with a flour bolt, of two heads arranged near the extremities of the bolt and provided with tapering flanges *k*₁, tapering hoops *v*₄ and two sections of bolting cloth, provided at their outer ends with strips *v* having raised outer edges, and at their inner ends with strips *v*₁ having projecting hooks *v*₂ and a cord *v*₅, whereby the inner strips are laced together, substantially as set forth.

No. 17,321. Improvements on Devices for Applying Anti-Friction Rollers to Journal Boxes.

(*Perfectionnements aux moyens d'appliquer les rouleaux à anti-friction aux boîtes des roues.*)

Joshua Thomas, Cleveland, Ohio, U.S., 21st July, 1883; 5 years.

Claim.—1st. A journal axle box having a suitable bore for receiving an axle, and arms extending from the upper and lower edges of its sides, which terminate in conjoined portions, provided with seats for the springs, and holes for attaching the box to the other parts of the truck, substantially as shown and described. 2nd. In a solid box provided with anti-friction rollers, and provided with the flanges C C, the combination, with the adjustable collars D *d* D₁ and *d*₁, of the respective elastic packing rings *d*₃ *d*₃, forming with their respective collars an extension joint, keeping the inner collars *d* *d* against their respective flanges, and also keeping out the dust *a* and retaining the oil in the box, substantially as described and for the purpose specified. 3rd. The combination, with the collars D *d* D₁ and *d*₁ and their respective dowel pins *d*₂, of the elastic packing rings *d*₃ making an expansion joint and keeping the collars *d* and *d*₁ against their respective lateral bearing, thereby keeping out the dust from between the parts and preventing the escape of oil and grease, and also preventing the rattling of the parts, substantially as and for the purpose set forth.

No. 17,322. Improvement for Fruit Evaporators. (*Perfectionnement des sécheries à fruits.*)

William S. Plummer, San José, Cal., U. S., 21st July, 1883; 5 years.

Claim.—1st. The combination, with the series of tray-seats and the walls of the drying chamber, of the deflector plates C and tubes D, arranged to take the hot air in the spaces outside the tray-seats, and divert it partly underneath the upper sets of trays, and carry the balance to the escape flue to quicken the draft and secure the rapid clearing of the heavy vapours from the fruit, as described. 2nd. The combination, with two or more vertical stacks of trays having an air space between them, of the double deflector C, Fig. 3, and the tube D opening below the same and extending up between the stack of trays, as shown and described.

No. 17,323. Apparatus for Brazing Metals. (*Appareil pour braser les métaux.*)

John C. Stevens, Natick, Mass., U. S., 21st July, 1883; 5 years.

Claim.—1st. In an apparatus for brazing saw-blades and similar articles, the combination, with the bed plate and clamps thereon, of a receptacle and support therein for the meeting ends of the blade, whereby the said ends are maintained in line with one another while acted upon by a flame to melt the soldering material, substantially as described. 2nd. The combination of the bed plate and its guiding ridge and the clamps thereon, with a charcoal receptacle and adjustable blade support therein, substantially as and for the purpose set forth. 3rd. The described apparatus for brazing metals, which consists of the bed plate *a*, provided with suitable clamps, and a charcoal receptacle in which the broken ends are inserted and melted together, as described and shown.

No. 17,324. Improvement in Ties for Bags, Bales, etc. (*Perfectionnements aux attaches des sacs, paquets, etc.*)

William Gibson, Adamsville, Que., 21st July, 1883; 5 years.

Claim.—In a tie for securing bags, bales and other like receptacles, a plate or disk, having a lug or lugs, or their equivalents, made separate or in one therewith, in combination with the cord B, substantially as and for the purpose described.

No. 17,325. Improvements in Grinding Disks. (*Perfectionnements aux meules des moulins.*)

William Lehmann, Milwaukee, Wis., U. S., 21st July, 1883; 5 years.

Claim.—1st. A metallic grinding disk provided with lands and furrows, the lands being provided with non-cutting corrugations, substantially as described. 2nd. The described metallic grinding disk, provided with the quarter dress, and having a series of non-cutting corrugations upon the lands parallel with the back edges of the furrows.

No. 17,326. Apparatus and Method for Cutting Elastic Soles and Heels. (*Méthode de tailler les semelles ou les talons élastiques, et appareil pour cet objet.*)

Louis T. Tougas, Milford, Mass., U. S., 21st July, 1883; 5 years.

Claim.—1st. A cutting die and a plunger, having a portion of its face bevelled or bulged outwardly, combined with means to operate one of them, whereby the plunger is made to enter the die and force the material to be severed into the central part thereof, and then to sever it as described, leaving a bevelled edge upon the article cut out by the die and plunger, substantially as set forth. 2nd. That improvement in cutting soles and heels from elastic material, which consists in forcing the same into the central part of the die below its cutting edge, and drawing the said material in a direction across the edge of the said die while the said material is being severed, thereby forming bevelled edges, substantially as set forth.

No. 17,327. Improvements in Charcoal Furnaces. (*Perfectionnements aux fourneaux à charbon de bois.*)

John Burt, Detroit, Mich., U. S., 21st July, 1883; 5 years.

Claim.—1st. A charcoal furnace, wherein and elliptically shaped construction chamber is centrally situated between the two retorts, and above a fire box, which latter extends under the bottom of said retorts, and are constructed and combined, and operate, substantially as and for the purpose described. 2nd. A charcoal furnace, constructed substantially as described, wherein the floors of the retort chambers inclined from the centrally located combustion chamber to the front and rear, and from the top of the front and rear ends of the fire chambers, substantially as and for the purposes specified. 3rd. A charcoal furnace, constructed substantially as described, wherein a centrally located and elliptically shaped combustion chamber is combined with and between two retorts, and which is provided with a fire box, in combination with a steam generator in the top of said combustion chamber, through which the flue of said combustion chamber passes, substantially as and for the purposes set forth. 4th. A charcoal furnace wherein an oblong shaped shell, in cross section, is subdivided into two retorts, by a removable, vertical and centrally located combustion chamber, substantially as described. 5th. A charcoal manufacturing furnace consisting of an oblong shaped shell A, provided with grooves or slides *a*, an elliptically shaped combustion chamber adapted to engage with said grooves, the retort chambers C located one on each side of said combustion chamber, a boiler E through which passes the exit flue F, a fire box L situated below the inclined floors of the retorts, the parts, with their tops, covers

and doors, being constructed, combined and operating substantially as and for the purposes specified.

No. 17,328. Improvements on Saw Gummings. (*Perfectionnements aux machines à évider les dents de scies.*)

Sanford P. Olney, Detroit, Mich., U. S., 21st July, 1883; 5 years.

Claim.—1st. In combination with the table B and the swinging frame T, the adjustable standard L, the disks M N O and P, the yoke Q and the adjustable support E1 E1, substantially as and for the purpose specified. 2nd. In a device for the purposes described, and in combination with the standard L, and disks M and N, the disks O P for the purpose of allowing a horizontal rotary motion of the swinging frame T, and a vertical rotary motion of the same, substantially as set forth. 3rd. In a machine for the purposes described, the frame T, adapted to swing upon the trunnions R and provided with a tail arm C, laterally adjustable upon said frame by means of the disks B1 D1, substantially as specified. 4th. In a device for the purposes described, and as a means for arresting the descent of the swinging wheel frame, the standard E1 radially adjustable upon the table, and provided with an adjusting screw F1, screwing vertically into its upper end, substantially as set forth. 5th. In a device for gumming saws, the disk *a* adjustable in a horizontal radial direction, on its supporting standard L, and provided with arms *l l* and set screws *m m*, in combination with the yoke Q, provided with the disk P and lugs *n*, as and for the purpose specified. 6th. In a machine for gumming saws, the vertical table C, provided with a series of slots and an adjustable arbor D, and with set screws G, and disk plate F, in combination with a device substantially as described, for securing the saw to the table against the disk plate F, and screws G, as and for the purpose specified. 7th. In a machine for the purpose described, and as a means for supporting the swinging frame upon its standard, the yoke Q provided with trunnions and bearings R, for supporting the swinging frame T, with a weighted arm C, and with a disk P, by which it is adjustably secured upon the supporting standard L, in combination with said standard and the swinging frame T, substantially as and for the purposes specified.

No. 17,329. Improvements in Compounds for Forming Suppositories. (*Perfectionnements aux compositions pour faire les suppositoires.*)

Anders Larsen, Terrace, Utah, U. S., 21st July, 1883; 5 years.

Claim.—A suppository consisting of tallow, camphor-gum, alum, and bitter aloes, in about the proportions specified.

No. 17,330. Improvements in Tea Chests. (*Perfectionnements aux boîtes à thé.*)

Morgan L. Gage, Wassar, Mich., U. S., 21st July, 1883; 5 years.

Claim.—1st. The described attachment for emptying tea chests, comprising the flat bottom plate projecting rearwardly from the main portion of the attachment, and provided with an upturned front end disposed at an angle to the main horizontal portion of the said bottom plate, and formed with a transverse groove at the vertex of this angle, sides extending from the extreme front edge of this bottom plate, and the door hinged at its bottom in the groove in the bottom plate, substantially as set forth. 2nd. The described emptying attachment for tea chests, comprising the flat bottom plate having its front end bent up at an angle to the main portion, and formed with a transverse groove at the vertex of this angle, the archplate, the side plates extending up from the extreme front edge of the bottom plate, and through the arch and having their portions in rear of the latter cut away to enable the contents of the chest to be removed from the corners thereof, the cross plate on top, the sides adapted to incline from the front wall of the chest, and projecting horizontally forward in front of the arch, and the door plate hinged at its bottom edge in the transverse groove, and to the bottom plate, and down between the sides, substantially as set forth. 3rd. As an improvement in emptying attachments for tea chests, the combination with the flat bottom plate, having its front edge bent up at an angle to its main portion, and provided with a transverse groove at the vertex of this angle, of the side plates extending up from the bottom, and the door plate hinged to the bottom plate in the groove and down between the sides, substantially as set forth. 4th. As an improvement in emptying attachments for tea chests, the described device, comprising the bottom plate, the side plates extending from the same, and having the cut away rear portions, the arch plate, the cross plate inclined and projecting forwardly, and the door plate hinged to the bottom plate at its bottom edge, and down between the side plates, and having its top edge curved to correspond to the projecting portion of the cross plate and arranged to rest thereon, substantially as set forth.

No. 17,331. Medicinal Compound for Diphtheria. (*Composition médicale pour la diphthérie.*)

Mary E. Sangster, Hamilton, Ont., 21st July, 1883; 5 years.

Claim.—A medicinal compound for diphtheria composed of alum, borax, chloride of potash, camphor, saltpetre and sugar, mixed in about the proportions for the purpose described.

No. 17,332. Improvements in Blacking Boxes. (*Perfectionnements aux boîtes à cirage.*)

Charles W. Hart, Troy, N. Y., U. S., 21st July, 1883; 5 years.

Claim.—A blacking box having approximately cone-shaped sides, a hollow or tubular handle, a diaphragm plate and a cover, arranged to form the blacking enclosure or chamber, substantially as set forth.

No. 17,333. Improvement in Harness Loops.*(Perfectionnement pes boîtes de harnais.)*

Henry A Pott, Cape Girardeau, Mo., U.S., 21st July, 1883; 5 years.

Claim.—A double loop for a harness having an intermediate, a top and a bottom plate connected together by the side plates F, and having the top and bottom plates located out of the plane of the rivet, which is passed through the intermediate plate and on opposite sides thereof, substantially as and for the purpose specified.

No. 17,334. Mode of Staining, Graining and Ornamenting Wood and Paper Walls.*(Mode de peindre, imiter et orner les murs en bois et en papier.)*

Christina Fieroe, Toronto, Ont., 21st July, 1883; 5 years.

Claim.—1st. A liquid compound of vinegar, turpentine, squills, acetic acid, molasses and glycyrrine, in about the proportions stated. 2nd. In combination with my liquid compound, a piece of common sponge, and a piece of glaziers' putty, for laying on of the colour, and for executing my graining.

No. 17,335. Improvements in Combination Tools.*(Perfectionnements aux outils en combinaison.)*

Robert Erdman, Philadelphia, Penn., U.S., 21st July, 1883; 5 years.

Claim.—1st. The combination of the handles A, pivoted together and having recesses which form pliers H, the pincher jaws A, having recesses which form pliers D, the projecting jaws F, the punch G, connected with one of said jaws and the hammer head, said pliers H D being of different sizes, substantially as and for the purpose set forth. 2nd. The combination of the handles A at pivoted together, one of said handles having a jaw K pivoted thereto, with bolt L, and a thumb-nut, substantially as and for the purpose set forth. 3rd. The combination of the pivoted handles A, with the pincher jaws A, the jaws F and punch G, and the jaw K, which is pivoted to one of said handles, the bolt L and the thumb-screw, substantially as and for the purpose set forth.

No. 17,336. Improvements in Straw Stackers.*(Perfectionnements aux meulonneuses.)*

Ferdinand F. Hartwich, Onaga, Ks., U.S., 21st July, 1883; 5 years.

Claim.—1st. In a straw-stacker for thrashing machines, the combination, with the frame composed of two parts or sections, hinged together as shown, of the straps sliding under the side pieces of the upper section and carrying at their upper ends a shaft having the upper band-wheels and having their lower ends bent inward, a bar hinged between the said lower ends and mechanism for sliding the said bar upwardly and downwardly, and for retaining it in any position to which it may be adjusted, as set forth. 2nd. The combination of the folding stacker frame consisting of the sections A B, hinged together as shown, the straps H sliding in stirrups I under the sides of the upper section B and having their lower ends turned inward, the bar K sliding in stirrups L centrally under the lower section A and hinged between the lower ends of the straps H, the shaft N, pinion O engaging slots P in the bar K, crank Q, ratchet-wheel R and the pawl S, all arranged and operating substantially as set forth. 3rd. In a straw-stacker for thrashing machines, the combination, with the folding stacker frame, of the rod T swivelled below the hinge and having a hook at its free end, and the catches V W, as and for the purpose set forth.

No. 17,337. Improvements in Nut Locks.*(Perfectionnements aux arrête-écrous.)*

William J. McFigue, Pittsburgh, Penn., U.S., 21st July, 1883; 5 years.

Claim.—The improved nut lock consisting of the continuous plate C or washer having a central hole whose edge is formed helical and having notch d where said helical edge begins and ends, substantially as described.

No. 17,338. Improvements in Heating Stoves.*(Perfectionnements aux calorifères.)*

James Dwyer, Detroit, Mich., U.S., 21st July, 1883; 5 years.

Claim.—In a stove having a series of doors in revolution upon its exterior, a lap-joint between the sections of which the door-frames are constructed, the outer surface of which is circumferentially flush with the outer surface of said doors and furnishes the means of hinging the same, substantially as and for the purposes described.

No. 17,339. Improvements in Car Heaters.*(Perfectionnements aux calorifères des chars.)*

James M. Thayer, Randolph, Mass., U.S., 21st July, 1883; 5 years.

Claim.—1st. The combination, with the box F suspended from the bottom of the car, of the furnace A, the water-jacket B, the casing D, the hot water feed pipes O, the return pipes P, substantially as shown and described and for the purpose set forth. 2nd. The combination, with the box F and the top plate G, of the furnace A B D, the grate J, the link-piece K, the lever M and the cover N for closing the opening G in the top plate G above the lever M, substantially as shown and described and for the purpose set forth. 3rd. The combination, with the box F, of the furnace A, the water-jacket B, the casing D, the top plate G and the registers J, substantially as shown and described and for the purpose set forth. The combination, with the furnace A, the water-jacket B and the casing D held below the bottom of the car, of the hot-water feed pipes O, the return pipes P and the hot-water reservoir Q, substantially as shown and described and for the purpose set forth. 5th. The combination, with the furnace A, the

water-jacket B and the casing D, held below the bottom of the car, of the hot-water feed pipes O, the return pipes P, the hot-water reservoir Q, the supply and condensing tank S and the valved connecting pipe T, substantially as shown and described and for the purpose set forth. 6th. The combination, with the furnace A, the water jacket B and the casing D held below the bottom of the car, of the hot-water feed pipes O, the return pipes P, the hot-water reservoir Q, the condensing tank S, the connecting pipe T and the safety valve T₁, substantially as shown and described and for the purpose set forth.

No. 17,340. Improvements in Chamfering Machines.*(Perfectionnements aux machines à chanfreiner.)*

Thomas Tobin, Sioux Falls, Dak., U.S., 21st July, 1883; 5 years.

Claim.—1st. The combination of the bar A having knife A and handles a, slotted block E having the pivotal stud B and set screw T with the supporting bar, substantially as and for the purpose shown and described. 2nd. The combination of the plate or bar I having flanges i, recesses m and screw-threaded head l, hinged bar K having forked head K and apertures n, and adjusting screw L having squared and pointed head L₁ with the cutter pivoted on said plate or bar, substantially as and for the purpose shown and specified.

No. 17,341. Improvement in Baby Jumpers.*(Perfectionnement des escarpolettes.)*

Murray M. Raymond, Corry, Penn., U.S., 21st July, 1883; 5 years.

Claim.—1st. The seat-frame of a baby-jumper consisting of a wire loop shaped at one end to be suspended thereby, and at the other end to form the seat support, the arms and the back of the jumper, substantially as described. 2nd. The seat frame of a baby-jumper consisting of a wire loop, shaped into a hook or eye d at one end, a seat back i, sides h and arms f at the other end, and the parts e connecting these ends, both bent backward, as shown and described. 3rd. The combination, with the frame of a baby-jumper consisting of a wire loop shaped to form the suspending hook, the arms, sides and back thereof, of a seat suspended to the sides and back as shown and described. 4th. The combination, with the frame of a baby-jumper consisting of a wire loop, shaped as described, and a seat supported thereby, of a cross-strap connecting the arms of the jumper, and an adjustable middle strap connecting the front edge of the seat with said cross-strap, as and for the purpose specified.

No. 17,342. Apparatus for Preparing Mash for Fermentation.*(Appareil de préparation du mélange pour la fermentation.)*

Harry F. Moore, Clermont, Ohio, U.S., 21st July, 1883; 5 years.

Claim.—The described improvement in apparatus for preparing mash for fermentation in the production of spirits consisting of the substantially air-tight reservoir, located between the mashing boiler and the cooling apparatus, with its suitable valves and connections, for the purpose of enabling the contents of the boiler to be quickly drawn off after being cooked, malted and mixed, and the boiler to be closed and recharged while the cooling operation is going on by conveyance of the material through the cooler to the fermenting tubs.

No. 17,343. Improvements in Couplings for Ropes, Belts, etc.*(Perfectionnements aux joints des cordes, courroies, etc.)*

Carl M. E. Kortüm, Berlin, Prussia, 21st July, 1883; 5 years.

Claim.—1st. The construction, arrangement and employment of the coupling, fastening attachment, device or clutch for coupling bands, ropes, cables, belts, cords, wires and such like, substantially as and for the purpose set forth in the specification and shown in the drawings. 2nd. The construction, arrangement and employment of a shell or case, whereby the same is conically enlarged towards the joint hinge, hook or eye, so that the said shell or case serves to receive a toothed wedge, substantially as and for the purpose set forth in the specification and shown in the drawings. 3rd. The employment of a toothed wedge for fastening, clutching or attaching the band, rope, cable, belt, cord, wire or other equivalent, in the conical or other shaped shell or case, substantially as and for the purpose set forth in the specification and shown in the drawings. 4th. The method of providing the wedges with barbs, teeth, or pointed or other projections which press themselves into the belt, band, cable, and such like, so that the said articles are rigidly connected and all possibility of slipping avoided, and so that the more the tension put on the strap, cable, or such like is increased the firmer will be the clutch or hold of the toothed wedge on the same, substantially as and for the purpose set forth in the specification and shown in the drawings. 5th. The method of providing the shell or casing with projections or teeth instead of the wedge and whereby a smooth wedge pin or screw may be employed, substantially as and for the purpose set forth in the specification and shown in the drawings. 6th. The employment of two or more wedges in one and the same shell or case, substantially as and for the purpose set forth in the specification and shown in the drawings.

No. 17,344. Machine for Making Paper or Other Boxes for Matches and Other Uses.*(Machine à fabriquer les boîtes en papier ou autres pour les allumettes et autres objets.)*

Bernard T. Steber, Utica, N. Y., U.S., 21st July, 1883; 15 years.

Claim.—1st. The vibrating lever in combination with the vibrating plunger, the foundation yielding side walls and tables, whereby the first fold is made in the paper or other material, substantially as described. 2nd. The vibrating lever which raises and lowers the vibrating and sliding plunger, in combination with the plunger, substantially as and for the purpose described. 3rd. The bridge-piece between

the side walls, in combination with the plunger and yielding side walls, substantially as and for the purpose described. 4th. The combination of the slotted foundation, the bridge-piece and the plunger, substantially as and for the purpose described. 5th. The bridge-piece connected with the vibrating lever and loosely fitted upon the plunger rod as at *d*, in combination with a plunger which is arranged to vibrate and reciprocate, substantially as and for the purpose described. 6th. The combination of means consisting of the yielding side walls *h h*, tables *i i*, and foundation *A*, which aid to form the bottom or end *4* and one side *3*, and the two inside folds or laps *1 1* of the two opposite sides *6* and *7* of the box, and the vibrating lever and vibrating plunger, substantially as and for the purpose described. 7th. In combination with the vibrating and sliding plunger, and devices which aid to effect the first folds of the paper, the diverging folders which form the two side folds or laps *2 2* of the bottom *4* of the box, substantially as and for the purpose described. 8th. In combination with the vibrating and sliding plunger and the devices employed in effecting the first and second folds of the paper, the converging finishing folders with inclined lower edges, whereby the opposite side *5* of the box and two outside folds or laps *6* and *7* are formed and the box finished, substantially as described.

No. 17,345. Improvements on Fish Traps.

(*Perfectionnements aux nassés à poisson.*)

James M. Fraser, Portland, Oregon, U. S., 21st July, 1883; 5 years.

Claim.—1st. The combination, with a ponton or boat *A* having an opening therein, of the cage *B* and a rope or chain passed over elevated pulleys and under a pulley disposed to permit the convenient manipulation of the rope or chain to move the cage up and down within said ponton or boat, said cage having, at its front side, rows of inwardly projecting converging bars, providing a narrow entrance opening thereto, substantially as and for the purpose set forth. 2nd. The combination, with the ponton or boat *A* having an opening therein, of the cage *B*, having the rows of inwardly projecting converging bars, forming a chute having a narrow opening, the lead-net *B* connected to the cage *B* and to the rods secured to the sides of the opening of the ponton, and having an extension *G* hung upon booms *K* connected to the stern of the ponton, and means for raising and lowering the cage and net, substantially as and for the purpose set forth. 3rd. The combination, with the open ponton or boat *A* and the lead-net *B*, of the oblique brace *M*, connected underneath the bottom of the net by a rod *M*² to a similar opposite brace, and the mortised, notched, or toothed support *M*¹, and stud or projection *f*, substantially as and for the purpose set forth. 4th. The combination, with a ponton or boat and a lead-net, of the cage *B* having staple-shaped bars held in swinging frames *m*, substantially as and for the purpose set forth. 5th. The combination, with a ponton or boat, and a lead-net, of the cage *B* having a swinging rod holding frames *m*, at the rear side, and the front side being pointed, substantially as and for the purpose set forth.

No. 17,346. Improvements in Pumping Engines.

(*Perfectionnements dans les pompes à vapeur.*)

John H. Vaile, Dayton, Ohio, U. S., 23rd July, 1883; 5 years.

Claim.—1st. The combination with the main valve and its ports, of a supplemental piston located to one side of said main valve with suitable ports, and connecting mechanism whereby the stroke of said main valve is rendered steady and gradual at all times, substantially as described. 2nd. The combination, with the main valve and its rod, of the supplemental piston to one side or within the steam chest, said valve rod, valve and piston being united by a rigid connection and both said valve and piston having suitable induction and exhaust ports, whereby the stroke of said main valve is rendered steady and gradual at all times. 3rd. In a pumping engine, having main valve and a laterally-controlling supplemental piston, of a main exhaust extending under and communicating with the valve of the supplemental piston, substantially as described. 4th. The steam chest provided with a main valve, a supplemental piston chamber *r*, in which is fitted a valve controlling piston, substantially as described. 5th. The combination, of a main piston rod provided with cross head carrying a friction roller, of the double bell-crank lever *F*, link *I*, valve rod *J*, valve *L* and supplemental controlling piston *m*, the parts being relatively arranged in the manner and for the purpose specified. 6th. The combination, with a steam pump, of a removable porcelain lined or enameled cylinder *E*, substantially as and for the purpose specified. 7th. In combination with a pumping engine having a bell crank lever *F*, link *I*, valve rod *J*, valve *L* and supplemental controlling piston *M*, the removable cylinder *E*, as set forth.

No. 17,347. Improvements in Sectional Pulleys for Belts.

(*Perfectionnements aux poulies sectionnelles des machines.*)

John J. Irvine and Lindsey L. Irvine, Chattanooga, Tenn., U. S., 24th July, 1883; 5 years.

Claim.—1st. A pulley having the detachable segment *a* with apertured flanges *c* connected by bolts *d*, with similar flanges on the ends of the main part of the circumference, as shown and described. 2nd. A pulley having a removable section *a* of the rim and a jointed arm *f*, substantially as described. 3rd. A pulley having a removable section *a* of the rim, the said section detachably connected to said rim by flange *c*, bolts *d* and keys *e* or equivalent devices, substantially as described. 4th. A pulley having a removable section *a* of the rim, and a jointed arm *f*, the said arm and section *a* connected by socket *i* in the said section *a*, substantially as described. 5th. A pulley having a removable section *a* of the rim, and said section connected to the rim by means of chains, substantially as described. 6th. A pulley having a removable section of the rim, and being connected with the shaft by a clutch, substantially as specified. 7th. A pulley having a removable section of the rim connected to the hub by a jointed arm, the joints of the said section with the rim being oblique and enabling the section to swing on the joint of the arm, substantially as described.

No. 17,348. Improvements on Cranial Tractors.

(*Perfectionnements aux craniotomes.*)

Stephen Slater, Slatersville, R. I., 24th July, 1883; 5 years.

Claim.—The described improved cranial tractor consisting of a body, a handle, a pivoted tooth rock-bar, a rod and a spring, substantially as set forth.

No. 17,349. Improvements in Vapour Burners.

(*Perfectionnements aux becs à gaz.*)

Martin L. Best, Canton, Ohio, U. S., 24th July, 1883; 5 years.

Claim.—1st. The combination, with the furnace *C* arranged at the lower end or base of the burner tube *A*, of the inclined passage *e* communicating with said furnace and at or near the upper end of the burner-tube with the interior thereof, or with the burner-tip, substantially as and for the purpose set forth. 2nd. The furnace *C*, passage *d e* and drip cup *B*, all constructed and arranged as shown and for the purpose described.

No. 17,350. Improvements in Saw Tables.

(*Perfectionnement aux établis de sciage.*)

James W. Cole, Nashville, Tenn., U. S., 24th July, 1883; 5 years.

Claim.—1st. The combination of a frame, a pair of shafts or spindles mounted vertically in the same, horizontal bars secured at the upper ends of said spindles, and provided at their inner ends with segment gears meshing together, and a table provided with sliding or pivoted transverse cross-bars connected pivotally to the outer ends of the horizontal bars, as set forth. 2nd. The horizontal bars mounted on vertical shafts or spindles and provided at their inner ends with segment gears meshing together, and at their outer ends with laterally projecting arms having segmental guides, in combination with a table having pivoted or sliding transverse bars connected pivotally to the outer ends of the horizontal bars and having suitable tracks for the segmental guides, as set forth. 3rd. The combination of the frame, the vertical shafts or spindles, the horizontal bar at the upper ends of the latter having segment gears at their inner ends, and laterally projecting arms at their outer ends, the braces connecting the outer ends of the horizontal bars with the lower ends of the spindles, the sub-braces connecting said braces with the laterally-projecting arms of the horizontal bars and the table mounted upon the said horizontal bars, substantially as set forth. 4th. The combination of the vertical shafts or spindles, the horizontal bars at the upper ends of the same, meshing together at their inner ends, the table having sliding or pivoted cross-bars mounted pivotally at the outer ends of the said horizontal bars, and a straight guide suitably arranged to prevent lateral displacement of the table, as set forth.

No. 17,351. Improvements in Lasting Boots and Shoes and Machinery Therefor.

(*Perfectionnements dans l'enfermage des chaussures et appareils pour cet objet.*)

Louis Coté, St. Hyacinthe, Que., 24th July, 1883; 15 years.

Claim.—1st. In a machine for lasting boots and shoes, a wheel having a periphery roughened or otherwise adapted, substantially as set forth, to act by friction upon, and stretch the upper upon the last when presented thereto, in combination with mechanism for imparting to said wheel a continuous rotary motion in one direction, and an automatic nail-driving mechanism, substantially as described. 2nd. In a machine for lasting boots and shoes, the combination of a wheel having its periphery roughened or otherwise adapted, substantially as set forth, to act by frictional contact upon, and stretch the upper upon the last when presented thereto, mechanism for imparting to said wheel a continuous rotary motion in one direction, a nail-driving mechanism, and a mechanism for intermittently throwing the nail-driving mechanism into and out of action at will without affecting the revolution of the wheel, substantially as set forth. 3rd. The combination of the friction wheel *J*, the shaft *B*, the shaft *C*, a nail-driving mechanism operated by said shaft *C*, a train of gearing connecting the shafts *B* and *C*, a clutch and shipping mechanism for intermittently throwing the nailing mechanism into and out of action, substantially as described.

No. 17,352. Improvements in Machines for Shaping Boot and Shoe Counters.

(*Perfectionnements aux machines à former les contreforts des chaussures.*)

Louis Coté, St. Hyacinthe, Que., 24th July, 1883; 15 years.

Claim.—1st. The process of shaping counter-stiffeners which consists in first passing the blanks between pressure-surfaces in the direction of their lengths, to partially shape them, and then passing the partially shaped stiffeners a second time between the pressure-surfaces, but in the direction of their width, substantially as described. 2nd. The combination of the journalled disk-wheel *H* having a convex periphery, and the mould *J* provided with a concave recess or groove, the inner portion of which is substantially of the form, or a counterpart of the periphery of the wheel or disk, but with outwardly diverging side walls, and adapted to press and condense the central portion of a counter stiffener, substantially as described. 3rd. The combination of the journalled disk-wheel *H* having a convex periphery and provided with the slots *r* and lugs or ribs *s s*, and the mould *J* provided with a convex recess or groove, the inner portion of which is substantially of the form or a counterpart of the periphery of the wheel or disk, but with outwardly-diverging side walls and adapted to press and condense the central portion of the counter stiffener, substantially as described. 4th. The combination of a rotating wheel or former, a stationary die or mould provided with a concave surface substantially conforming in shape circumferentially to the periphery of the former, a socket to receive said mould, provided with a threaded shank and nut, and a slotted ear or

projection to which said socket may be adjustably secured, substantially as and for the purpose described. 5th. The combination of a rotating former, a stationary die or mould provided with a concave surface substantially conforming in shape circumferentially to the periphery of the former, a socket to receive said mould provided with a tubular threaded shank and nut, a slotted ear or projection to which said socket may be adjustably secured, an elastic cushion contained within said socket, a disk or follower also located within said socket and provided with a tubular threaded shank or hollow screw passing through the shank of said socket, and having a nut at its outer end, and an adjusting screw passing through said follower and its shank and having its bearing on nut therein and adapted to receive upon its inner end the pressure of the mould, substantially as and for the purposes described. 6th. The combination of a rotating former, a stationary mould provided with a concave surface substantially conforming in shape circumferentially to the periphery of the former, the socket I provided with the shank I and nut K, the slotted ear c, the elastic cushion h, the disk or follower e, provided with the tubular shank f and the nut g, the adjusting screw i and the bolts k k provided with the nuts l l, all arranged and adapted to operate substantially as and for the purpose described.

No. 17,353. Improvements in Friction Movements. (*Perfectionnements dans les mouvements à friction.*)

James A. Hortoff, Reading, Mass., U. S., 24th July, 1883; 5 years.

Claim.—1st. The combination of a shaft A having a many sided collar, a continuously rotated driving wheel normally loose on said shaft and provided with a concentric recess surrounding said collar, a series of friction rollers located in the space between said recess and collar, and means for varying the position of the rollers with relation to the wider and narrower portions of the space F, as described, and whereby engaging the shaft with or releasing it from the driving wheel. 2nd. The combination of a shaft A having a many sided collar, a continuously rotated driving wheel, normally loose on said shaft and provided with a concentric recess surrounding said collar, a series of friction rollers located in the space between said recess and collar, a dish D having a limited independent rotary movement on the shaft and provided with projections H, arranged between the rollers, and means for rotating said disk to cause the rollers to engage the driving wheel with the shaft and for stopping said disk to release the wheel from the shaft, as set forth. 3rd. The roller operating disk D having a limited independent rotary movement and provided with a stud T, combined with the pivoted bar R adapted to arrest the disk D, and means substantially as described, for turning the bar on its pivot to release the disk, as set forth. 4th. The combination with the roller operating disk D, having a limited independent rotary movement and provided with the stud T, of bar R, the sliding latch V and the shouldered rod M, and its operating device, as and for the purpose set forth. 5th. The combination of the bar R, shouldered rod M and the latch V, arranged to be unlatched by a cam or projection fixed on the rotating shaft, as set forth. 6th. The combination of the roller operating disk D, having a limited independent rotation, the collar C and the safety pin 4, whereby accidental independent rotation of the disk is prevented, as set forth. 7th. The combination of a driving wheel adapted to be continuously rotated, a shaft normally disconnected from said wheel, mechanism controlled by an attendant to engage the shaft with the driving wheel, and automatic mechanism for disengaging the shaft from the wheel after the shaft has performed its allotted work, as set forth. 8th. The combination of a shaft having a recessed or flanged collar, a loose sleeve on said shaft adapted to communicate motion, and having an indented surface surrounded by said collar, a series of rollers located in the space between said sleeve and collar, and automatic means for holding said rollers with a yielding pressure in engagement with the surfaces of said sleeve and collar, as set forth. 9th. The combination of a shaft having a recessed or flanged collar, a loose sleeve on said shaft adapted to communicate motion, and having an indented surface surrounded by said collar, a series of rollers located in the space between said sleeve and collar, an automatic device for holding said rollers with a yielding pressure in engagement with the surfaces of the sleeve and collar, and mechanism controlled by an attendant to arrest said automatic device, and thereby disconnect the sleeve from the shaft, as set forth. 10th. The combination of a shaft having a recessed or flanged collar, a loose sleeve on said shaft adapted to communicate motion, and having an indented surface surrounded by said collar, a series of friction rollers located in the space between said sleeve and collar, and a spring impelled ring having projections interposed between said rollers and adapted to move the same laterally, as set forth. 11th. The combination, with the spring impelled ring, of the fixed and recessed casing E₂, the friction rollers F₂ located in the recess of the casing, and the lever D₂ having projections adapted to move said rollers laterally, as set forth.

No. 17,354. Improvements in Tool-Holders. (*Perfectionnements aux porte-outils.*)

William T. Lander, Williamston, S.C., U.S., 24th July, 1883; 5 years.

Claim.—1st. The clip d, screw e and pivot-rod f, combined with the base-plate c, in the manner described, so that said plate may be shifted lengthwise in the clip, rise and fall with it, and move backward and forward with the tool, as described. 2nd. The combination with a base-plate c, adjustable lengthwise and movable laterally and circumferentially on a pivot f, of a tool-holder pivoted to said base-plate for vibration transversely to the face of the stone, substantially as described. 3rd. The combination, with a base-plate c, adjustable lengthwise and movable laterally and circumferentially on a pivot f, of a tool-holder pivoted to said base-plate for vibration transversely to the face of the stone, and also adjustable on said base-plate toward and from the face of the stone, substantially as described. 4th. The combination, with a tool-holding box k m, adjustable attached to a base-plate c, of the pivoted clamping-bar n, clamping screws p and the clamping-plate g, substantially as described. 5th. The combination, with a tool-holding box k m, adjustable attached to a base-plate c, of the pivoted clamping-bar n, clamping screws p and the clamping-plate

g, said clamping devices being arranged with relation to the sides m of the box for clamping tools thereon in the vertical or nearly vertical position, as set forth. 6th. The combination, with a tool holding box k m, pivotally and adjustably attached to the base-plate c, of the pivoted clamping bar n, clamping-screws p, and clamping-plate g, substantially as described. 7th. The combination, in a tool-holder for grindstones, of the base-plate c, plate g pivoted to said base-plate, and the tool-holding box k m and clamping-devices, said box being adjustable on the plate g by clip i, and extension j, substantially as described. 8th. The combination, in a tool-holder for grindstones, of the base-plate c, adjustable lengthwise and movable laterally and circumferentially on a pivot f, and the spring bar u and weighted pressure-lever v, said base-plate c having a tool-holding attachment, substantially as described.

No. 17,355. Improvements in Heating Apparatus. (*Perfectionnements aux calorifères.*)

Corydon Wheat and Alfred Catchpole, Geneva, N. Y., U. S., 24th July, 1883; 5 years.

Claim.—1st. In a heating apparatus consisting of a series of hollow water sections placed one upon another, the bottom section C of less diameter than the upper sections D, and communicating therewith by parts a a, the upper sections offsetting, or projecting beyond the bottom section, leaving a space in the bottom of the boiler into which the flues c c of the upper sections open and in which are located the stoppers s s, as shown and described. 2nd. The hollow ring or section D, constructed with the ports or openings b b on opposite sides, forming water ways, the vertical partitions i i dividing said ports, and the flues c c extending vertically through the ring, all in combination as shown and described and for the purposes specified. 3rd. In a heating apparatus, the combination of the several water rings or sections D D placed one on top of another, forming a stack said rings provided on opposite sides with ports b b divided vertically by partitions i i forming distinct water channels from bottom to top of the rings, and provided with flues c c forming draft passages through the rings, as and for the purposes specified. 4th. The combination of the dome F, leaving a central eye or opening, the separate ring G, resting on top of the dome, surrounding the eye or opening and provided with an exit pipe H₁, which communicates with the main exit pipe, and a loose cylinder I resting on top of the ring G, extending down through the dome, forming an attachment for the magazine and having in its sides, near the top, a series of small holes s s, for the escape of gas from the magazine into the space between the cylinder and ring and thence to the exit pipe, as here shown and described. 5th. In a heating apparatus consisting of a series of water sections placed one upon another, the hollow dome E, constructed with the vertical flange or skirting e, which elevates it above the water section below the series of tubes f f, which coincide with the flues c c in the water sections, and with a bottom plate which inclines slightly downward from the outer to the inner periphery, as shown and described and for the purpose specified. 6th. In a steam heating boiler, the combination, with the sectional rings D D and the casing N, of the radial flanges or partitions o o, resting between the rings and the casing, said flanges extending from bottom to top of the series of rings and forming flues p p, which come opposite the flues c c of the rings, as shown and described.

No. 17,356. Improvements in Electric Lamps. (*Perfectionnements aux lampes électriques.*)

William Hochhauser, New York, N. Y., U. S., 24th July, 1883; 15 years.

Claim.—1st. The combination of two carbon-carriers, the pinions c d, ratchet-wheels y z connected with the respective pinions, and the intermediate wheel L, carrying upon each side a pawl engaging with the respective ratchet wheels y and z. 2nd. The combination, substantially as described, of the carbon-carriers, the pinions and ratchet-wheels, the intermediate wheel and its spring-pawls, and the common spindle or shaft for said wheels, and pinions mounted in the pivoted frame of the gear-train. 3rd. The combination, mounted in the main and derived circuit magnets, of a gear-train mounted in a swinging frame, detent devices for controlling the movements of the train, two carbon-carriers geared to the train and means, as described, interposed between the carriers and the common gear train, whereby either carbon-carrier may be allowed to feed when the other is locked. 4th. The combination, substantially as described, of a carbon-carrier and a locking device for locking the carrier supported in the manner described, so as to be capable of moving with the carrier when the same is raised by the action of electro-magnetic lifting devices of the lamp. 5th. The combination, substantially as described, with two carbon-carriers, of a reciprocally-acting locking and releasing device constructed in two parts, and a spring or yielding connection between the two portions of the locking device, as and for the purpose described, so that either portions of the locking devices may be withdrawn when the carbon-carrier is to be raised for the purpose of renewing the carbons. 6th. The combination, with a carbon-carrier of a locking detent, substantially such as described, pivoted to one side of the carrier and above the point at which it engages with the carrier so that the weight of the carrier will automatically free it from said detent, when the detent is free to move. 7th. The combination of the two notched carbon-carriers, the two locking detents and the intermediate connecting rod or bar. 8th. The combination, substantially as described, of the two carbon-carriers, the locking detents bearing against the side of said carriers, and the intermediate spring. 9th. The combination, substantially as described, of the carbon-carrier notched or slotted at two extreme points and a locking detent adapted to engage with the carrier at both said points. 10th. The combination, substantially as described, of two notched carbon-carriers, two pivoted locking and releasing detents, the connecting link or bar and the interposed pressure spring. 11th. The combination, substantially as described, of the two notched carbon-carriers, the pivoted locking and releasing detents mounted as described, so as to be capable of moving vertically with the carriers, the intermediate connecting-link and the interposed pressure-spring.

No. 17,357. Machine for Feeding the Carriages of Saw Mills by Steam.
(*Machine à vapeur pour alimenter les chariots des scieries.*)

The Feler and Stowell Company, (assignee of Albert Cunningham.) Milwaukee, Wis., U.S., 24th July, 1883; 15 years.

Claim.—1st. A steam-feed for saw-mill carriages provided with wheels running on the usual track, the combination of the steam-piston-rod K of a steam cylinder, a revolving gear H which is directly connected thereto and travels therewith, a log-carriage B to support the log provided with a rack F and the fixed rack F', substantially as and for the purpose set forth. 2nd. A steam-feed for saw-mills, the combination of a piston-rod K of a steam cylinder, the revolving gears H and H' directly connected thereto and travelling therewith, a carriage B to support the log, provided with rack F and the fixed racks F' and F'', substantially as and for the purposes set forth. 3rd. In feed-works for saw-mills, the combination, with carriage B, of an air-stop or cylinder B1 when the same is provided with spirally-located air-orifices c1, c1', and a piston C11 constructed with a small piston rod a1, and a spiral spring located in the orifice D1 formed in the carriage B, substantially as and for the purpose set forth.

No. 17,358. Method of, and Apparatus for Evaporating Brines, etc. (*Mode et appareil d'évaporation de l'eau de mer, etc.*)

The American Chemical Company, West Bay City, Mich., (assignee of Herman Frasch, Cleveland, Ohio.) U.S., 24th July, 1883; 5 years.

Claim.—1st. The method of, and means for evaporating brine and other solutions and crystallizing therefrom the salt or other material in solution by creating and maintaining a circulation of the liquid in the grainer or evaporator and making eddies or disturbances in the current, substantially as described. 2nd. The method of, and means for preventing the formation of a skin of salt or other crystals upon the brine or other solution, in the evaporation, by the use of jets of air or other gas or gases, substantially as described. 3rd. The method of, and means for preventing the clogging of the holes in the injecting pipes by admixing steam with the air or gas injected, substantially as described. 4th. The method of, and means for evaporating brine and other solutions, by heating and circulating the same and adding fresh brine or solution as the evaporation proceeds, substantially as described. 5th. The introduction of the fresh brine into the hot part of the circulation, so as to effect the precipitation of gypsum or like impurities before the salt begins to deposit, substantially as described. 6th. The method of, and means for preventing the destructive incrustation upon the heating surfaces of the salt or other material more soluble in a hot than a cold menstrum, by causing the brine or other solution, in the ascending leg of the siphon, to pass over surfaces progressively increasing in temperature substantially as described. 7th. The collection of the salt upon removable receivers, substantially in the manner and by the means described. 8th. An evaporating or graining apparatus comprising in combination a trough, an inverted siphon connecting the ends of a trough with each other and formed of a partitioned box or tank, or the equivalent thereof, and a heater, substantially as described. 9th. The combination, with the evaporating trough and siphon or partitioned box, of the heater having flues arranged substantially as shown in figs. 1-5, and described with reference thereto. 10th. The combination, with an evaporator or grainer, of removable receivers and the elevated track and carriage or carriages thereon, substantially as described. 11th. The combination of the pierced air pipes with the evaporating trough contracted at intervals in advance of said pipes, to increase the rapidity of the current, substantially as described. 12th. The receivers of the form first described, the same comprising a frame of wood or like material and a covering of canvas or other porous or perforated material stretched on the said frame, substantially as set forth.

No. 17,359. Improvement in Watch Dials.
(*Perfectionnement des cadrans de montres.*)

John J. D. Trenor, New York, N. Y., U. S., 24th July, 1883; 5 years.

Claim.—1st. In combination with the ordinary fixed dial and hands of a time piece, two supplemental independently-adjustable dials, one having on its face the divisions of minutes and the other of hours, substantially as and for the purpose described. 2nd. In combination with the ordinary fixed dial and hands of a time piece, two supplemental independently-adjustable dials, one bearing on its face the division of minutes and the other of hours, with means for adjusting the same with reference to said hands, without moving the latter, substantially as described. 3rd. In combination with the plate 4, the supplemental independently adjustable dials 8 and 11, substantially as described. 4th. In combination with the plate 4, the supplemental independently adjustable dials 8 and 11, provided with annular racks, and shafts provided with pinions and wheels, substantially as described.

No. 17,360. Improvements in Soap-Making Machinery. (*Perfectionnements dans les appareils de fabrication du savon.*)

Robert Freeland, Montreal, Que., 24th July, 1883; 5 years.

Claim.—1st. The combination of an upright cylindrical jacketed tank and fluid inlets, horizontal driving shaft with feed rolls attached or geared thereto, vertical centrally located bridge supported rotating shaft therein, and curved centripetal, or centrifugal, acting mixer blades attached thereto with the centrifugal emptying blade or blades and gate, constructed in the manner as and for the purpose substantially as described. 2nd. The shell *c* surrounded by the continuous pipe-coil jacket *n* and covering thereon, with the double bottom *e* rivetted to the said shell, and strengthened by the bushing and flanges, as described. 3rd. The shaft *p* and feed rolls *o*, for the purpose as

described. 4th. The angle iron band *d* and the channel iron bridge *m* and step *n*, with an upright cylindrical tank, constructed as set forth. 5th. The curved sharp edged centripetal and centrifugal acting mixer blades *g* with the upright rotating shaft *l*, constructed in the manner as and for the purpose described. 6th. A vertical rotating shaft, centrifugal emptying blade *h* attached thereto, and scraper blade *u* with the emptying gate *i* and cam lever *k*, substantially as describe *l*. 7th. The combination of the bushing *g* with the flanges *r* and *s* and packing *t*, constructed in the manner and for the purpose substantially as described. 8th. The shaft *l* and holes or passages *z*, combined with the bushing *g* and cock *y* for the purpose described.

No. 17,361. Improvements in Dynamo-Electric Machines. (*Perfectionnements aux machines électro-dynamiques.*)

Royal E. Ball, New York, N. Y., U. S., 24th July, 1883; 5 years.

Claim.—1st. A dynamo-electric generator composed of two elements which act and react on each other, to mutually induce continuous electric currents in one another, substantially as shown and described. 2nd. In a dynamo-electric machine or generator, the combination of two or more Pachinotti armatures, or similar elements, combined and arranged to mutually induce continuous electric currents in each other, substantially as shown and described. 3rd. In a dynamo-electric machine, the combination of two or more armatures or elements, each of which is composed of an annular core-piece wound with endless coils or helices of insulated wire, which are at regular intervals around the circumferences of the armatures connected to corresponding blocks of the commutators, substantially as shown and described. 4th. The combination of two or more armatures with their respective commutators, each armature being connected at two or more points around its periphery with each block of its commutator, substantially as shown and described. 5th. The combination of two or more elements having helices or bobbins and which are arranged and operated to mutually induce continuous currents in each other, driving shafts, commutators and circuit connections therefor, substantially as shown and described. 6th. The combination of two or more iron rings, each entirely wound with an endless coil or coils of insulated wire, driving shafts and commutators therefor, substantially as shown and described. 7th. The combination of two or more revolving armatures and a series of copper or metal rings for said armatures, each ring having two or more points of connection with its respective armature and is connected to a block of the commutator therefor, substantially as shown and described. 8th. The combination of two or more inducting elements or armatures which mutually react upon and generate continuous currents in each other, a common circuit therefor with commutators and brushes, substantially as described. 9th. The combination of two or more iron rings or core pieces each of which is covered with endless coils of insulated wire, and means for revolving them in proximity with one another to form inducing agents for, and generate continuous currents in each other. 10th. The method described for generating continuous currents of electricity without the employment of a diffusive magnetic field, which consists in rotating a generating element in proximity with another like element so that they will mutually induce a continuous current in each other, substantially as set forth. 11th. The combination of two or more armatures, a common circuit therefor, commutators, brushes and driving shafts, substantially as set forth to form an electric motor as described. 12th. The combination of field magnets having pole pieces common to two or more armatures, located and revolving upon separate shafts, said armatures mutually inducing currents in each other, of the same direction as that of those induced in them by the field magnets, substantially as shown and described. 13th. The combination, with two or more armatures having separate shafts, commutators and brushes, of electric magnets whose pole pieces are common to said armatures, and a common circuit therefor, whereby the armatures mutually induce each other and are induced by the field magnets, substantially as shown and described. 14th. The combination, with two or more armatures having separate shafts, commutators and brushes, of a brush common to both or two or more of said commutators, field magnets having pole-pieces common to all of said armatures, substantially as shown and described. 15th. A dynamo-electric machine having two or more armatures mounted on separate shafts, commutators, brushes and common circuits therefor, and a split circuit between the field magnets and brushes of like polarity, substantially as shown and described. 16th. A dynamo-electric machine having a series of armatures, each composed of an iron ring or core-piece and endless coils or sections of insulated wire in a common circuit, and which mutually react upon one another, in combination with field magnets, substantially as shown and described. 17th. A dynamo-electric machine composed of two or more armatures in common circuit, and a field of magnetic force having a centrally located field of action, the opposite sides of the armatures being free from such action so as to provide for the successive cooling of the coils of the armatures, substantially as shown and described. 18th. In a dynamo machine, a split or divided circuit connected to a commutator, brushes of like polarity, whereby the polarity points of the armatures are brought up to the pole pieces of the field magnets substantially as shown and described. 19th. The combination of armatures, field magnets, pole pieces therefor, commutators and brushes arranged in a common circuit, whereby the armatures mutually induce each other and are induced by the field magnets for producing electrical energy in like direction, as set forth.

No. 17,362. Improvements on Gas Engines.
(*Perfectionnements aux machines à gaz.*)

Lewis C. Parker, Robinson, Ks., U. S., 24th July, 1883; 15 years.

Claim.—1st. The method of operating a gas engine which consists in propelling the piston by successive explosions during each power-stroke, substantially as set forth. 2nd. The method of operating a gas-engine which consists in admitting into the cylinder a combustible charge, forcing the same into separate compartments, and exploding it in detail behind the piston as it makes its power stroke, as set forth. 3rd. The method of operating a gas-engine which consists in drawing a charge into the cylinder, forcing it into separate compartments, and exploding it in detail behind the piston as it makes its power stroke,

as set forth. 4th. The method of operating gas-engines which consists in drawing into the cylinder, by the out stroke of the piston, a properly proportioned charge of inflammable mixture, forcing it into the auxiliary chambers by the return stroke, and then exploding the charge in succession upon the power stroke of the piston, substantially as set forth. 5th. The method of operating gas-engines which consists in drawing into the working cylinder upon the out stroke of the piston, a charge of air and gas compressing it, auxiliary explosion chambers located in the path of the piston and communicating with the cylinder by the return stroke of the piston, exploding the charges in succession upon the power stroke of the piston, and finally expelling the consumed charge or charges by the subsequent return stroke, substantially as set forth. 6th. The method of operating gas-engines which consists in, first, admitting a charge of pure air, which is followed by a charge of air and gas admitted through ports of different areas, the latter being in excess of the former during the remainder of the charge, substantially as set forth. 7th. A gas-engine cylinder provided with one or more supplemental explosion chambers, as set forth. 8th. A gas-engine cylinder having attached to it a series of chambers which communicate with the bore thereof through suitable apertures, each chamber being adapted to receive a portion of the charge and to permit its successive explosion at stated points in each power-stroke of the piston, as set forth. 9th. A gas-engine cylinder having attached to it a series of chambers, which communicate with the bore thereof through suitable apertures, and with each other through suitably protected ports, each chamber being adapted to receive a portion of the charge and to secure an equable pressure in all, through the intermediate ports, as set forth. 10th. A gas-engine cylinder having attached to it a chamber or series of chambers, which communicate with the bore thereof through suitable apertures, controlled by the piston in its travel, each chamber being adapted to receive a portion of the charge, and to permit its successive explosion at stated points in each power-stroke of the piston, as set forth. 11th. A gas-engine cylinder having attached to it a series of chambers communicating with the bore thereof, through suitable apertures controlled by the piston in its travel, and with each other through suitably protected ports, each chamber being adapted to receive a portion of the charge and to secure an equable pressure in all, through the intermediate ports, as set forth. 12th. A gas-engine cylinder having attached to it a chamber or series of chambers communicating with the bore thereof through suitable apertures, with each other through intermediate ports, and also communicating with the cylinder through a compression tube, which enters said cylinder below the inmost point reached by the piston, whereby the proper proportion of the charge is forced into the chambers after the piston has closed the chamber-ports, as shown and described. 13th. The combination, in a gas-engine, of the cylinder provided with an auxiliary chamber or series of chambers, each having a port opening into the cylinder, and the inmost chamber having a compression tube opening into the cylinder, below the lowest point reached by the piston, with the piston adapted to force the charge into the chambers, close the ports, and complete the operation through the compression tube, substantially as shown and described. 14th. In a gas-engine, the cylinder-head A1 having a central opening, suitably constructed water-spaces, a recess for the reception of the slide-valve and its ways, said cylinder-head being adapted to be bolted to the end of the cylinder, substantially as shown and described. 15th. The face-plate A2 having ways upon its inner face for the slide-valve to slide between, suitably arranged air and gas ports, and a slot for the passage of the valve actuating-pin, said plate being adapted to bolt into the cylinder-head, as shown and described. 16th. The combination, in a gas-engine, of the cylinder A, the cylinder-head A1, so constructed as shown, and the face-plate A2, arranged substantially as shown and described. 17th. The slide-valve D operating between suitably arranged ways upon the inner side of the face-plate, and having air and gas ports adapted to register with the ports in the face-plate, in combination with the valve actuating mechanism, said mechanism being adapted to impart an intermittent motion to the valve, substantially as and for the purpose set forth. 18th. The slide-valve D operating between suitably arranged ways upon the inner side of face-plate, and having formed through it an air port and gas port, the said air port being placed in advance of the gas port, whereby in the operation of the valve air is first admitted into the cylinder and then a mixture of air and gas, in which the proportion of gas increases to the end of the stroke, said valve being in combination with its actuating mechanism, as set forth. 19th. The slide valve D operating upon suitably arranged ways upon the inner side of the face-plate, and having formed through it an air port and a gas port, the air port being placed in advance of the gas port, whereby pure air is first admitted into the cylinder and then a charge of air and gas, the ports being arranged so that, after the entire charge has been admitted, the proportion will be such as to produce a rapidly combustible mixture, say about one part gas to twelve parts air, as set forth. 20th. The combination, in a gas-engine, of the cylinder A, its cylinder-head and face-plate, the cylinder being provided with suitably constructed auxiliary chambers, the slide valve and its actuating mechanism, all arranged to operate substantially as set forth. 21st. The combination, with a gas-engine, of a valve provided with ports of different areas of the slide-valve actuating cam, secured upon a properly arranged cam-shaft, said cam being made increasing in height its entire length, whereby an accelerating motion is transmitted to the said valve, and mechanism for connecting the cam and valve, as set forth. 22nd. The combination, in a gas engine, of the cam c, the pitmans c3, its roller, rocker shaft and spring, and the slide-valve D, all arranged to operate as set forth. 23rd. The combination, with a gas-engine, of a cam adapted to open the slide-valve, to admit a charge, close it and hold it stationary while the charge is compressed, exploded and the products are expelled, substantially as set forth. 24th. In a gas-engine, the piston having projecting from its face a metallic coil, substantially and for the purpose set forth. 25th. The combination, with the piston, the crank shaft and cam shaft having the cams F and C, constructed and arranged as shown, to the slide and exhaust valves connected with their respective cams by suitably constructed mechanism, all arranged to operate substantially as shown and described. 26th. In a gas-engine, the combination, substantially as specified, of the cylinder coil g2, wires g3 g4 and battery wires g o1, the shaft C and arm g5 extended from the shaft and arranged to engage the wires g1 and complete the circuit, and means for revolving the shaft, as set forth.

No. 17,363. Improvements in Water Wheels.

(Perfectionnements dans roues hydrauliques)

Henry T. Morse, Boston, Mass., U. S., 24th July, 1883; 5 years.

Claim.—1st. The improved water wheel described, the same consisting of the curb or casing E, pipes G H, shafts C D and disks A B provided with the buckets *m*, constructed and arranged to operate substantially as specified. 2nd. In a turbine water wheel, substantially as described, the disks A B respectively, provided with a series of radial buckets *m*, bent or curved in opposite directions, as shown in Fig. 1, substantially as and for the purpose set forth.

No. 17,364 Machine for Feeding Nail Plates.

(Machines d'alimentation des barres à clou.)

John F. Hammond, Omaha, Neb., U. S., 24th July, 1883; 5 years.

Claim.—1st. In a nail plate feeder, the combination, with the main driving shaft, and with the cutting knives, of the pivoted barrel yoke and the plate holding barrel sustained thereby, a connecting rod to impart to said yoke and barrel their entire backward movement, and adjustable eccentric mechanism, whereby the relative action of the cutting knives and of the barrel, in feeding the nail plate and in cutting the same, may be maintained, substantially as set forth. 2nd. The combination, with the cutting knives and with the main driving shaft, of an eccentric mounted thereon, a yoke to encompass said eccentric, a connecting rod, a pivoted barrel yoke, a plate holding barrel sustained by said yoke, and an encircling collar provided with means to engage and rotate the barrel as the same is reciprocated, substantially as set forth. 3rd. The combination, with the plate holding barrel having inclined ribs, and a collar provided with means to engage therewith and rotate the barrel of a pivoted yoke, to sustain said barrel, and mechanism, substantially as described, to rock the yoke, substantially as set forth. 4th. The combination, with the main shaft, of the fixed collar, the eccentric loosely journaled on said shaft and provided with adjusting mechanism, the eccentric yoke, the plate holding barrel, and mechanism for communicating motion from the yoke to the barrel, substantially as described. 5th. The combination, with the machine bed, of the vertically adjustable base plate, the yoke bar C, link mechanism connected to the machine bed and pivoted to said yoke bar, and the plate holding barrel and operating mechanism, substantially as described. 6th. The combination, with the base plate of the laterally adjustable yoke, bar C, the link mechanism, constructed substantially as described connecting said yoke bar to the machine bed, the plate holding barrel and operating mechanism, substantially as described. 7th. The combination, with the machine bed, of the base plate a2 pivotally connected thereto, the yoke bar C, the link mechanism constructed substantially as described, connecting the yoke bar to the machine bed, the plate holding barrel and operating mechanism, substantially as set forth. 8th. The combination, with the machine bed having hooks thereon, of the base plate, the yoke bar hinged to said base plate and detachably connected with the hooks on the machine bed, substantially as described. 9th. The combination, with the machine bed and the hooks thereon, of the base plate a2, the yoke bar and the link mechanism, constructed substantially as described, connected to said yoke bar and detachably connected by the hooks to the machine bed, substantially as set forth. 10th. The combination, with the machine bed, of the baseplate a2 pivotally connected thereto, the laterally adjustable yoke bar C pivoted to said base plate, the link mechanism connecting said yoke bar to the machine bed, the plate holding barrel and mechanism for operating the same, substantially as described. 11th. The combination, with the yoke bar of the rest plate adjustably connected to said yoke bar, the rocking bar pivotally sustained on said rest plate, and mechanism for connecting said rocking bar with the plate holding barrel, substantially as described. 12th. The combination, with the plate holding barrel of a yoke bar for sustaining said barrel, a rocking bar and means for adjusting said rocking bar with relation to the yoke bar, substantially as described. 13th. The combination, with the plate holding barrel K, of the collar M, the yoke bar C pivotally connected to said collar, and the barrel yoke G in pivotal connection with the plate holding barrel, substantially as described. 14th. The combination, with the base plate of the yoke bar C, the plate holding barrel K, the barrel yoke and the rocking bar, pivotally connecting said barrel yoke with the yoke bar, substantially as described. 15th. The combination, with the plate holding barrel of the detachable shell having intersecting grooves arranged relatively to each other, substantially as described. 16th. The combination, with the plate holding barrel and mechanism for rotating the same, of the inclined planes and the collar carrying the spring seated plungers, substantially as described. 17th. The combination, with the plate holding barrel and mechanism for imparting thereto a backward and forward motion, of the grooved shell, the box bearing and the pins held in said box bearing, substantially as described. 18th. The combination, of the plate holding barrel with the nose piece P, constructed substantially as described, and detachably connected to the barrel, substantially as set forth. 19th. The combination, with the plate holding barrel having a reduced and recessed end of the nose piece P, having the lugs 51 adapted to fit into the recesses in the end of said barrel, substantially as described. 20th. The combination, with the plate holding barrel, of the clamping spring S 2 having the arms 55 hinged together and adjusting screws for said springs, substantially as described. 21st. The combination, with the plate holding barrel, of the clamping springs connected together, and the side springs for centering said clamping springs, substantially as described. 22nd. The combination, with the cutting knives of the plate, of the but-discharging mechanism, the barrel yoke and the rod connecting the two, substantially as described. 23rd. The combination, with the driving shaft, of the eccentric loosely journaled on said shaft and having lugs upon its sides, the shaft collar carrying an adjusting bolt to operate said eccentric, the eccentric yoke and mechanism for communicating motion from the eccentric yoke to the plate holding barrel, substantially as described. 24th. The combination with the driving shaft, of the eccentric, the eccentric yoke, the shaft collar, the rocking standard and mechanism for communicating motion therefrom to the plate holding barrel, substantially as described. 25th. The combination, with the driving

shaft of the eccentric, the eccentric yoke, the collar, the rocking standard, the springs connected with the rocking standard and mechanism for communicating motion therefrom to the plate holding barrel, substantially as described. 26th. The combination, with the eccentric mechanism, of the rocking standard R, the clamp H₂, adjustably connected to the rocking standard, the rod H₁ and the plate holding barrel, substantially as described.

No. 17,365. Apparatus for Moving Thrashing Machines. (*Appareil à déplacer les machines à battre.*)

Zotique Durocher, Iberville, Que., 24 juillet, 1883; 5 ans.

Résumé—1° La combinaison de la roue d'engrenage *g* et de l'arbre de couche *d*, portée sur le crochet *c*, et le support *e* avec la roue d'engrenage *h*, et fuseau à vis *i* amené sur le crochet *p* faisant saillie, le tout dans le but expliqué. 2° Dans les moulins à battre, etc., l'élévation de l'extrémité de la machine au moyen du fuseau à vis *i*, et du crochet *p* faisant saillie de la manière décrite, et opérés d'une manière convenable quelconque. 3° La combinaison de l'arbre de couche *d* ayant la roue d'engrenage *g*, mise en mouvement par une manivelle ou manche *f*, la dite roue d'engrenage *g* s'engrenant avec l'autre roue d'engrenage *h*, et faisant tourner le fuseau à vis *i*, dans le crochet *p* en saillie, ce qui est cause que le crio en coulisse *l* glisse dans les guides *m* et *n*, dans le but expliqué. 4° La combinaison de l'arbre de couche *d*, porté sur le crochet *c* et ayant la roue d'engrenage *g*, la manivelle ou manch *f*, support *e*, roue d'engrenage *h*, fuseau à vis *i*, bloc à crochet *k*, crochet *p* faisant saillie, crio en coulisse *l*, guides *m* et *n* et charpente *a*, le tout construit, arrangé et mis en mouvement dans le but décrit. 5° Dans les moulins à battre, etc., les leviers *q* *q* ayant le rouleau *s*, les dits leviers balançant aisément sur les pivots à *r*, tel que montre, afin d'élever et d'abaisser le dit rouleau, en combinaison avec le crochet d'arrêt *t*, pour les fins et but décrits.

No. 17,366. Improvements in Boxes for Shafting. (*Perfectionnements aux coussinets des arbres de couche.*)

Philip Cramer and Hermann Stubbendorff, Montreal, Que., 24th July, 1883; 5 years.

Claim.—1st. In combination with boxes carrying shafting, rings placed on same at or in the ends of said boxes and revolving with the shaft, as and for the purposes set forth. 2nd. A box for shafting formed of two halves, in the edges of one being set strips of wood, leather, &c., grooved to receive corresponding projection formed on edges of other half, substantially as and for the purposes set forth. 3rd. A box for shafting in which one half is in section, a complete half circle, and the other less than a half circle, the lining being in two complete half circles, as and for the purposes set forth.

No. 17,367. Improvements in Governors for Steam Engines. (*Perfectionnements aux gouverneurs des machines à vapeur.*)

Franklin D. Cummer, Cleveland, Ohio, U. S., 24th July, 1883; 5 years.

Claim.—1st. The combination, with a shaft arranged to operate a main steam supply valve, of a sleeve and eccentric arranged to rotate upon said shaft, a pair of flying weights pivoted to a support projecting from said shaft, means for communicating a rocking motion to said sleeve from said weights, a thrust rod arranged loosely and centrally within said shaft, means for imparting a longitudinal motion to the thrust rod from the weights, and a variable resistance arranged to oppose the thrust of the thrust rod, substantially as described. 2nd. The combination, with the centrally bored shaft A, carrying the eccentric for operating the main valve, of the sleeve C, surrounding said shaft and provided with means for receiving rotary motion, the casing D fixed upon said shaft, the flying weights pivoted in said casing, the thrust rod E arranged centrally within said shaft, means for communicating a rocking motion from said weights to said shaft, and a longitudinal movement from said weights to the thrust rod, the lever F having its end provided with a step in which said thrust rod turns, and means for opposing a variable resistance to the movement of said lever, substantially as described. 3rd. The combination, with the lever F having the step on one arm, and a weight attached to the other arm, the thrust rod having one end in said step, the flying weights and means, substantially as described, for transmitting motion from said weights to the eccentric on the shaft, and to the said thrust rod, of adjustable means for automatically varying the resistance of the said lever to the thrust of the said thrust rod.

No. 17,368. Improvements in Syringes. (*Perfectionnements dans les seringues.*)

Obadiah Hendrick, Macon, Miss., U. S., 24th July, 1883; 5 years.

Claim.—1st. The combination of a hollow block or body, square in cross-section, having at its upper end an annularly grooved neck, and at its lower end a screw-threaded stem or shank, an elastic bulb secured upon the said grooved neck, and a nozzle having a female threaded butt-end, by which it may be secured upon the said body, as set forth. 2nd. The described body, consisting of a hollow block, square in cross-section and having at one end an annular grooved neck, upon which an elastic bulb is secured, and at the other end means for attaching a nozzle, as set forth. 3rd. The combination, with the described body, square in cross-section and having at one end an elastic bulb, of a nozzle having a butt-end square in cross-section, and adapted to be attached to, and registering with the lower end of the said body, as set forth.

No. 17,369. Improvement in Drive Well Points. (*Perfectionnements des sondes de puits artésiens.*)

Robert A. Ryne and Thomas D. Haddon, Camden, N. J., U. S., 24th July, 1883; 5 years.

Claim.—The tube B having a core C and a shoulder or enlargement *e*, (all forming a single piece of casting), in combination with the detachable point A, having an annular groove *b*, for the reception of the lower end of the tube, substantially in the manner and for the purpose set forth.

No. 17,370. Improvements in Snap Hooks.

(*Perfectionnements aux crochets à ressorts.*)

Franklin C. Ayres, Deadwood, Dak., U. S., 24th July, 1883; 5 years.

Claim.—The combination, with the frame A, having the recessed head *f* and extending therefrom, the section or hook portion *z*, of spring metal having the bevelled end H, of the pivoted section *y*, having the bevelled end H, and the retracting spring *n* connected to the wall of the recess *g* and to the rear end of the pivoted section *y*, substantially as and for the purposes set forth.

No. 17,371. Improvements in Carriage Bodies. (*Perfectionnements aux caisses de voitures.*)

Alton J. Calkins, Omro and Chancellor L. Farrington, Wyocena, Wis., U. S., 26th July, 1883; 5 years.

Claim.—The corner-post A, provided with recesses GG and grooves FF, in combination with rails C and D, panels B and irons J J, substantially as and for the purpose specified.

No. 17,372. Improvements in Buckles.

(*Perfectionnements dans les boucles.*)

James A. Park and Charles J. Davis, Lansing, Mich., U. S., 26th July, 1883; 5 years.

Claim.—1st. The combination, with a frame provided with upwardly turned ends, and a cross bar provided with arms or wings, of a pivotal bail secured by said arms and provided with a downwardly projecting hooked pin, and a pivoted tongue, substantially as set forth. 2nd. The combination, with a frame having upwardly turned ends, and a shouldered cross-bar provided with arms or wings, of a pivotal bail secured by said arms, and provided with a downwardly projecting hooked pin, and a tongue pivoted to said bail between the arms of said cross-bar, substantially as set forth. 3rd. The combination, with a frame provided at one end with a tuck loop and with an under loop, recessed bearings and a shoulder cross-bar provided with arms or wings, of a bail having bearing in the recesses of the frame pivotally secured to the latter by banding said arms around its pivotal bar and provided with a downwardly projecting hooked pin, and pivoted tongue, substantially as set forth.

No. 17,373. Improvement in Hoisting Gins.

(*Perfectionnement des monte-charges.*)

Samuel T. Richardson, Baltimore, Md., U. S., 26th July, 1883; 15 years.

Claim.—1st. The combination, with two ratchet-wheels fixed rigidly to a shaft, of the two loose gears having pawls *c* et, with springs *g*, adjustably engaging devices H for projecting the pawls into engagement with the ratchets, and the oscillating intermediate gear F meshing with the gears E Et, substantially as and for the purpose set forth. 2nd. The combination, with the gin timbers A A₁ and the roller C journalled therein, of the ratchet-wheel D, loose wheel E with pawl *c* on one side of the gin-upright, and the rigid ratchet wheel D₁ and loose wheel E₁, with pawl *c* arranged upon the other side of the gin upright, and the oscillating gear F hung upon an axis, at right angles between them, and meshing with the loose wheels, as shown and described.

No. 17,374. Improvements on Elliptic Springs. (*Perfectionnements aux ressorts elliptiques.*)

Charles H. Parsons, Shanks, Ohio, U. S., 26th July, 1883; 5 years.

Claim.—The combination, with the spring ends *s* *f* and bolt *i*, of the caps *d* having circular flanges *h* and hollowed central studs *c*, as shown and described.

No. 17,375. Improvements in Snow Removers. (*Perfectionnement des charrues à neige.*)

Frederick W. Menze, West Bay City, Mich., U. S., 26th July, 1883; 5 years.

Claim.—1st. The frame-work A A adjustable by means of the perforations K K *i*, and pins or bolts and screw L, and provided with the wheels or rollers B and C and the cutter D, all combined, arranged and operating substantially as described. 2nd. In a snow-plough, the combination of the frame-work A A provided with the wheels B and C, cutter D and adjusting screw L with the slotted endless apron E, rollers F F₁ and platform G, all as shown and described. 3rd. As a snow removing attachment to a locomotive or railway engine, the combination of the frame-work A A, wheels B C, cutter D, aprons E G₂, screw L and shafts F F₁, H H₁, constructed as set forth. 4th. The combination of the frame-work A A provided with wheels B C, cutter edge D, side walls E₁, curved rear wall G₃, and the lateral delivery aprons or carriers G₂, all as shown and described. 5th. In a snow-plough, the combination of the frame-work A A, inclined carrier E, rollers F F₁, curved rear wall G₃, delivery aprons G₂ and rollers H H₁, all as described.

No. 17,376. Improvements in Vehicle Springs. (*Perfectionnements aux ressorts des voitures.*)

William J. Moran, Freeport, Ill., U. S., 26th July, 1883; 5 years.

Claim.—The reversed curved springs A, in combination with the horizontal springs B and stirrups E, substantially as and for the purpose set forth.

No. 17377. Improvements in Heating Furnaces. (*Perfectionnements aux calorifères.*)

Thomas Linklater, Belleville, Ont., 25th July, 1883; 5 years.

Claim.—1st. In a wood burning furnace, the damper D and the pipe c connecting the fire box A and drum C, substantially as and for the purpose set forth. 2nd. The combination of the drums B B' and C, the pipe c and damper D, with a fire box A of a wood burning furnace, substantially as and for the purpose set forth. 3rd. In a wood or coal burning furnace, of an air-chamber H in the ash-pit G, substantially as set forth. 4th. The combination of the ventilator or register K and pipe G, with the air chamber H, substantially as and for the purpose described.

No. 17,378. Improvement in Railway Rail Chairs. (*Perfectionnement des coussinets de rails.*)

Thomas Tostevin, Bluffs, Iowa, U.S., 26th July, 1883; 5 years.

Claim.—1st. In a railway rail chair formed of one piece of metal, the sides A A', braced diagonally between the rail table and lower flange and having an outward projection, as and for the uses and purposes set forth. 2nd. A railway rail chair formed of one piece of metal and having the spaces shown at *d d'*, shoulders *e e'*, as and for the uses and purposes set forth.

No. 17,379. Improvements in Milk Pans.

(*Perfectionnements aux boîtes à lait.*)

William S. Harland, Clinton, Ont., 26th July, 1883; 5 years.

Claim.—1st. In combination with a milk pan, a submerged skimmer A having handle *b b b'* or other device, by means of which it can be raised or lowered in the pan, which skimmer is constructed with a hole or valve in the bottom, so that it can be opened or closed at the will of the operator by means of a trap or valve *c* connected with handle *c* by rod or tube *d d'*, substantially as and for the purpose set forth and described. 2nd. In combination with a milk-pan having a strip of glass *h h'* inserted in its side, provided with indicator *i u x*, Fig. 2, a submerged skimmer A having handles *b* or other device, by means of which it can be raised or lowered in the pan, which skimmer is constructed with a hole or valve in the bottom so that it can be opened or closed at the will of the operator, by means of a trap or valve *c* connected with handle *c* by rod of tube *d d'*, substantially as and for the purpose set forth and described.

No. 17,380. Process of Nickel Plating.

(*Procédé de plaqage en nickel.*)

Leonard F. Dunn, Oneida, N.Y., U.S., 26th July, 1883; 5 years.

Claim.—1st. The process of securing nickel-plating to inferior metal consisting in first applying to the latter a silver coating and immediately passing it from the silver bath to the nickel bath, substantially as described. 2nd. The process of covering inferior metal with precious metal by first applying to the surface of the inferior metal a coating of silver, then applying to the said silver the nickel-plating, and subsequently covering the latter with a silver coating, substantially as described. 3rd. The process of covering inferior metal with precious metal by first applying to the surface of the inferior metal a coating of silver, then applying to the coating of silver a nickel plating, and finally covering the latter with a silver coating, and in applying said successive coatings passing the article under treatment from one bath to another without exposing the metal surfaces to the action of the atmosphere, substantially as set forth.

No. 17,381. Improvements in Cleansing Saws. (*Perfectionnements dans le nettoyage des scies.*)

William Bowker, Somerville, Mass., U.S., 26th July, 1883; 5 years.

Claim.—The method of cleansing a saw while in operation which consists in discharging steam upon the teeth of the same, as set forth.

No. 17,382. Process of Preparing Anhydrous Sulphide of Zinc. (*Procédé de préparation du sulfure anhydre de zinc.*)

Thomas Macfarlane, Montreal, Que., 26th July, 1883; 5 years.

Claim.—1st. The method of rendering hydrated sulphide of zinc anhydrous, which consists in heating said hydrated sulphide of zinc to redness in the presence of chloride of zinc, whereby access of air and oxidation are prevented by the fumes of chloride of zinc, and discoloration and loss of covering power is avoided, substantially as described.

No. 17,383. Improvements in Post Hole Diggers. (*Perfectionnements aux sondes de pieux.*)

William C. Switzer, Commanche, Texas, U.S., 26th July, 1883; 5 years.

Claim.—The combination of the head, consisting of a ring having vertical dove-tailed recesses to receive the blades of the cutters, and provided with converging arms uniting so as to form a shank, a shaft connected to said shank, a top-piece having a transverse opening or eye, and a cross-bar or handle fitted in the latter, substantially as set forth.

No. 17,384. Improvements in Bottle Tags.

(*Perfectionnements aux étiquettes des bouteilles.*)

Nathan K. Stanly, Newbury Port, Mass., U.S., 26th July, 1883; 5 years.

Claim.—A bottle tag provided with a coiled wire holder or with an elastic attaching ring, adapted to pass over the neck of the bottle and secure the tag thereto by the contractile action of the same, substantially as set forth. 2nd. The tag B provided with the spring C, in combination with the bottle A, substantially as specified.

No. 17,385. Support for Telephones and Transmitters. (*Support pour les téléphones et les transmetteurs.*)

Charles T. Loring, Boston, Mass., U.S., 26th July, 1883; 5 years.

Claim.—1st. The combination of a receiver A and transmitter B on a support adapted for horizontal and vertical adjustments, substantially as described. 2nd. A support for either, a receiver A or a transmitter B, or both constructed of parts applied together for adjustment, substantially as described for the purpose specified. 3rd. A support for telephonic instruments, substantially as described, in combination with the screw cups or binding posts U V, substantially as and for the purpose specified. 4th. A support for telephonic instruments, adapted for the passage of the circuit wires to the instruments, substantially as described for the purpose specified. 5th. A telephonic instrument such as a receiver A or transmitter B, swivelled to a support, substantially as described. 6th. In a support for telephonic instruments, a hollow standard O having conical, split and screw-threaded head or end, in combination with the screw nut *m* and rod N, carrying the instruments and entering said standard, substantially as and for the purposes specified. 7th. A support for telephonic instruments, a hollow-standard O, in combination with hollow rod N, passing through same and having holes *n* in its wall and receiving a pin or screw *q*, which screws or passes into the standard O, substantially as described for the purpose specified.

No. 17,386. Lubricator for Cylinders of Steam Engines. (*Graisneur pour les cylindres des machines à vapeur.*)

Friederich Jarecki, Erie, Penn., U.S., 26th July, 1883; 5 years.

Claim.—1st. The oil reservoir in a lubricating apparatus for steam engines consisting of the cylinder A, top and bottom B B' and binding stud D, the latter being provided with tubular ends and opening *e* and *e'* into said tubes, furnishing an inlet and outlet for said reservoir, substantially as shown. 2nd. The combination, in a lubricating apparatus, substantially as shown, with a transparent cylinder A, of the gauge bars G, notched as shown and for the purposes set forth. 3rd. In a lubricating apparatus, substantially as shown, the combination of a graduated oil reservoir which is transparent, with a pump for drawing the oil from said reservoir which is provided with means, substantially as shown, whereby the length of its piston stroke can be regulated so as to regulate the amount of oil it will pump out at each stroke, whereby the rate of consumption of oil can be observed and regulated. 4th. An oil reservoir having combined therein, as shown, the following elements:—the transparent cylinder A, top and bottom B B', post D with screw thread at each end, said ends being also tubular and provided, with openings *e e'* and *e' e'* and the funnel-shaped cup H. 5th. In a lubricating apparatus, substantially as shown, the combination, with the oil reservoir and pump, of a piston which is connected with a lever 5, which is connected with and operated from some of the moving parts of the engine, as shown. 6th. In a lubricating apparatus for steam engines, the combination, with the oil reservoir, of a steam heating pipe arranged with relation to said reservoir, substantially as shown and for the purposes set forth. 7th. In a lubricating apparatus, the combination, with the oil reservoir and the conduit leading from the same, of a steam heating pipe applied with relation to said reservoir and said conduits, substantially as and for the purposes set forth.

No. 17,387. Improvements in Sash Lifters and Fasteners. (*Perfectionnements aux appareils pour soulever et assujeter les croisées.*)

Charles W. Elliott, Horatio N. Ruggles and Matthias Donnelly, Boston, Mass., U.S., 26th July 1883; 5 years.

Claim.—1st. The sliding sash lifter in combination with the longitudinally reciprocating spring controlled sash bolt provided, the one with a V-groove and the other with a pin which engages said groove and is normally held by the stress of the spring at the apex or elbow of said groove under the arrangement and for joint operation as set forth. 2nd. The base plate and the sliding lifter, the spring and the bolt socket mounted on said base plate as described, in combination with bolt detachably connected with said socket and a pin in the bolt stem which enters and engages a V-groove in the sliding lifter, these parts being constructed and arranged for joint operation as set forth.

No. 17,388. Combined Heater and Base for Dryers. (*Poêle et base combinés pour les sécheries.*)

William S. Plummer, San Jose, Cal., U.S., 26th July, 1883; 5 years.

Claim.—1st. The combination, with the furnace, the side walls and the three part U-shaped tube having its side section of equal length to the side walls, and its middle section opening into the furnace of the two end walls having grooves or flanges to receive the ends of the side walls and the ends of the side sections of the tube, and the tie rods *b* for the double purpose of holding the end walls against the side walls, to complete the case and sustaining and holding the tube around the furnace, as described. 2nd. The combination, with the furnace and the side walls, of the perforated end walls, the three part U-shaped tube having its side sections of equal length to the side

walls and opening through the perforation in the walls at both ends and doors for closing said ends of the tube, substantially as shown and described. 3rd. The combination, with the side and end walls and the furnace, of the U-shaped tube surrounding the three sides of the furnace and opening into the furnace at its middle, and a partition extending through the three sections of the U-shaped tube and nearly to the front end, as and for the purpose described. 4th. The combination, with the furnace and the outside casing, of the U-shaped pipe composed of side sections G₁ G₂ and a middle or cross section G₃ cast in one piece, with its partition *k* and its two thimbles *i* and *j*, substantially as and for the purpose described. 5th. The combination, with the outer casing, of the U-shaped pipe and the furnace, the middle section of said U-shaped pipe and the back wall of the furnace being connected together, as described, whereby the back end of the furnace is supported by said pipe, as set forth.

No. 17,389. Balanced Shade Roller.

(*Bâton de rideau à contrepois.*)

James H. Russ, Providence, R. I., U. S., 26th July, 1883; 5 years.

Claim.—1st. The spindle D placed loosely in the spring C, whereby it will not interfere with the full winding up of the spring as set forth. 2nd. The combination, with the shell A, spring C and loose spindle D, of the rod F provided with the cup E, in which the outer end of the spindle runs and to which the outer end of the spring C is attached, as and for the purpose set forth. 3rd. The spool *b* placed upon the sleeve *a*, in combination with the spring *k* and cup *j*, whereby the necessary friction is produced between the end of the spool and cup *j*, as set forth. 4th. The combination, with a shade having a weight and spring, of the rod F, the sleeve *a* carrying spool *b*, the cup *j*, the spring *k*, the washers *i* and the cup E, whereby there is formed a brake adapted to overcome the tension of the shade spring and weight, as the shell is turned back. 5th. The combination, with the spool *b* and cup *j*, of the rod F having the recessed head G and loose dog H, as and for the purpose set forth. 6th. The rod F having the cup E attached to its inner end and made slightly eccentric at its outer end, in combination with the spring C attached to the cup, the loose spindle D, the eccentric plate N placed loosely upon the eccentric portion of the rod and the ferrule O for preventing the running down of the spring, substantially as described.

No. 17,390. Improvement in Gates.

(*Perfectionnement dans les barrières.*)

Thomas Sturgin, Fairview, Penn., U. S., 26th July, 1883; 5 years.

Claim.—A balanced gate having the fulcrum bar C of its counterpoise lever connected loosely with the rear upright of gate unattached at the lower end and hinged to the rear gate post whereby the gate may be raised and swung horizontally as described.

No. 17,391. Improvements in Washing Machines. (*Perfectionnements aux machines à laver.*)

Charles T. Shadbolt, Alexander, N. Y., U. S., 26th July, 1883; 5 years.

Claim.—1st. The combination, with the tub A provided with upright ribs B, of a series of upright rollers C, horizontal disks D D₁ provided with sockets in which the roller journals turn, a vertical shaft F to which both disks are secured, and a step bearing G secured to the bottom of the tub and provided with a marginal guard flange *g*, substantially as set forth. 2nd. The combination, with the series of rollers C, of the vertical shaft F, the upper head D provided with a recess *d* and sockets in which the roller journals turn, and a lower head *d* and sockets for the roller journals, and a block E surrounding the shaft F and seated in the recesses *d* of the heads D D₁, substantially as set forth.

No. 17,392. Improvements in Sewing Machines. (*Perfectionnements aux machines à coudre.*)

Robert N. Cox, Prairie City, Ill., U. S., 26th July, 1883; 5 years.

Claim.—1st. In a plaiting and ruffling attachment for sewing machines, the single finger secured to a slotted yoke and reciprocated by means of a crank pin travelling in the said slots, substantially as set forth. 2nd. In a plaiting and ruffling attachment for sewing machines, a single finger H adapted to be moved forward and backward by the successive downward motion of the needle bar so that as the goods travel forward and the finger is at its extreme forward limit, the needle of the sewing machine will stitch through the fold or plait caused by the finger and prevent the fold from being smoothed out, substantially as set forth. 3rd. In a plaiting and ruffling attachment, the single finger for making the fold or plait so arranged as to cause two or more successive downward movements of the needle bar to be given to form each plait or fold, substantially as set forth. 4th. The horizontal frame A₁ having the vertical part equipped on one side, having a disk K, having a series of radial holes, and a crank pin L₁ in combination with a horizontally sliding piece G carrying the finger H and provided with the vertical slotted yoke J within which the crank pin operates, substantially as set forth. 5th. The horizontal plaiter frame A₁ having the vertical piece D equipped with a journal carrying on one end the disk K, and on the opposite end the ratchet wheel M, in combination with the lever N hinged to the piece D and having hinged thereto the rack bar O and the spring O₁, substantially as set forth. 6th. The combination of the horizontal frame A₁ having the vertical piece D carrying a journal provided at one end with a disk K having a crank pin D, and the opposite end carrying a ratchet wheel, with a sliding piece G carrying the finger H having the vertical slotted yoke J, the hinged lever N and the rack bar O hinged thereto, and spring O₁ with the brake piece R, substantially as set forth.

No. 17,393. Improvement in Steam Ploughs. (*Perfectionnement des charrues à vapeur.*)

James Whealy, Toronto, Ont., 26th July, 1883; 5 years.

Claim.—1st. A steam plough constructed with a frame of wood or other suitable material composed of the following parts: the forward bar A with main draw chains I H, rear bar B, truss bar C with guides C₁, the long side beam D, the short side beam D₁, inside beams D₂ D₃, as shown and described. 2nd. In a steam plough constructed with a frame as described, the combination of the round edge furrow wheel E, the round edge land wheel J and the grooved faced land wheel K, the cranked axle L, the levers R with arcs *s*, as shown and described and for the purposes set forth. 3rd. In a steam plough constructed with a frame as described, with a truss bar C, the combination of the shear beams E, the brackets F with bolts *f*, the shears M and shear posts *t* with bolts *t*, the standards P with levers Q, and chains with attachment G, the clevis T, and chains G, the gauge wheel O and sod cutter wheel N, as shown and described and for the purposes set forth.

No. 17,394. Ribbon or Label Holder for Hats. (*Moyen d'assujeter le ruban ou l'étiquette des chapeaux.*)

William Carrick, Boston, Mass., U. S., 26th July, 1883; 5 years.

Claim.—1st. A hat ribbon or label holder composed of a resilient strip or plate adapted to be engaged at its ends with the sides of a hat body, and to be pressed by its own resilience against the crown thereof, as set forth. 2nd. A hat ribbon or label holder composed of a resilient plate, or strip, or frame, having hooks or points at its ends adapted to be pressed into the sides of the hat body by the resilience of the plate. 3rd. A hat ribbon or label holder composed of two resilient side strips connected by adjustable cross pieces, whereby the width of the holder may be increased or diminished.

No. 17,395. Improvements in Electric Lamps. (*Perfectionnements aux lampes électriques.*)

William Hochhausen, New York, N. Y., U. S., 6th July, 1883; 15 years.

Claim.—1st. The combination, with the suitable supporting frame, of the two gear trains, each having its own detent and escapement devices, two carbon carriers, one for each train, and a governing electro-magnet for actuating said frame. 2nd. The combination, with two carbon carriers, two feed regulating mechanisms, one for each carrier, mounted in one frame, a catch for engaging with and preventing the movement of one carrier and a releasing projection or equivalent device upon the other carrier, substantially as and for the purpose described. 3rd. The combination, with two carbon carriers, of an intermediate lever, one end of which engages with a projection upon one of the carriers, and a releasing pin or projection upon the other carrier, for engaging with said lever at its opposite end, as and for the purpose described. 4th. The combination, with two carbon carriers, of the interposed bent lever engaging with its vertical arm with one of said carriers, and having its horizontal arm arranged in the path of a pin upon the other carrier. 5th. The combination, with two carriers, supported from an armature lever or support, of an intermediate locking and unlocking device, also supported on said armature lever. 6th. The combination, with the armature lever, of the detent lever pivoted thereon, and the two carbon carriers. 7th. The combination, of the lever G, the feed regulating mechanism with its independent escapement and detent, the carbon carrier, the overbalancing weight resting on the lever when there is no current passing, the main circuit magnet for holding said weight out of action and the derived circuit, magnet connected to the lever. 8th. The combination, of the derived circuit regulating magnet, the armature presented to the side thereof, a stop for said armature through which the main circuit magnet is short circuited, and a spring connected to the armature and arranged to be forced against one of the conductors of the lamp by the weight released by the main circuit magnet. 9th. The combination, with the swinging armature M, of the contact stop R, for the lower end thereof, and the spring M₂ and weight L, the spring M₂ being in the path of the weight normally supported by the main circuit magnet. 10th. The combination, of the insulating plate E₂, plates E₃ and F, conducting rod F₂ F₃ and suitable binding posts or clamps, whereby the derived circuit magnet may be connected in circuit between said rods. 11th. The combination, with the two carbon carriers in a lamp, of a lug or projection F₂ and the automatic cut-out mechanism of the lamp, whereby the current is short circuited automatically when the carbon carrier has completed its downward motion. 12th. The combination of plate M, conducting strip M₂ bent around lower edge of said plate M, stop R and means for forcing the upper end of the strip into contact with the rod F₂, or other portion of the lamp frame, upon an abnormal increase in the length of arc. 13th. The combination of the lever G, supporting the two feed regulating trains and the two carbon carriers, the counterbalance weight *z* or its equivalent, the derived circuit magnet D connected to said lever, and the main circuit magnet C whose cores are supported by said lever, when the lamp is out of action, but which are raised out of connection therewith when the magnet is energized. 14th. The combination, in a double carbon lamp, of the feed regulating lever G, the derived circuit magnet D D whose cores are hung from cross bar L₂, and the main circuit magnets C C whose cores are connected by cross bar L arranged to rest loosely on the end of the lever G. 15th. The ceiling plate 12 with a central opening and slots therein, in combination with the rod or tube 14 and locking lugs 16, substantially as and for the purposes specified. 16th. The ceiling plate 12 provided with central openings and slots, the metal blocks 19 20, plates 21 and springs 22, in combination with the tube 14, lugs 16 and conductors H₂ H₃ supported by said tube, substantially as and for the purposes specified.

No. 17,396. Improvements in Electric Lamps. (*Perfectionnements aux lampes électriques.*)

William Hochhausen, New York, N. Y., U. S., 26th July, 1883; 15 years.

Claim.—1st. The combination, substantially as described, with the regulating or controlling mechanism for an electric lamp, of a counterbalance tending to separate the carbons, a derived circuit magnet

opposed to the counter-balance and serving when an increased current flows through it, to release the carbon carrier, and an over-balance and main circuit magnet for controlling the same, said over-balance being arranged as described, to hold the mechanism when no current is flowing, in condition for allowing the carbons to come together.

2nd. The combination, substantially as described, with a counter-balance gear-train frame arranged as described, to lift the carbon carrier when the counter balance is free to act, of an electro magnet in a derived circuit around the carbons for actuating the frame in opposition to the counter balance, and overbalancing weight acting upon the frame to hold the carbons together, and an electro magnet in the main circuit for removing said overbalance when the current begins to flow.

3rd. The combination, substantially as described, in an electric lamp, of a pivoted frame carrying the gear-train with which the carbon carrier is connected, a derived circuit coil and movable core attached to said frame and a main circuit coil and movable core which rests upon said frame when no current is passing, but is removed from the frame and held removed when the lamp is in action.

4th. The combination, substantially as described, of a counter balance frame for the gear train in an electric lamp, of an over balance controlled by a main circuit magnet and an automatic catch engaging with the frame, with a disengaging stop arranged as described, to disengage the catch when the over balance is raised.

5th. The combination, substantially as described, of the over balance, the pivoted weighted catch pivoted in the overbalance, the adjustable stop for said catch, and the pivoted gear train frame.

6th. The combination, with the carbon carrier, of a gear train pinion, insulated from its shaft, as and for the purposes described.

7th. The combination, of the pinion *a*, disk *c*, wheel *b* and ratchet and interposed insulating disk *h*.

8th. The combination, with the carbon carrier, of the insulating plug *E*, substantially as and for the purpose described.

9th. The combination, with the carbon carrier, of guide plates secured to the bottom and top plates, but insulated therefrom.

10th. The combination, substantially as described, with the insulated conductors passing through the casing, of clamp blocks or plates secured to the inner side of the casing and insulated therefrom.

11th. The combination, substantially as described, of the insulated conductors passing through the casing and clamp blocks or plates secured to the interior of the casing, and provided with binding screws and perforations for the connection of the helices of the lamp.

12th. The combination, substantially as described, of the supporting rods *T*, the top plate *B* and the nuts *F* of insulating material.

13th. The combination, with the cross arm *K* formed with a semi-circular bend at its centre, of the clamp plate *M* and the clamp screws, the whole forming a clamp for the lower carbon.

14th. The combination of the supporting rods *T* and the cross-arm *K*, formed as described, to constitute a portion of the clamp for the lower carbon.

15th. The combination of the supporting rods *T*, the supports *R*, the perforated cross-bar *K* for guiding the latter, and globe holder connected to the supports *R* beneath the cross-bars.

16th. The combination, substantially as described, of the vertically movable supporting rods *R*, and attached support for the globe holder and the removable globe holder.

17th. The combination, substantially as described, of the flange tube *U* and the clamping tube *V* constructed to form a casing and protection for the lower carbon, and a clamp for the globe, and suitable means as described for attaching said parts of the lamp.

18th. The combination, substantially as described, of the clamping device *U*, the flanged tube *V* for constituting the globe holder, and the bayonet joint attachment connected to the tube *V* and engaging with a support *E* connected to the lamp.

19th. The combination, with the lower carbon of an electric lamp, of an independently detachable globe holder encircling said carbon, and provided with an attached downwardly extending tube or cage, to form a cover or protection for said carbon.

20th. The combination, substantially as described, of the rods *T* coated with an insulating material, of the supporting rods *R*, also coated with an insulating material, the perforated cross-bar *K*, the support *E* attached to the rods *R*, below the cross-bar *K*, and insulating washers upon the rods *R* interposed between the cross-bar *K* and support *E*.

21st. The combination, in an electric lamp, of the positive and negative binding-posts *M* *M* located upon the interior of its casing, a spring connected to one of said posts and arranged to impinge at its free end against the other, and a cam *k* mounted in the top plate of the casing and adapted to force the free end of the spring into contact with the post.

22nd. The combination, substantially as described, of the upper plate *B*, the connecting blocks secured to the under side thereof, the short circuiting spring connected to one of said blocks, and the cam bearing against the spring and attached to a spindle passing through the upper plate.

23rd. The combination, with a binding post or block *M* for the main conductor, of the spring *n* attached directly to said block, and a moving carbon carrier against which said spring bears, so as to convey the electric current thereto.

No. 17,397. Improvements in Electric Arc Lamps. (*Perfectionnements aux lampes électriques.*)

Elihu Thompson, New Britain, Conn., U.S., 26th July, 1883; 5 years.

Claim.—1st. In combination with an armature of an electro magnet placed in a derived circuit around the electrodes, a retractile spring connected to devices moving automatically in accordance with changes in the direct current operating the lamp.

2nd. In an electric lamp, the combination of a shunt controlling electro-magnet in a derived circuit around the electrodes, an armature, a retractile spring therefor, an armature and an electro-magnet in the direct circuit, and devices acting upon the retractile spring whereby its tension is automatically varied in correspondence with the movements of the armature of the direct circuit electro-magnet.

3rd. In an electric lamp, the combination of a lifting armature, springs serving as an elastic seating for the same, a retractile spring connected to the armature which controls the feed according to the consumption of the electrodes, and intermediate devices whereby the lifting armature automatically varies the tension of the retractile spring.

4th. In an electric lamp, a clutch for lifting the carbon carrier to form the arc consisting of a movable body with adjustable portion *A*, in which are pivoted clamping jaws *J*, *J*, whose inner clamping ends rest upon the carrier at points above the line joining their pivots, whereby a move-

ment of the outer ends of said jaws upward imparting a downward movement to their inner ends, locks said clutch, while a downward movement of the outer ends reverses said action, substantially as described.

5th. In an electric lamp, the combination, with the retractile spring, of an electro-magnet of a compensating knee or toggle joint *B* *B*, substantially as and for the purpose described.

6th. In an electric lamp, in combination with a pillar supporting the lower electrode, a detachable foot clamp consisting of a lever *m*, provided with projections *v* *v*, screw *b* and plates *e* *e* upon said pillar, cut away at their sides, whereby said clamp lever may be released by a partial rotation, substantially as described.

7th. The combination, with the derived circuit electro-magnet and the electro-magnet controlling the feed mechanism, of a derived circuit to said feed regulating electro-magnet, a carbon or other resistance surface in said derived circuit and a slit spring or comb, whose teeth are arranged to successively make contact with the carbon, as or for the purpose described.

8th. In an electric light regulator, a supplemental tripping electro-magnet acting upon the clutch devices of the carbon holder and switch devices controlling the flow of current through said electro-magnet, operated by an electro-magnet in a derived circuit around the carbons, and adjusted to be called into action only by an abnormal increase of the current in said derived circuit electro-magnet, consequent upon an abnormal increase of resistance in the arc.

9th. In an electric light regulator, the combination of a supplemental safety electro-magnet acting upon the clutch device of the carbon feeding mechanism to trip the same, switch devices controlling the flow of current through said electro-magnet, and devices operating the switch and adjusted to be called into action only by an abnormal increase of the arc resistance, substantially as described.

10th. In an electric light regulator, a supplemental tripping electro-magnet whose terminals are connected to the main circuit, in combination with a normally closed shunt circuit including contact points under the control of an electro magnet in a derived circuit around the carbons, substantially as described.

No. 17,398. Improvements in Electric Arc Lamps. (*Perfectionnements aux lampes électriques à arc.*)

Elihu Thompson, New Britain, Conn., U.S., 26th July, 1883; 5 years.

Claim.—1st. The combination, with an electric lamp, of a shunt circuit closer or cut out constructed in two parts movable with relation to one another as described, an electro magnet in the general circuit of the lamp for actuating one of said parts, and means connected with the regulating mechanism of the lamp for actuating the other.

2nd. The combination, with an electro-magnet in the general circuit of the lamp, a contact piece movable by said electro-magnet and adapted to be set and held in position for electrical contact by the current which forms the arc, a second contact piece adapted to make contact with the first when in position, and attached to or supported by the armature lever, of the regulating mechanism and circuit connections to said contact, substantially as described, whereby, when the armature lever of the regulating mechanism is retracted to an abnormal extent, a shunt or safety circuit is closed around the lamp.

3rd. The combination, substantially as described, with an electric lamp of a shunt circuit closer constructed in two parts movable with relation to one another, an electro-magnet in the general circuit of the lamp for actuating one of said parts, retracting devices applied to the latter and adjusted below the tension of the currents used in operating the lamp, and an electro-magnet or magnets for actuating the other part of the shunt circuit closer provided with retracting devices adjusted to such a tension that, on an abnormal length of arc and a consequent diminution of current strength, the shunt or safety circuit will be closed.

4th. The combination, substantially as described, of the two movable contacts *A*, movable to and from one another, electro-magnet *D* in the direct circuit at all times for actuating one of said contacts, and connecting devices between the regulating devices of the lamp and the other circuit closer, as and for the purpose described.

No. 17,399. Improvements in Car Trucks. (*Perfectionnements aux châssis des chars.*)

Ira C. Terry and Andrew Warren, St. Louis, Miss., U.S., 26th July, 1883; 15 years.

Claim.—1st. The combination of the beams formed of T-rails with the arch and truss bars, all secured together by parallel bolts passed through, or resting in recesses in the flanges on both sides of the beams, substantially as set forth.

2nd. The cross beams *G* composed of T-rails placed with the flanges of the rails against the arch and truss bars, said parts being clamped at their ends by means of bolts which are passed through the arch, and truss bars through the flanges of the rails and which bear against or rest in indentations in the rail heads, substantially as set forth.

No. 17,400. Improvements on Windmills. (*Perfectionnements aux moulins à vent.*)

James E. Toombs, Tyner, Utah, U.S., 10th July, 1883; 10 years.

Claim.—1st. The wind wheel consisting of the vertical shaft *C*, its peripherally mortised hubs *E*, the curved arms *f*, concave fans *G* and binding wires *h* engaging the ends of the arms and extending around the wheel, substantially as specified.

2nd. The combination, with an interior wind wheel, of the incesment top *B* and bottom *B*, the circular series of end pivoted gates *H* connected together and to an opening spring *S*, and the hinged clapper boards *Z* connected to the outer edges of said gates, substantially as specified.

No. 17,401. Improvement in Cradles. (*Perfectionnement dans les berceaux.*)

The Climax Cradle Company, Springfield, Mass., (assignee of Frank W. Barker, Belmont, N.H.) U.S., 26th July, 1883; 5 years.

Claim.—In combination with the crib *A* and its supporting stand *B*, the spring *C* and the hooks *c*, *c*, and the two levers *D* *D* provided with eyes *b* *b*, all being applied and arranged substantially in manner and to operate as set forth.

No. 17,402. Apparatus for Generating and Carburetted Hydrogen Gas.
(Appareil pour produire et carburer le gaz hydrogène.)

Leroy S. Groves, Afton, Iowa, U.S., 26th July, 1883; 5 years.

Claim.—1st. The gas generating and carburetted apparatus consisting of the tank A for acidulated water, the inner case B within said tank having in its upper portion the gasoline compartment C, and in its lower portion the raised basket E for iron or zinc, the valved bent tube G extending from the interior of the case to near the bottom of the gasoline chamber, the valved feed tube K and the valved outlet tube L and tube H, substantially as specified. 2nd. The combination, with the tank A, of the inner case B, its gasoline compartment C, bent conducting tube G and valve c, valved feeding tube K and valved outlets L and H, the still supports D, raised basket E and the fastening or catches s, substantially as specified. 3rd. The combination, with the gas chamber F and the gasoline chamber C, of the perforated gas conducting tubes G and L, and their cone supports or braces P, forming chambers v and w around said tubes, the cones having bottoms substantially as specified.

No. 17,403. Improvements in Galvanic Elements.
(Perfectionnements dans les éléments galvaniques.)

Aron Bernstein, Berlin, Prussia, 26th July, 1883; 5 years.

Claim.—1st. In a galvanic element, a positive electrode consisting of the amalgam of an alkali metal, in combination with an envelope thereof serving as diaphragm and made of fabric not affected by the exciting liquid, such as a fabric of vegetable fibres and which is impregnated with a caustic alkalic solution, substantially as and for the purpose described. 2nd. A galvanic element composed of a flat negative electrode and a positive electrode, consisting of a plate of amalgamated alkali metal and inclosed in an envelope having the nature and prepared as described, both electrodes being placed horizontally and so as to be both in contact with the said envelope, substantially as specified.

No. 17,404. Improvements in Mowing Machines.
(Perfectionnements aux faucheuses.)

Frank Bramer, Brooklyn, N.Y., U.S., 26th July, 1883; 10 years.

Claim.—1st. The combination of the finger-beam, the shoe having the pivot lug d, the cap-piece constructed with the pivot-lug d, the securing bolt f, the forked coupling-arm perforated to receive said pivot-lugs and the single cross pin for holding the parts together, substantially as and for the purpose set forth. 2nd. The combination of the coupling-arm having the slotted lugs H H, the wheel I and the adjusting sleeve, bolt and nut, as and for the purpose set forth. 3rd. The combination of the coupling-arm, the thrust brace jointed thereto, the doubly flanged frame-arm J against which the brace bears at its rear end, and the pivot passing through the flanges of the frame arm and connecting the thrust brace thereto, as and for the purpose set forth. 4th. The combination of the hinged finger beam, the coupling-arm, the angular gag-lever, its vertical pivot and means for actuating said gag-lever, substantially as and for the purpose set forth. 5th. The combination of the main frame, the coupling arm, the hinged finger beam, the angular gag-lever, the vertical pivot by which it is supported by the coupling-arm, the thrust brace, the elbow lever thereon, and the link connecting the elbow lever and gag-lever, substantially as and for the purpose set forth. 6th. The combination, substantially as set forth, of the main-frame, the coupling-arm, the thrust brace jointed at one end to the coupling-arm near its outer end, and pivotally connected at its opposite end with the main-frame, the finger-beam having hinged connection with the coupling-arm, the elbow-lever on the thrust brace, the chain and lifting lever, the stop on the thrust-brace limiting the movement of the elbow lever independently of the brace, and the gag-lever connected with the elbow lever, for the purpose described. 7th. The combination, substantially as set forth, of the outer shoe having the slotted rearwardly projecting arm, the roller, the roller shield hinged to the shoe, and means for adjusting the roller and shield vertically and together for the purpose described. 8th. The combination of the outer shoe having the slotted rearwardly projecting arm, the hinged shield, the roller, the shouldered and threaded bolt and the nut, substantially as and for the purpose set forth.

No. 17,405. Improvements on Washing Machines.
(Perfectionnements aux laveuses mécaniques.)

Samuel Brillinger, Sherkston, Ont., and Joshua F. Beam, Buffalo, N.Y., U.S., 26th July, 1883; 5 years.

Claim.—1st. A suds box provided with a stationary washing board having projections, as set forth, in combination with an agitating device pivoted to the suds box and having a series of fixed rods or bars mounted therein sleeves and openings mounted upon said bars as described, said bars and sleeves being located in the agitator in the same order as the projections upon the stationary washing board, as and for the purposes set forth. 2nd. A suds box provided with a stationary washing board having bars projecting from the face of the board and provided with springs to keep them in their advanced position, in combination with an agitating device pivoted to the suds box and having a series of fixed rods or bars provided with sleeves and openings as described, said bars and sleeves being located in the agitator in the same order, or substantially so as the projections upon the stationary washing board, as and for the purposes described. 3rd. The counterweighted pivoted agitating device with its operating parts, its stationary plungers b₂ and springs c, in combination with the hollow sleeves b₄ and a stationary washing board a₂, substantially as and for the purposes specified.

No. 17,406. Improvements in Vapour Generators and Motors, etc.
(Perfectionnements aux générateurs et aux moteurs à vapeur, etc.)

Israel R. Blumenberg, Washington, Col., U. S., 26th July, 1883; 5 years.

Claim.—1st. The method of producing power vapour in an empty chamber having an induction pipe and a distributing rose and an eduction pipe, by automatically injecting volatile fluid in a spray or shower against a naked flat metal bottom provided with numerous tubes extending outward and closed at their extreme ends, and the whole heated by steam or boiling water, substantially as shown and described. 2nd. The method of producing power vapour by automatically injecting volatile fluid in a shower or spray through an induction pipe terminating in a rose into a chamber having an eduction pipe, a safety valve and vapour gauge and numerous steam ducts or pipes arranged horizontally in a cluster and passing longitudinally through the lower division thereof, the open ends of which ducts are encased within steam chambers or domes provided with steam induction and eduction pipes, and the whole heated by steam, substantially as shown and described. 3rd. A horizontal vapour generator provided with an eduction pipe, induction pipes and distributing roses, check valves and a number of small steam ducts secured in a cluster, in the lower portion of the generator, the open ends thereof encased within steam chambers or domes a₁ and a₂, one at each end, the said chambers or domes, provided with an induction and eduction steam pipe respectively, and the pipes provided with stop cocks, substantially as shown and described. 4th. A vertical vapour generator provided with an induction pipe terminating in a rose for distributing the fluid in a spray on the naked heated metal below an eduction pipe, for conducting the generated vapour to the engine, and a horizontal plate with numerous long slim tubes secured therein and closed at their extreme ends, substantially as shown and described. 5th. A vertical vapour generator having an induction pipe terminating in a distributing nose, and an eduction pipe, a horizontal plate containing numerous long slim tubes extending outward and closed at their extreme ends, provided with an internally adjusted diaphragm of thin metal having numerous short open tubes secured therein, substantially as shown and described. 6th. A vertical vapour generator having an induction pipe terminating therein in a nose, for distributing the liquid in a shower or spray, an eduction pipe for carrying the vapour to the engine, a horizontal plate containing numerous long slim tubes extending outward and closed at the outer ends, provided with internally adjusted V-shaped brackets arranged on the inner walls thereof, substantially as shown and described. 7th. A combined furnace and steam boiler, the latter having a corrugated bottom and provided with a water induction pipe, a waste pipe, a blow pipe and steam gauge, substantially as shown and described. 8th. A combined furnace and steam boiler, the latter having a corrugated bottom and annular water legs, and provided with a water induction pipe, a waste pipe, a steam gauge and blow pipe, substantially as shown and described. 9th. A combined furnace and steam boiler, the latter having projecting from the bottom, a coil pipe extending into the furnace below, substantially as shown and described. 10th. In combination, vapour generator d provided with an induction pipe having a rose for distributing the liquid in a spray or shower upon the naked heated metal below, an eduction pipe for carrying the generated vapour to the engine cylinder, a tube plate B and furnace, and steam boiler g, the latter provided with a steam gauge, a water induction pipe, a waste pipe and a blow pipe, substantially as shown and described. 11th. A vapour generator having an induction pipe terminating within the generator in a rose, for delivering the fluid in a shower or spray, a check valve e₄, an eduction pipe f having a throttle valve f₂, and a bottom tube plate B, in combination with a steam chest g provided with steam induction pipe h₁, steam induction pipe h₂, stop cocks h₃ h₄ and a steam gauge, substantially as shown and described. 12th. A vapour generator d having induction pipe e, rose e₂, check valve e₄, eduction pipe f, tube plate B and a steam chest or vessel g, provided with steam gauge h₃, blow pipe h, induction pipe h₁, stop cock h₂, eduction pipe h₂, and stop cock h₁, in combination with steam boiler b, substantially as shown and described. 13th. A vapour generator provided with induction pipe e, stop cock e₃, check valve e₄, eduction pipe f, tube plate B, steam chest g, the latter having steam induction and eduction pipe b₁ b₂, stop cocks h₃ h₄, and the steam boiler b, in combination with cylinder f₁ and engine A₁, substantially as shown and described. 14th. A vapour generator d, steam chest g and steam boiler b, as shown, in combination with supply pipe e₁, force pump h and reservoir F, for storing and supplying fluid, substantially as shown and described. 15th. In combination, steam boiler b, induction pipe h₁, eduction pipe h₂, steam chest or vessel g, tube plate B, vapour generator d, induction pipe e, rose e₂, check valve e₄, supply pipe e₁, throttle valve e₃, pump h, reservoir F, eduction pipe f, throttle valve f₂, engine cylinder h₁, exhaust pipe o, condenser E, pipe o₁ and reservoir F, all adjusted and arranged substantially as shown and described. 16th. A vapour generator d provided with induction pipe e, check valve e₄ and distributing rose e₂, eduction pipe f, tube plate B, diaphragm d₂, in combination with steam chest g having induction and eduction pipes connecting with steam boiler b, substantially as shown and described. 17th. A vapour generator d, provided with eduction and induction pipes, check valve and distributing nose, and a tube plate, and with internally adjusted diaphragm or V-shaped brackets for increasing the vaporizing power of the vapour generator, in combination with steam chest or vessel g, induction pipe h₁ and eduction pipe h₂, and steam boiler b, substantially as shown and described. 18th. In combination, the vapour generator d, tube plate B, steam chest g, steam boiler b, cylinder f₁ of motor engine A₁, exhaust pipe o, condenser E, reservoir F, pump h, supply pipe e₁ and the several connecting pipes, substantially as shown and described. 19th. A horizontal vapour generator having eduction pipe e, rose e₂, check valve e₄ and eduction pipe f, a cluster of steam ducts c, steam domes or chamber a₁ a₂, in combination with steam pipes b₁ b₂, auxiliary steam boiler h, general supply pipe e₁, throttle valve e₃, pump h, reservoir F and with eduction pipe f, throttle valve f₂, engine cylinder f₁, exhaust o, condenser E and reservoir F, the whole constructed,

arranged and connected substantially as shown and described. 20th. A steam generator g^1 having a corrugated bottom and annular water legs g^4 , in combination with furnace m , tube plate B and vertical vapour generator d , substantially as shown and described. 21st. A steam generator g^1 having an auxiliary coil pipe g^2 , extending down into the furnace and provided with a steam gauge k^3 , a blow pipe k , water supply pipe l and waste pipe l^1 , in combination with furnace m , tube plate B and vapour generator d , substantially as shown and described. 22nd. A steam generator g^1 having a corrugated bottom and provided with a steam gauge, blow-pipe, water supply pipe and waste pipe, in combination with furnace m , tube plate B, vapour generator d , tube plate diaphragm d^1 , induction pipe e , distributing rose e^2 , check valve e^4 , supply pipe d^2 , force pump h and reservoir, substantially as shown and described. 23rd. A steam generator g^1 , furnace m , tube plate B, vapour generator d , auxiliary diaphragms d^2 d^4 d^5 , induction pipe e , distributing rose e^2 , check valve e^4 , supply pipe e^1 , pump h and reservoir F , and an eduction pipe f having a throttle valve f^2 , in combination with engine cylinder r^1 , exhaust o , condenser E and reservoir F , substantially as shown and described. 24th. V-shaped bracket, in combination with a vertical vapourizer d , tube plate B and induction pipe having a distributing rose e^2 , substantially as shown and described. 25th. A metal disk diaphragm d^2 securing numerous short open tubes, in combination with vapour generator d , tube plate B, induction pipe e , distributing nose e^2 and eduction pipe f , substantially as shown and described. 26th. In vertical vapour generators, the combination of tube plate B, tube plate diaphragm d^2 , V-shaped brackets d^4 , induction pipe e , distributing rose e^2 , supply pipe e^1 , pump h and eduction pipe f , engine cylinder r^1 , exhaust pipe o , condenser E and general reservoir F , substantially as shown and described. 27th. Plate B provided with, and securing by their open ends a large number of long slim tubes closed at the opposite ends, in combination with a steam boiler g^1 and furnace m , for generating heat for vapourizing volatile fluid, substantially as shown and described. 28th. Plate B provided with and securing by their ends a large number of long tubes e^1 closed at the opposite ends, in combination with a steam boiler and a furnace, and a vapour generating dome, substantially as shown and described. 29th. Plate B provided with and securing by their ends a large number of tubes closed at the opposite ends, in combination with steam chest g arranged for receiving steam from an auxiliary boiler, substantially

as shown and described. 30th. Tube plate B as described, in combination with vapour dome or generator d , and a steam vessel g arranged for receiving steam from an auxiliary boiler, substantially as shown and described. 31st. In combination, engine cylinder r^1 , lubricating fountain s , automatic lubricating valves s^1 , packing r , piston rod r^3 , vapour induction pipe f and exhaust pipe o for use in vapour engines, substantially as shown and described.

No. 17,407. Improvements in Weighing Scales. (*Perfectionnements aux balances.*)

William C. Farnum and Elisha S. Peck, Hoosick Falls, N. Y., U. S.
26th July, 1883; 5 years.

Claim.—1st. A weighing scale in which the weight end of the scale beam is provided with a cradle for the reception and retention while in use of the weight divided into vertical compartments, substantially as shown, and the permanent or stationary portion of the standard frame-work or base thereof is provided with a stationary weight-rack divided into compartments similar to those of the weight cradle, located in opposition thereto, and all arranged to operate substantially in the manner described and for the purposes set forth. 2nd. A weighing scale provided with a stationary receptacle for the retention of the weights and a cradle pivoted on the scale beam for holding the weights while in the act of weighing, said receptacle and cradle being similarly divided into vertical compartments for the reception of the weights and disposed in opposition to each other, so that such compartments shall present their open sides towards each other, in combination with a weight or set of weights, of disk or annular form, substantially as described and set forth. 3rd. A weighing scale provided with a series of separate stationary weight receptacles arranged in horizontal rack upon the main structure of the scale, in combination with a cradle pivoted on the scale beam divided into similar series of separate weight receptacles, the two series of receptacles being arranged in reference to each other so that any weight in any receptacle of either series may be moved into its corresponding receptacle in the other series, without interfering with or disturbing its companion weights, substantially as described and set forth.

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

- | | |
|--|---|
| <p>21. A. W. McKOWN, 2nd 5 years of No. 9014, from 11th day of July, 1883. Improvements in Auxiliary Waggon Springs, 3rd July, 1883.</p> <p>22. C. E. LIPE, E. D. BRONSON and A. WALRATH, 2nd 5 years of No. 8971, from the 6th day of July, 1883. Improvements in Broom Sewing Machines, 5th July, 1883.</p> <p>23. T. C. HEWIT. (assignee) 2nd 5 years of No. 8975, from the 6th day of July, 1883. Improvements in Lightning Rods, 6th July, 1883.</p> <p>24. W. LESLIE, Jr., 2nd 5 years of No. 17,179, from the 10th day of July, 1883. Withe Crushing Machine, 9th July, 1883.</p> <p>25. G. R. KIDDER and A. D. TAYLOR, 2nd 5 years of No. 12,564, from the 10th day of July, 1883. Improvements in Sliding Doors, 9th July, 1883.</p> <p>26. T. WALLACE, 2nd 5 years of No. 8983, from the 10th day of July, 1883. Process of Curing and Packing Meats, 9th July, 1883.</p> <p>27. R. BEAM, 2nd 5 years of No. 9091, from the 6th day of August, 1883. Improvements in Pumps, 12th July, 1883.</p> | <p>28th. W. W. AUSTIN, 2nd 5 years of No. 9123, from the 21st day of August, 1883. Improvements in Gas Lamps, 21st July, 1883.</p> <p>29. W. BERRY, 3rd 5 years of No. 2565, from the 25th day of July, 1883. Improvements in Cocks and Valves, 24th July, 1883.</p> <p>30. J. SCHAFHANS, 2nd 5 years of No. 9139, from the 30th day of July, 1883. Improvements in Self - Acting Washing Machines, 26th July, 1883.</p> <p>31. J. HAGGAS and W. GOODERHAM, Jr., 2nd and 3rd 5 years of No. 9058, from the 2nd day of August, 1883. Improvements in Apparatus for Supplying Locomotive Tenders with Water, 31st July 1883.</p> <p>32. G. G. CARVER and H. FAXON, Jr., 2nd 5 years of No. 12,940, from the 10th day of June, 1883. Improvement in Indexes, 31st July, 1886.</p> <p>33. J. ROSS, 2nd 5 years of No. 9489, from the 17th day of December, 1883. Improvements in Planing Machines, 31st July, 1883.</p> |
|--|---|



THE

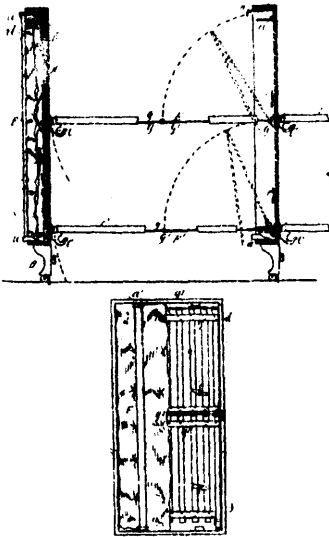
CANADIAN PATENT OFFICE RECORD.

ILLUSTRATIONS.

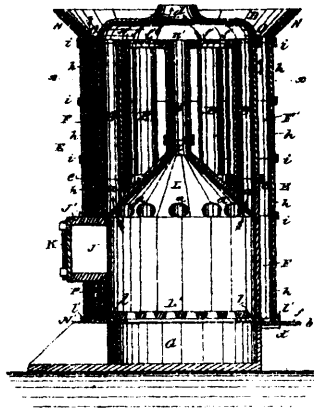
Vol. XI.

AUGUST, 1888.

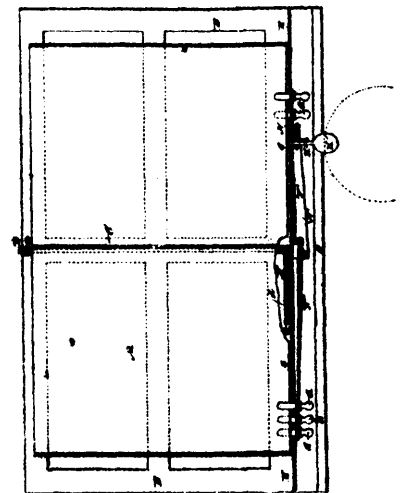
No. 8.



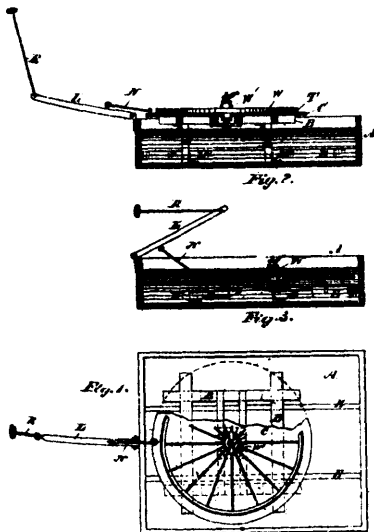
17104 Davis' Berth for Sleeping Cars.



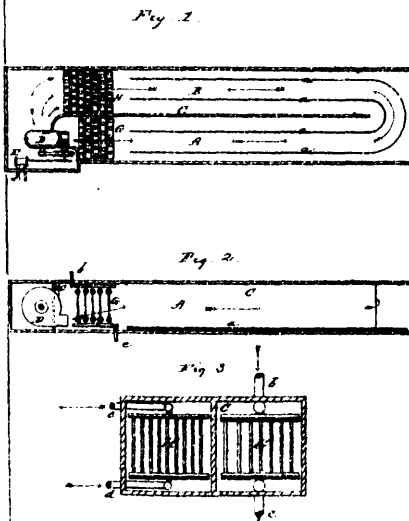
17106 McPherson's Improvements in Sand Dryers.



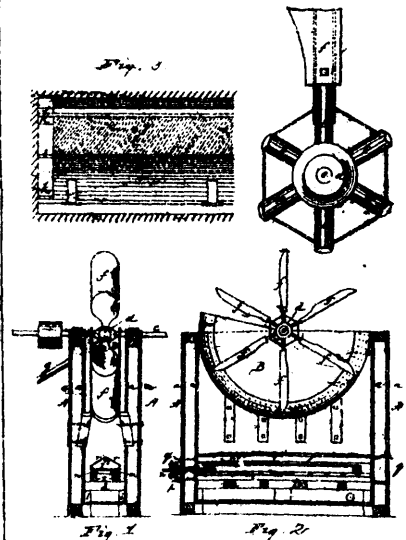
17108 Wittman's Music Leaf Turner.



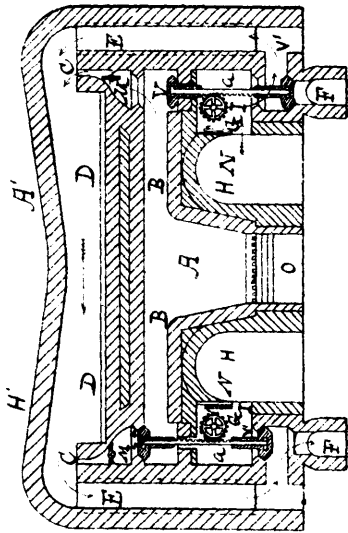
17107 McPherson's Machine for Setting Tires.



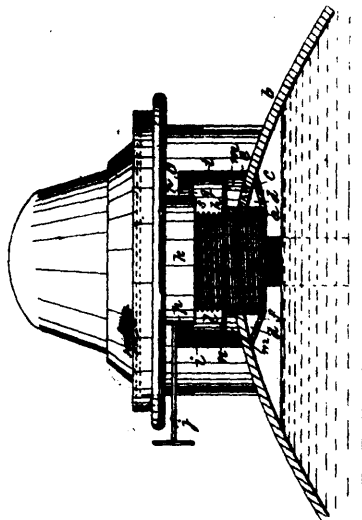
17108 Hoeveler's Apparatus for Drying Glue, &c.



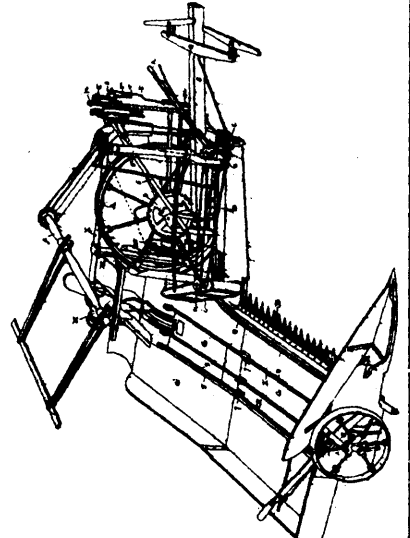
17109 Hoeveler's Glue Stock Washer.



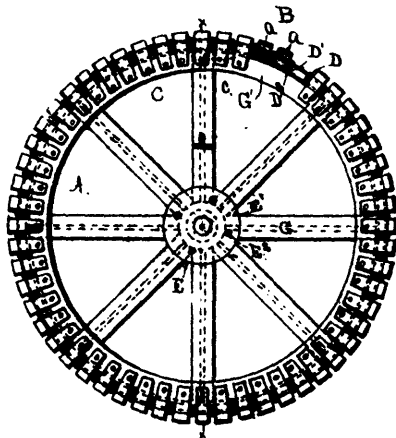
17110 Wapington's Metallurgic Gas Furnace.



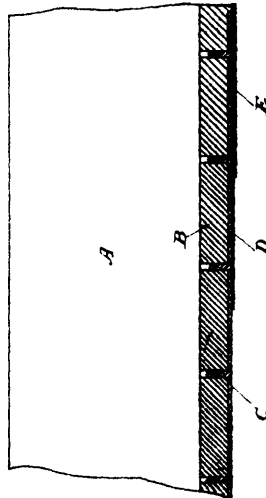
17111 Maxim's Improvements in Oil Lamps.



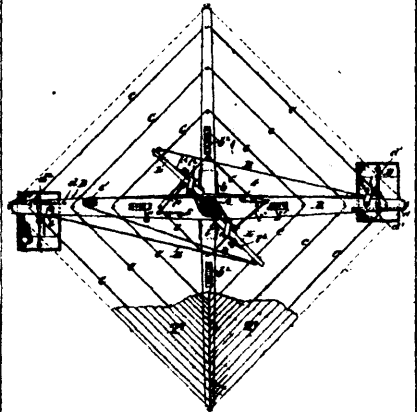
17112 Maxwell and Turnbull's Improvements in Harvester Binders.



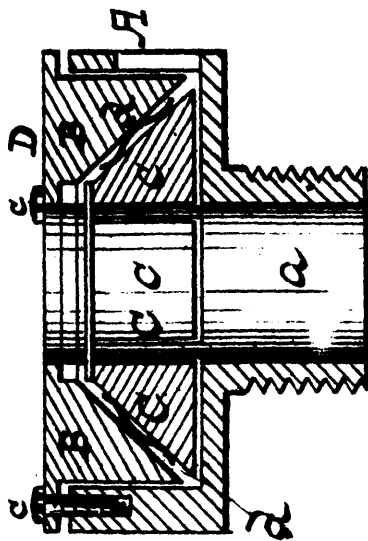
17113 Enright's Improvements in Traction Wheels.



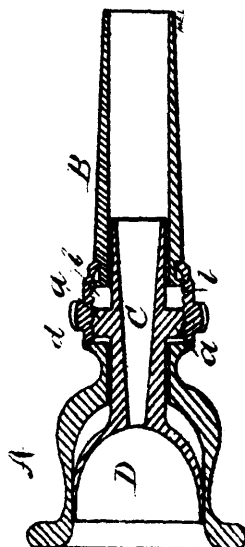
17114 Chartier's Composition of Matter for Plastering Walls, &c.



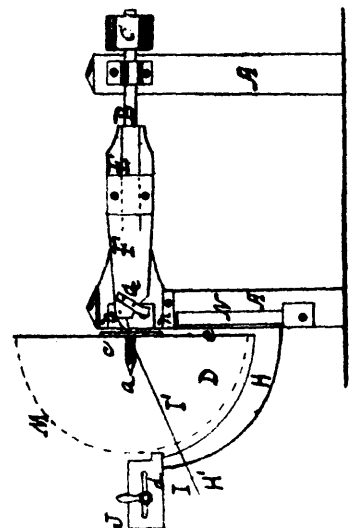
17115 Watkin's Spring Lever Rotary Swing.



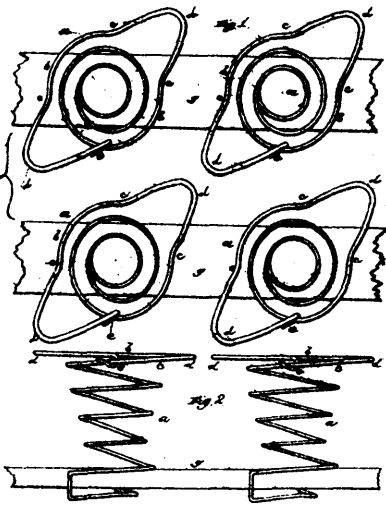
17116 Fox's Improvements in Staffing Boxes.



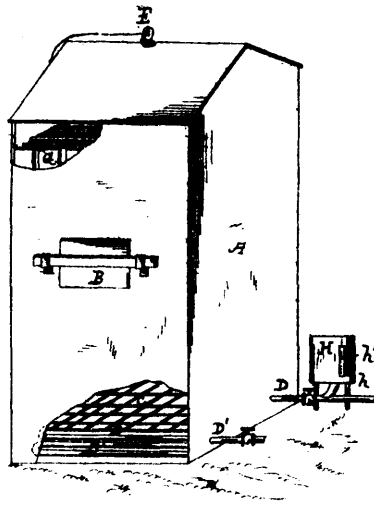
17117 Jones's Mouth-piece for Cornets.



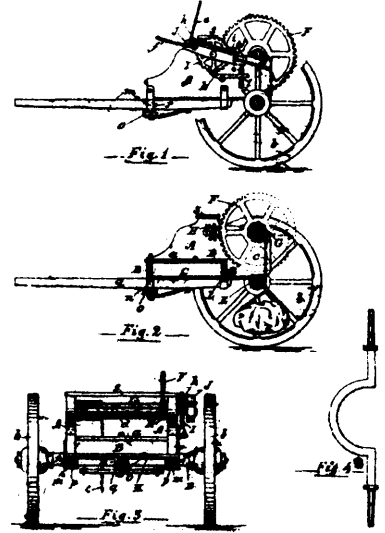
17118 Neff's Machine for Making Bowls.



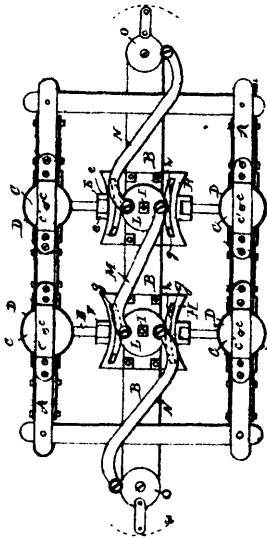
17119 Moore's Improvements in Bed Bottoms.



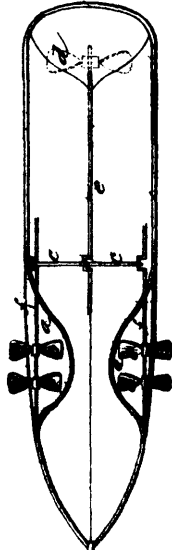
17120 Lynch's Improvements in Lumber Dryers.



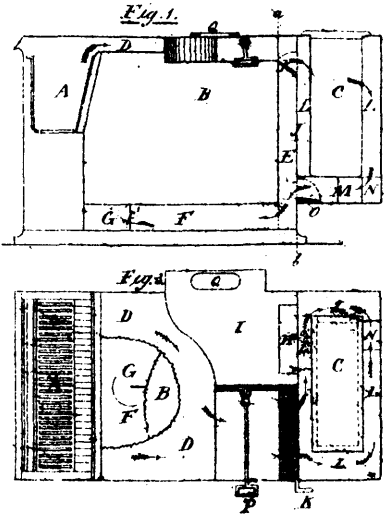
17121 Mignault's Improvement in Stump Extractors.



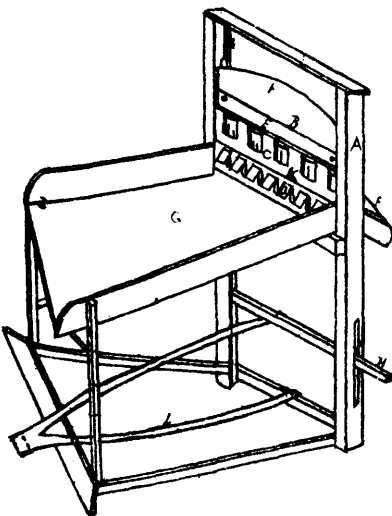
17122 Cleveland's Improvements in Car Trucks.



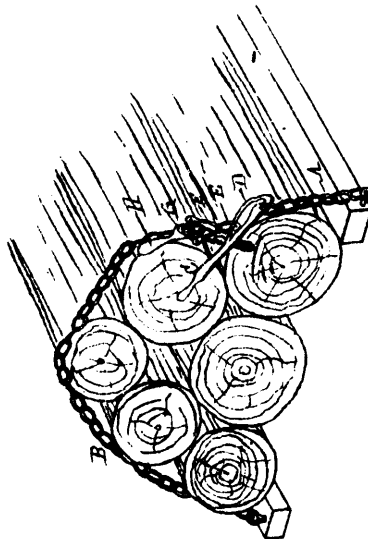
17123 Gartner's Improvements in Screw Propellers.



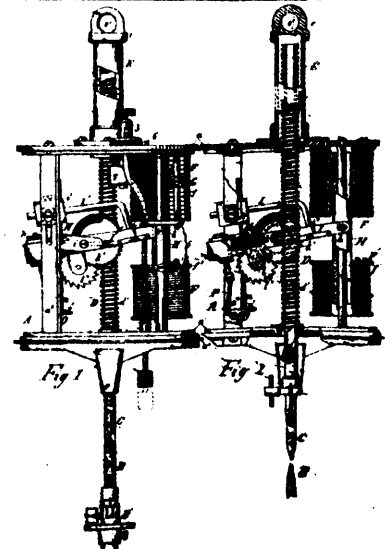
17124 Brake's Cooking and Heating Range.



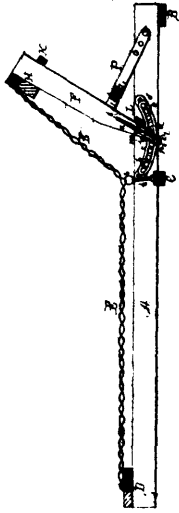
17125 Byron's Improvements in Root Cutters.



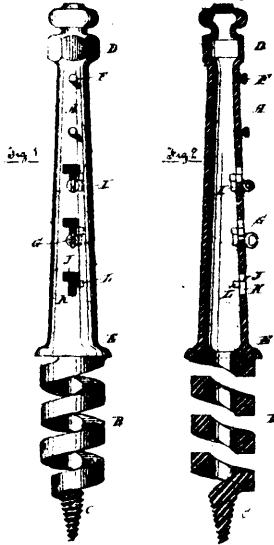
17126 Smith's Improvements in Binding Chains.



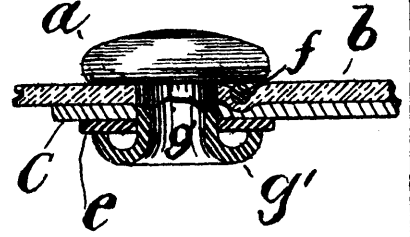
17127 Ball's Improvements in Electric Arc Lamps.



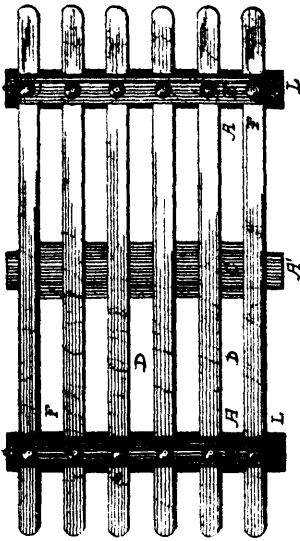
17128 Howard's Improvements in Bed Bottoms.



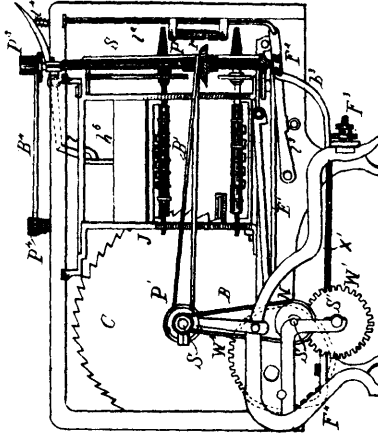
17129 Arthur, Spaulding and Davison's Improvements in Fence Posts.



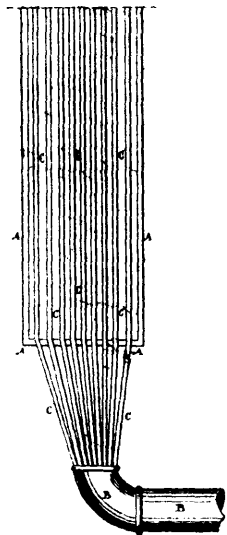
17130 Foster's Device for Lacing Gloves.



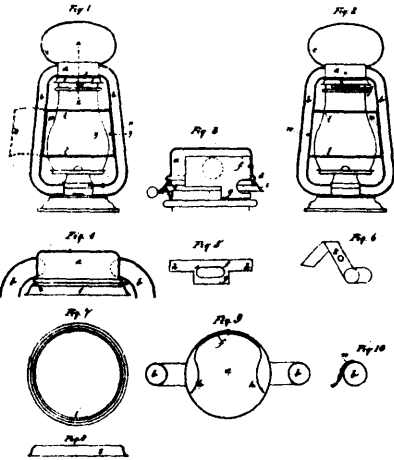
17132 Grafton's Improvements in Bed Bottoms.



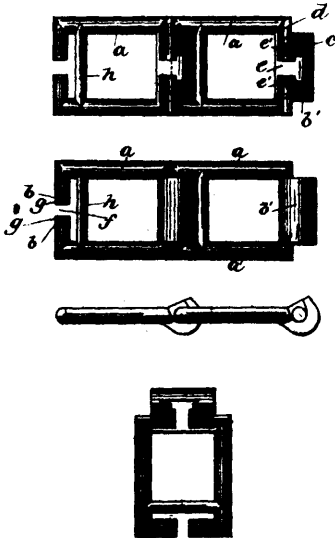
17133 Marcoux's Improvements in Shingle Machines.



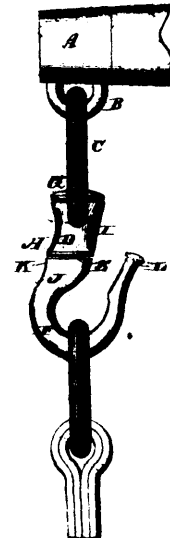
17164 Kell's Process and Apparatus for Freezing Liquid Compounds.



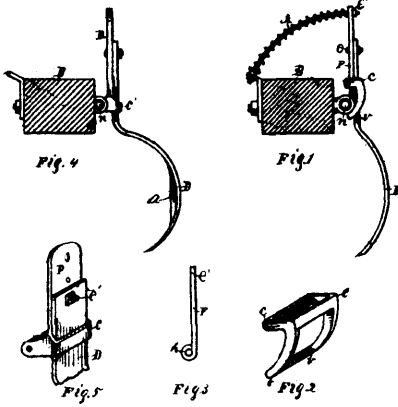
17135 Davidson's Improvements in Tubular Lanterns.



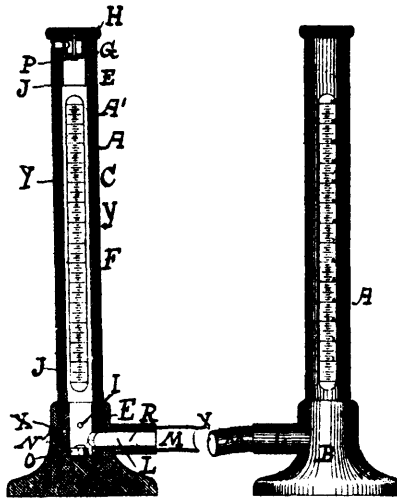
17138 Weaver's Drive Chain.



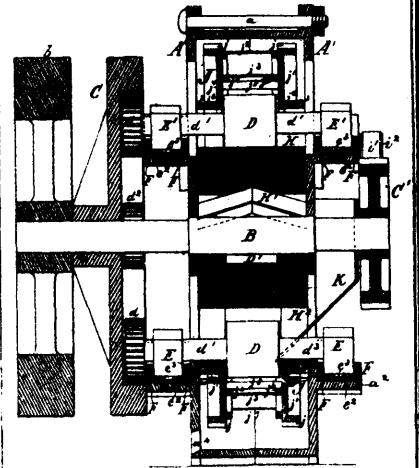
17138 Huntress' Improvements in Swivel Hooks.



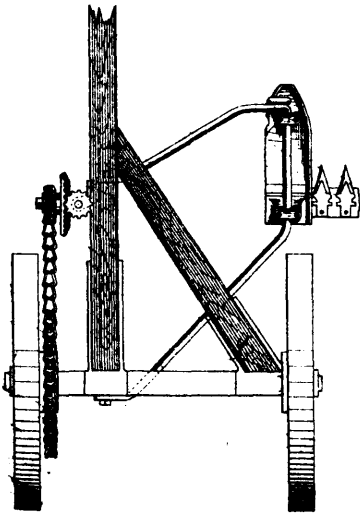
17139 Rix's Improvements in Harrows.



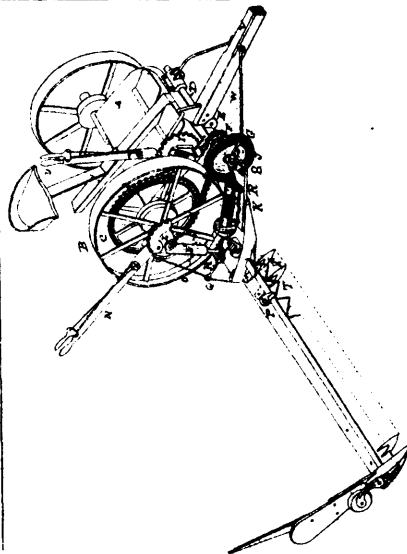
17141. Macdonald's Improvements in Levels.



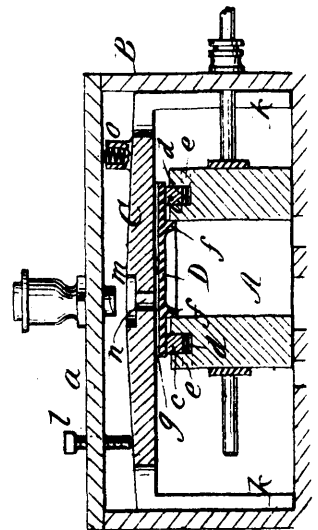
17142 Gates' Improvements in Pulverizing Machines.



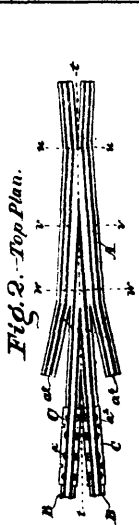
17143 Manny's Improvements in Harvesters.



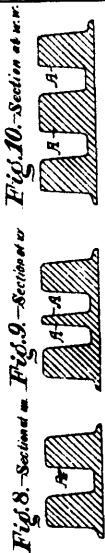
17144 Manny's Improvements in Harvesters.



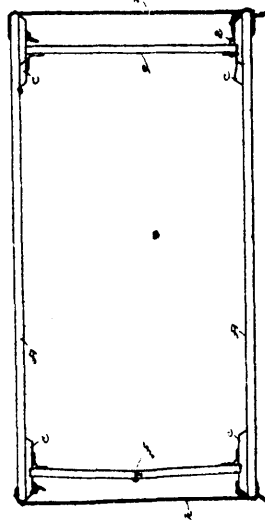
17145 De Lancoy's Improvements in Slide Valves.



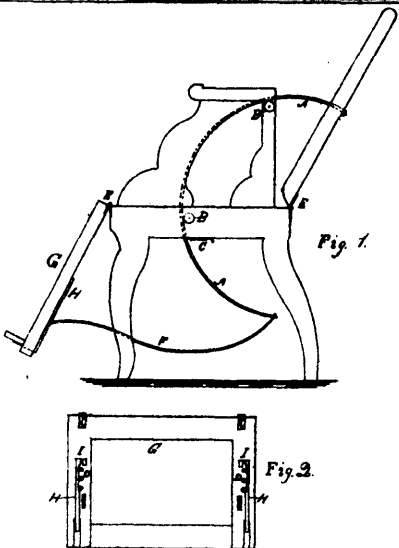
17146 Staple's Improvements in Railway Frogs.



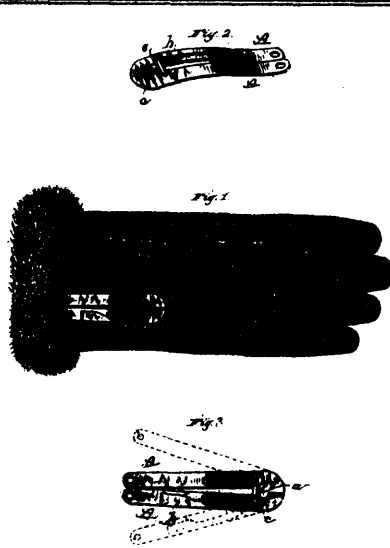
17147 Church's Improvements in Cots.



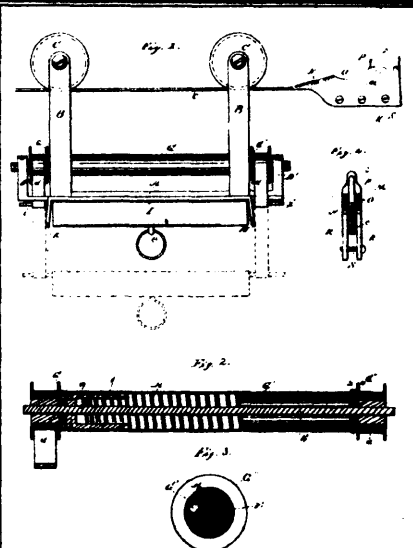
17148 Laycock's Improvements in Window Blinds.



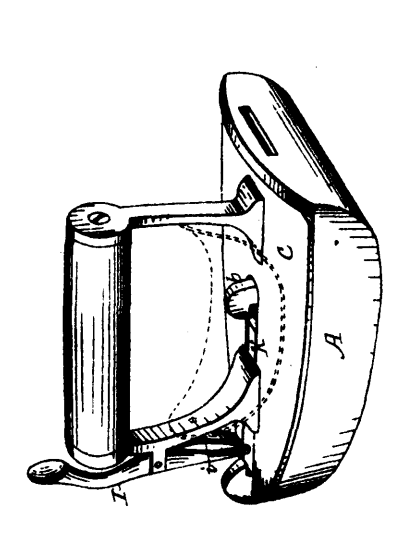
17160 King's Improvements in Adjustable Chairs.



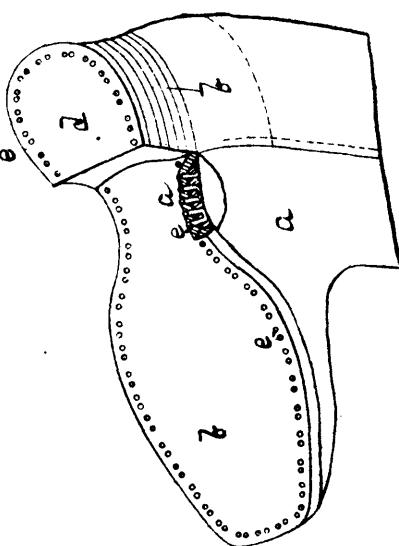
17161 Eaton's Fastening for Gloves and Mittens.



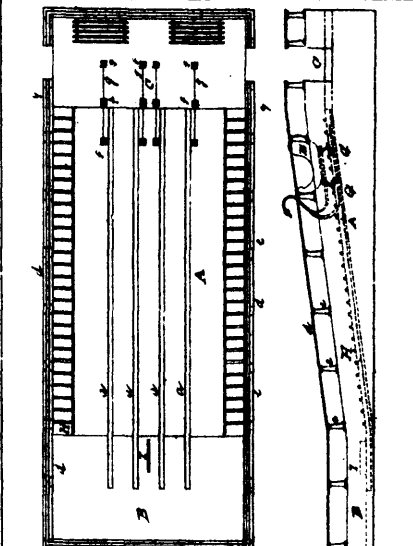
17162 Elliot's Cash and Parcel Carrier.



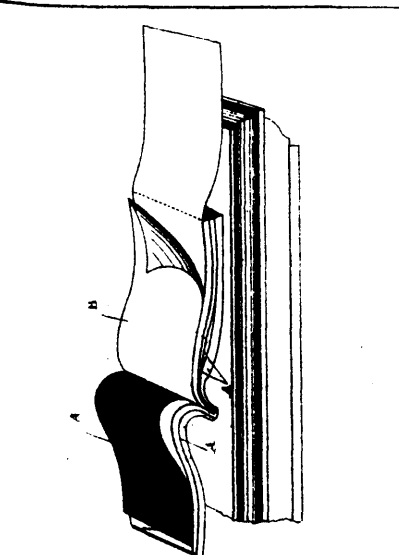
17163 Hilton's Improvements in Sad Irons.



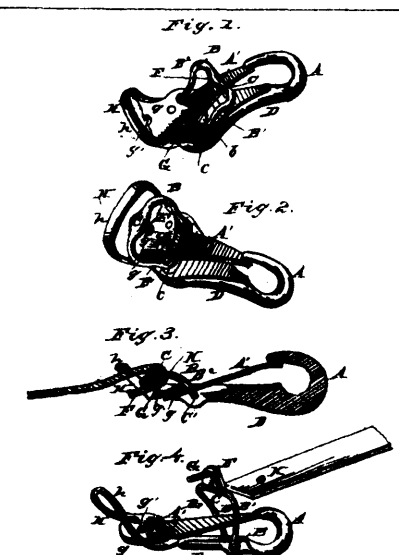
17164 Adam's Improvements in Boots and Shoes.



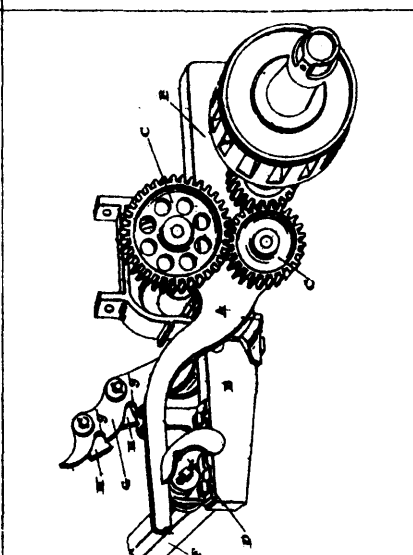
17165 Steel's Inclined Plane and Sled therefor.



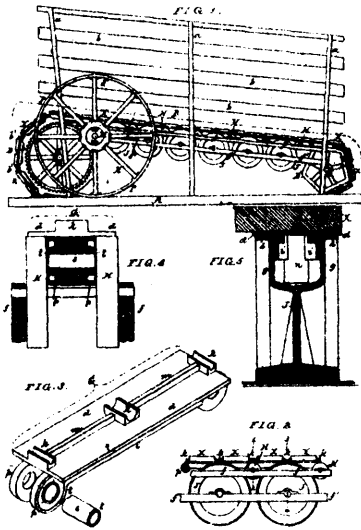
17166 Carter's Black Leaf Check Book.



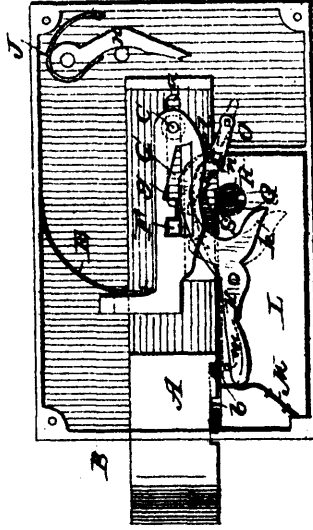
17167 Park's Combined Harness Snap and Buckle.



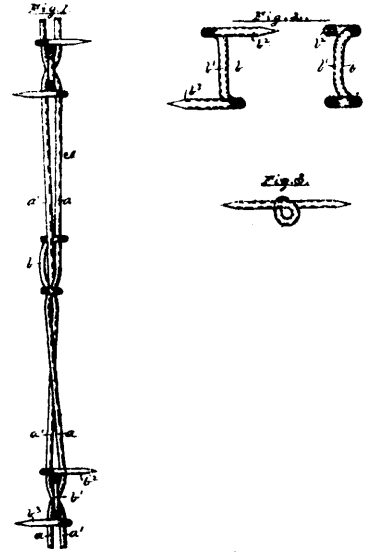
17168 Heath's Improvements in Seeding Machines.



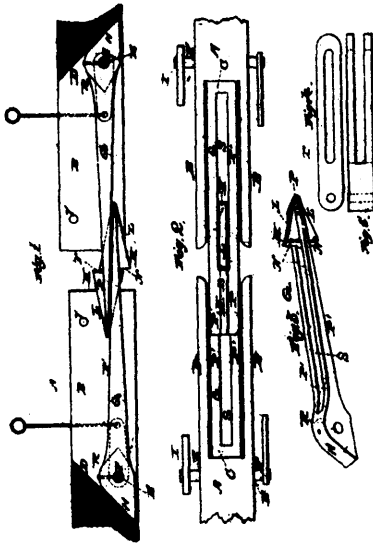
17189. Ellis' Improvements in Horse Powers.



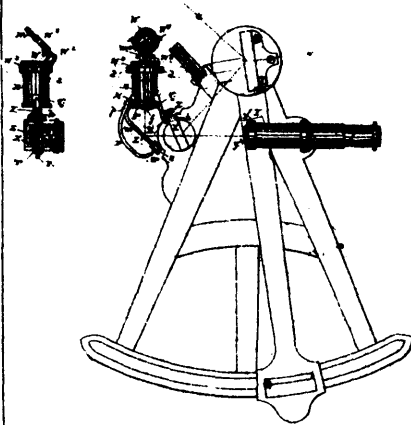
17170 Rowe's Improvements in Door Locks.



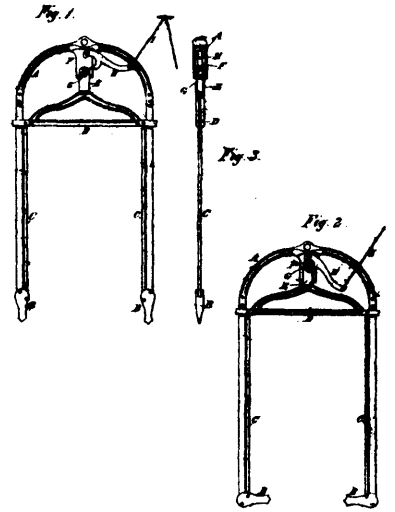
17171 Nadelhoffer's Improvements in Barbed Wire Fences.



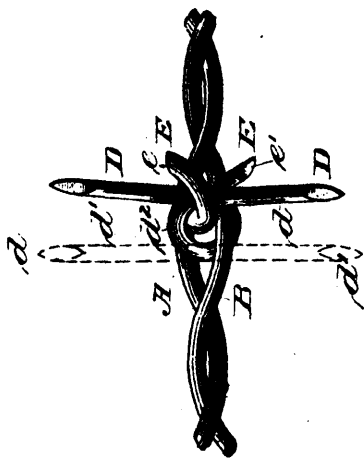
17172 Anderson's Improvement in Car-Couplings.



17173 Tennent's Artificial Horizon for Sextants, Octants, &c.



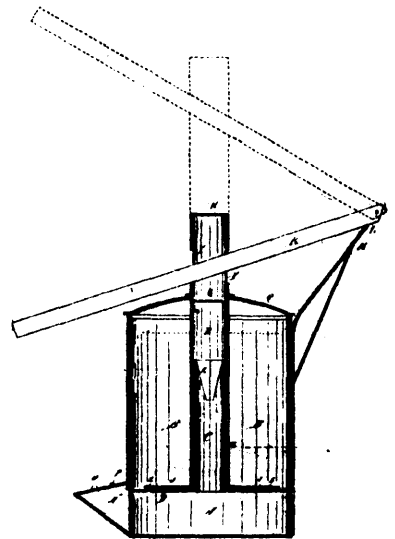
17174 Ney's Hay Fork.



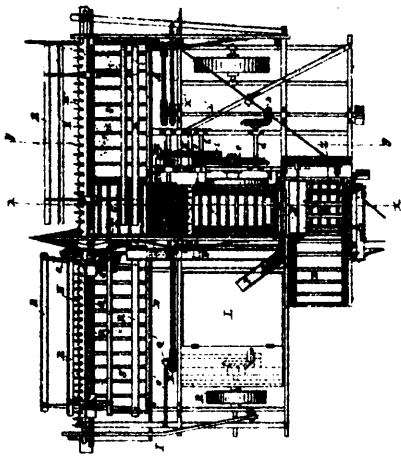
17175 Briggs' Improvement in Barbed Wires.



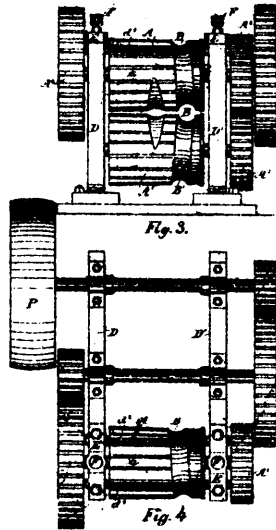
17176 Cary's Barbed Wire for Fences.



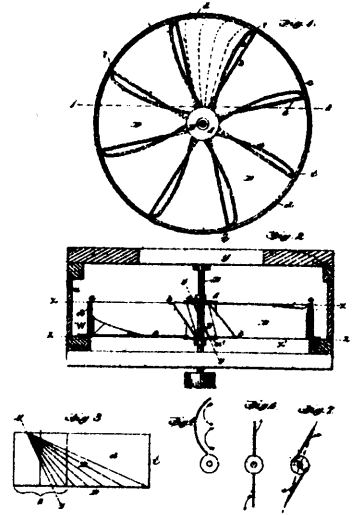
17177 Potter's Improvements in Churns.



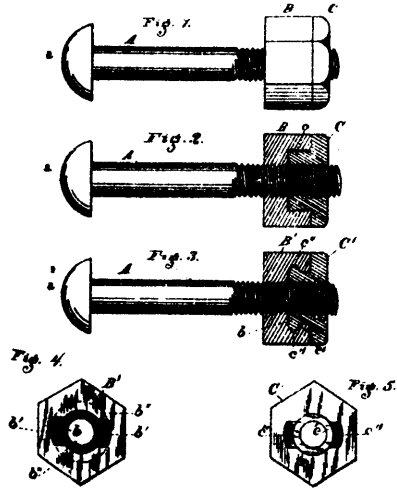
17178 Parish's Combined Header, Thrasher and Separator.



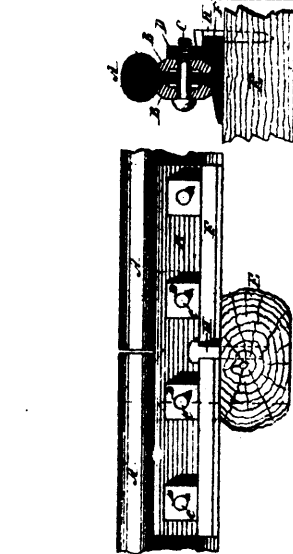
17179 Leslie's Machine for Crushing Withes.



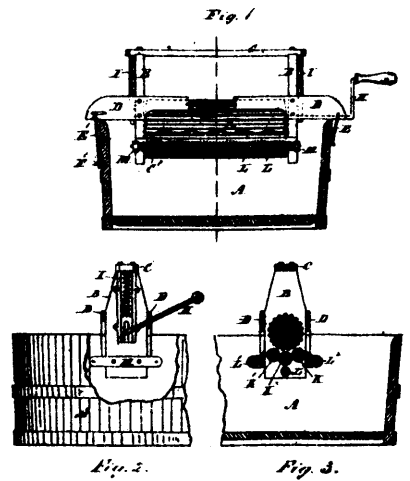
17180 Blackman's Improvements in Ventilators.



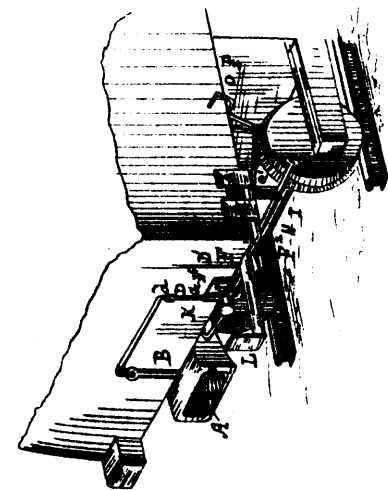
17181 Dillon's Improvements in Nut Locks.



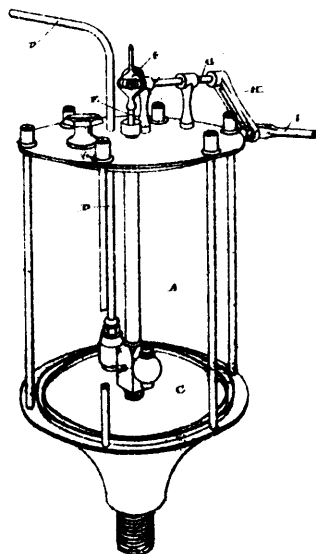
17182 Stewart's Improvements in Nut Locks.



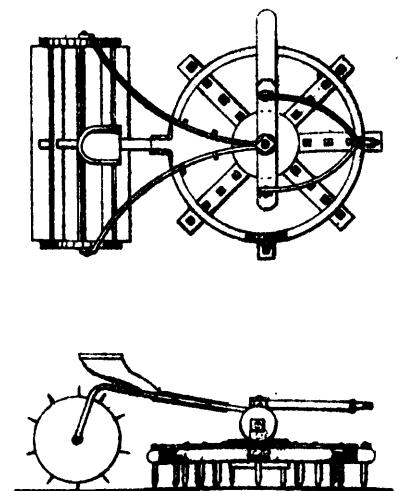
17183 O'Dell's Improvements in Washing Machines.



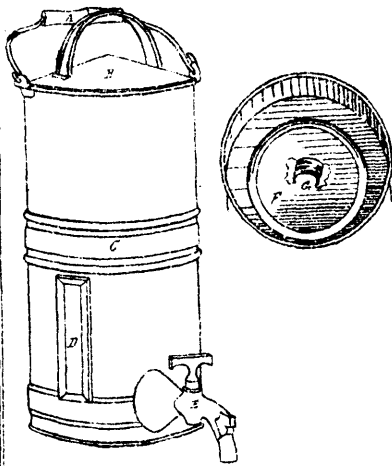
17184 Rarey's Improvements in Car-Couplings.



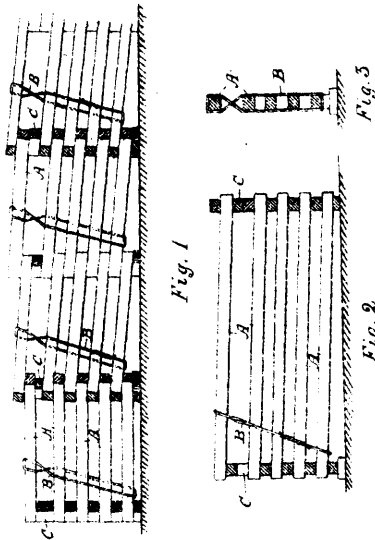
17185 Allen's Lubricator.



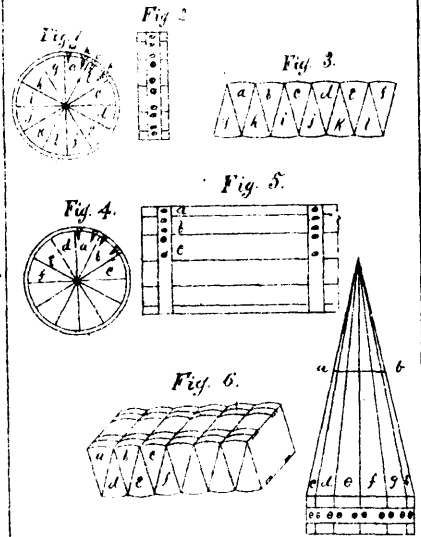
17186 Barker's Combined Rotary Harrow and Stalk-Cutter or Roller.



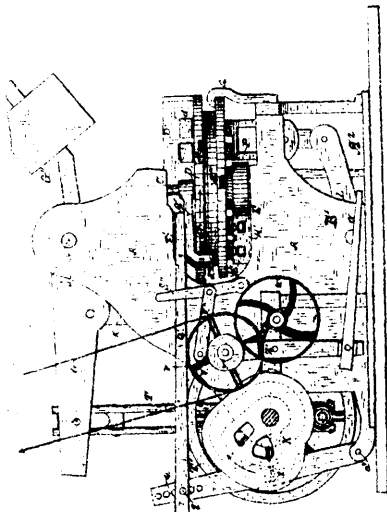
17187 Stuart's Improvements in Creamers.



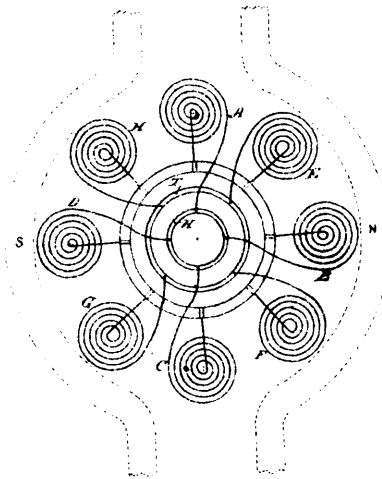
17188 Scarr's Fence Locking Device.



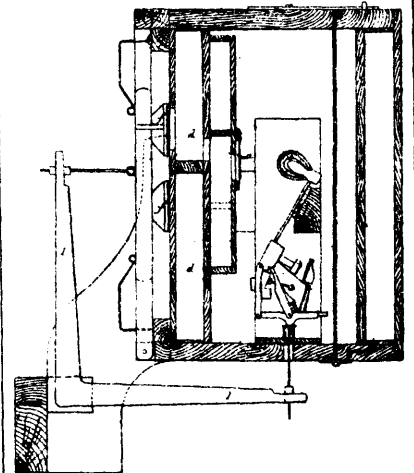
17189 Kennedy's Improvements in Geometrical Blocks.



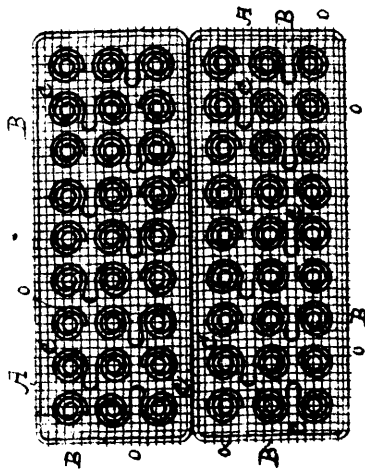
17199 Kennedy's Improvement in Brick Machines.



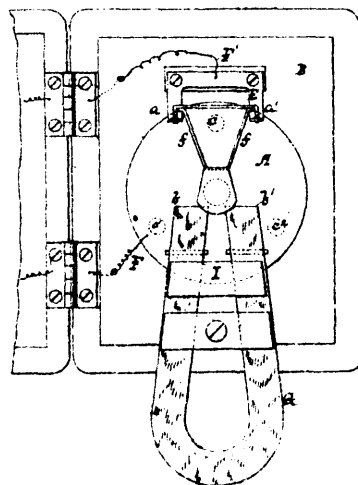
17191 Schuyler's Dynamo Electric Machine.



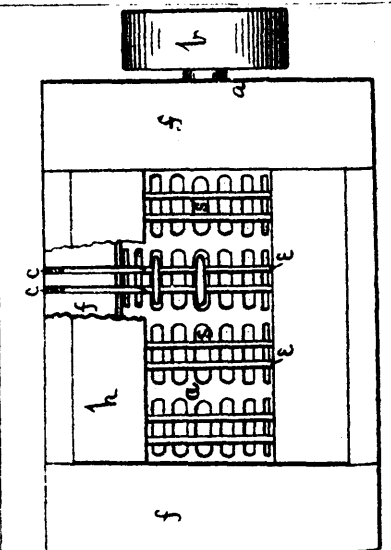
17193 Hamilton's Improvements in Organs, &c.



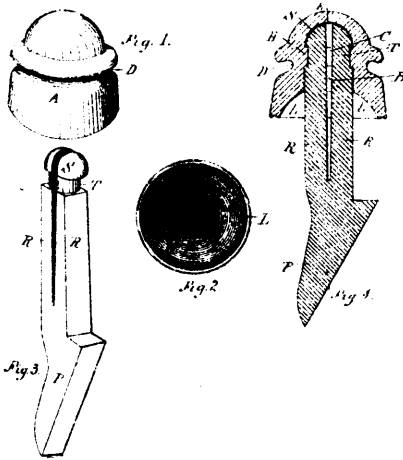
17194 Phillip's Improvements in Bed Bottoms.



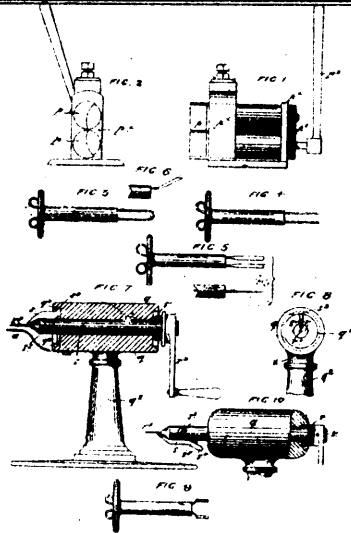
17195 Robertson's Improvements in Electric Telephones.



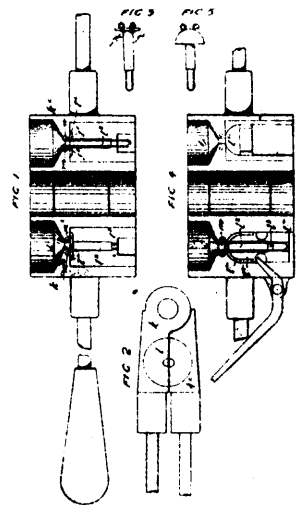
17196 Pryor's Improvements in Grain Cutting Machines.



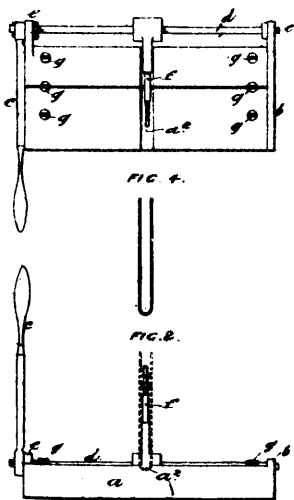
17187 Gray's Insulator for Electric Wires.



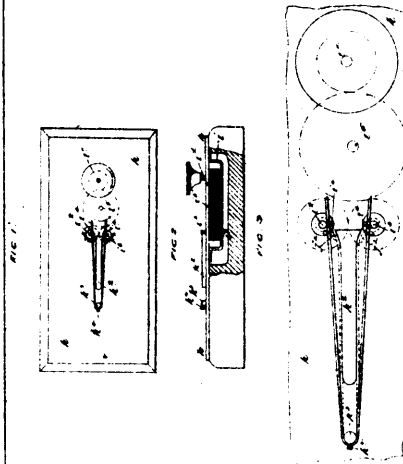
17198 Swan's Improvements in Forming the Ends of Conducting or Terminal Wires for the Reception of the Carbon Filaments of Incandescent Electric Lamps and in Apparatus therefor.



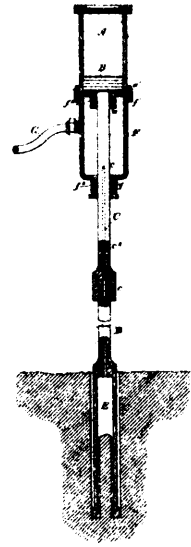
17199 Swan's Improvements in the Manufacture of Stems Containing the Conducting or Terminal Wires of Incandescent Electric Lamps.



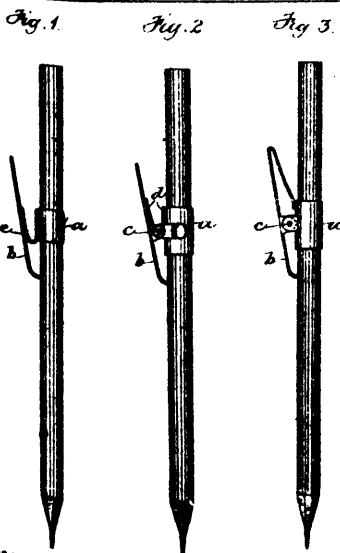
17200 Swan's Apparatus for Cutting and Bending the Conducting or Terminal Wires of Incandescent Electric Lamps.



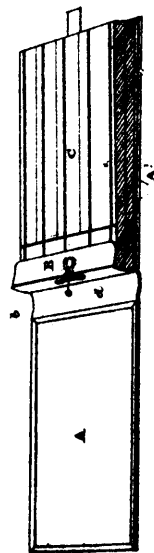
17201 Swan's Apparatus for forming in the Conducting or Terminal Wires of Electric Lamps, Loops or Eyes for the Attachment of the Outer Conductors.



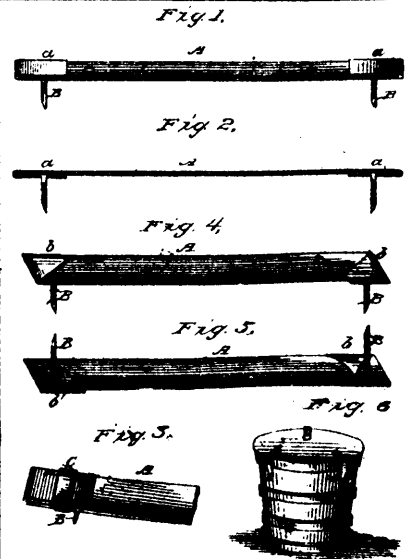
17203 Derby's Improvements in Rock Drills.



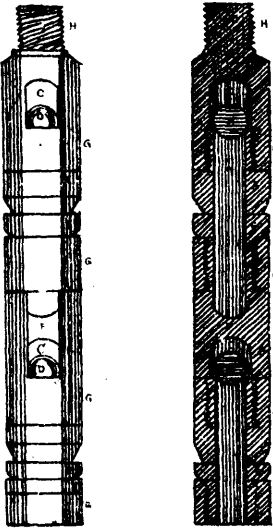
17204 Webster's Improvements in Pencil Fasteners.



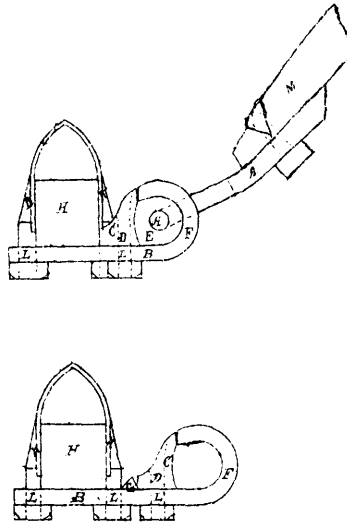
17205 Gardner's Cheque and Account Book.



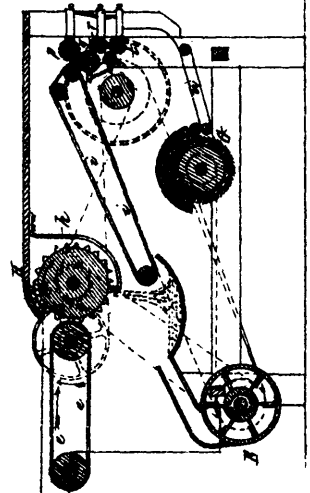
17206 Blake's Tub and Box Fasteners.



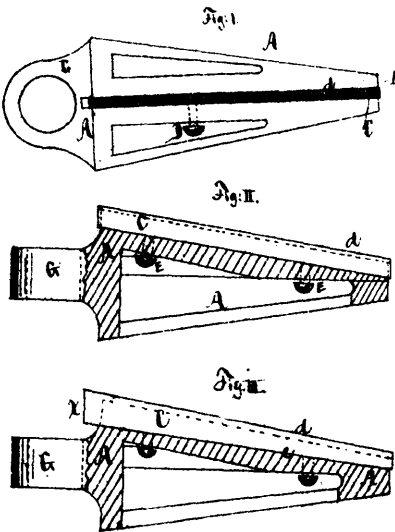
17208 Barrett's Improvements in Pump Valves.



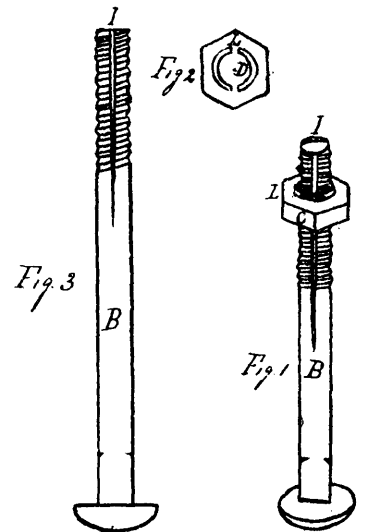
17209 McKinnon's Carriage Shaft Coupling.



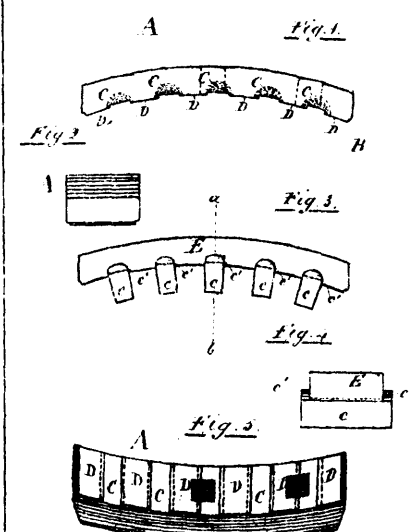
17210 Sammot's Improvements in the Manufacture of Filling for Mattresses, &c.



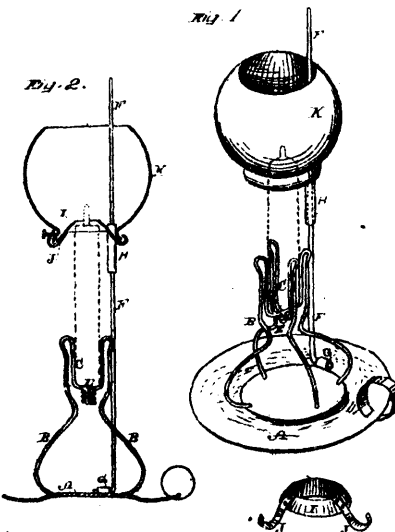
17211 Lancaster's Improvements in Pipe Reamers.



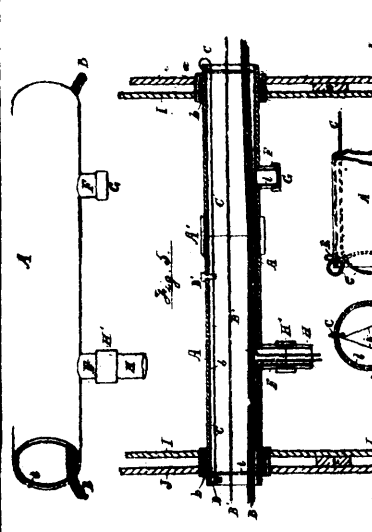
17212 Dion's Improvements in Nut Locks.



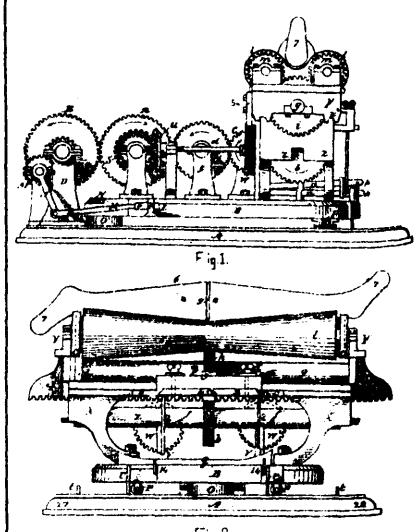
17213 Lappin's Improvements in Brake Shoes.



17214 Sherman and Lackse's Improvements in Candlesticks.



17216 Grievs and Bleco's System of Laying Electrical Conductors.



17217 Brandy's Machine for Manufacturing Felt Boots, Shoes and Stockings.

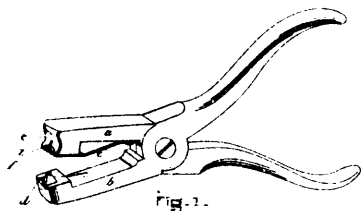


Fig. 1.



Fig. 4.

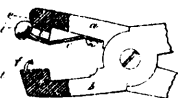


Fig. 2.

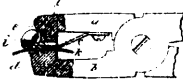


Fig. 3.

17218 Pratt's Button Setting Machine.

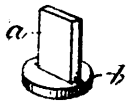


Fig. 1.



Fig. 2.

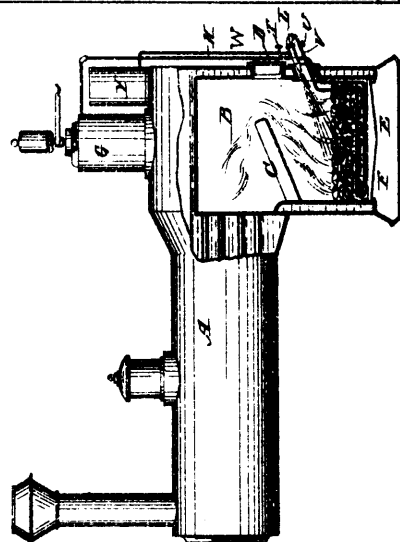


Fig. 5.

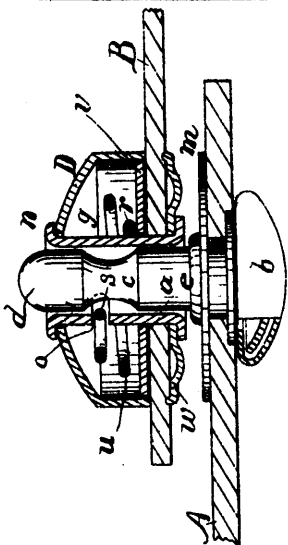


Fig. 4.

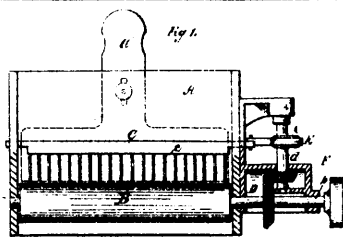
17219 Pratt's Improvements in Button Fastenings.



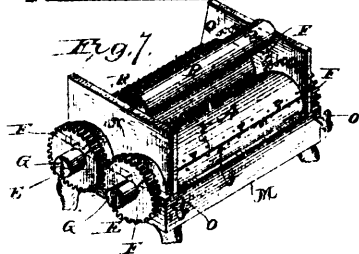
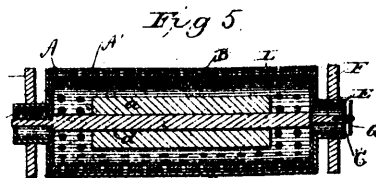
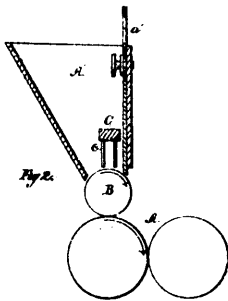
17220 Sloper's Improvement in Hydro-Carbon Furnaces.



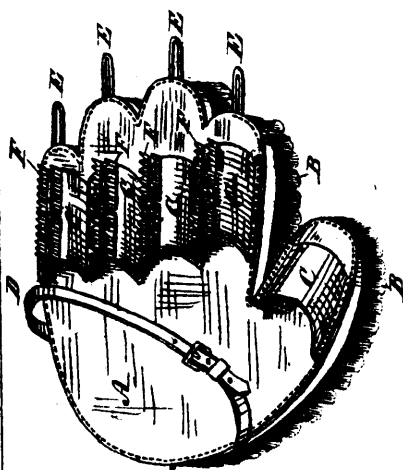
17221 Pringle's Improvements in Buttons for Gloves, &c.



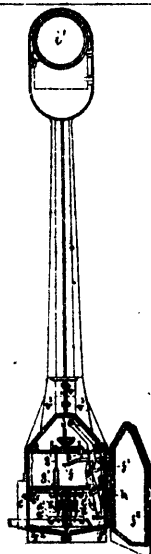
17222 Reid's Feeder for Mill Rolls.



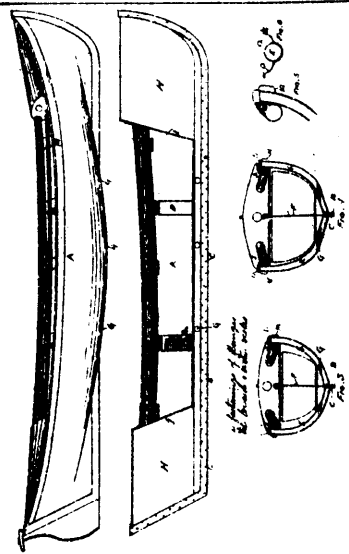
17223 Shannon's Stencil Printing Machine.



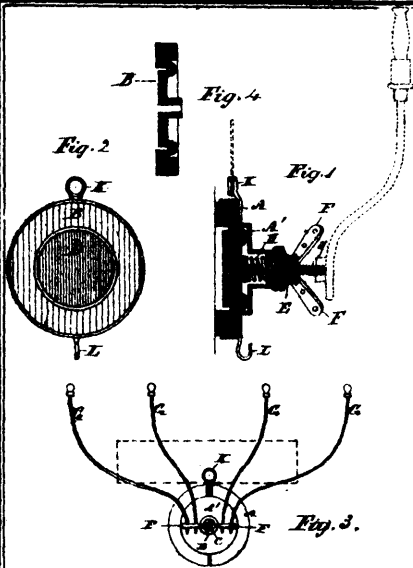
17224 Thompson's Improvements in Grooming Brushes.



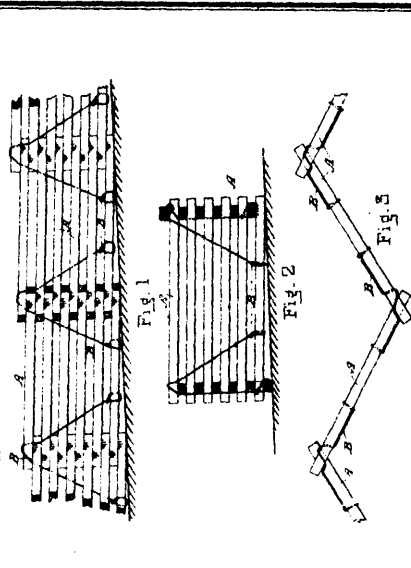
17226 McLeod's Automatic Air Railroad Signal.



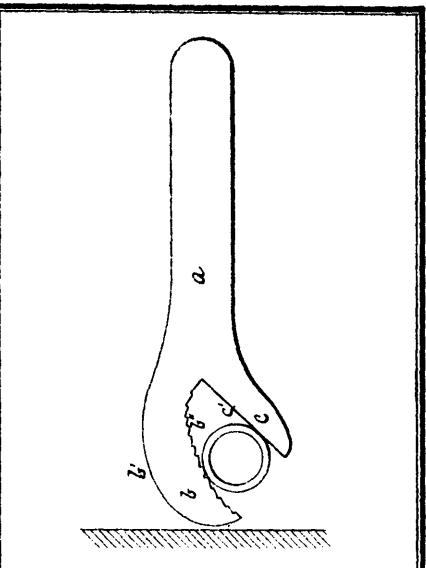
17228 Coombs' Improvements in Life-Boats.



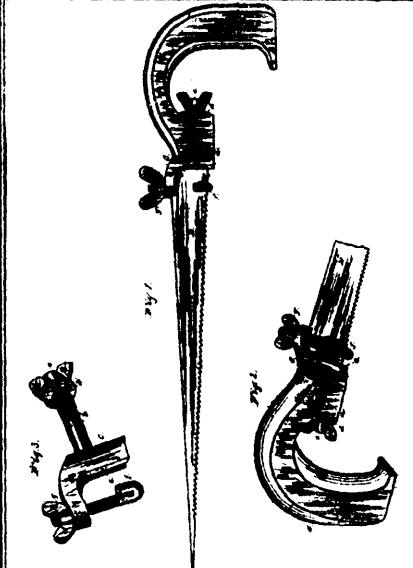
17227 Gross' Improvements in Air Fixture Brackets.



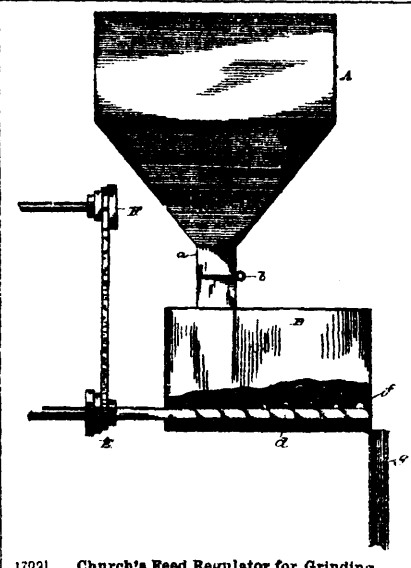
17228 Scarr's Improvements in Rail Fences.



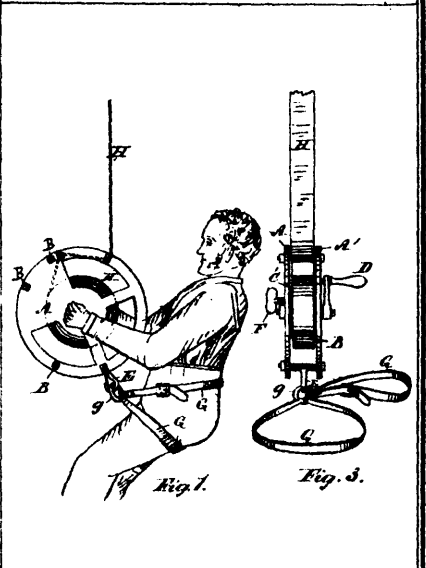
17229 Case's Improvements in Pipe Wrenches.



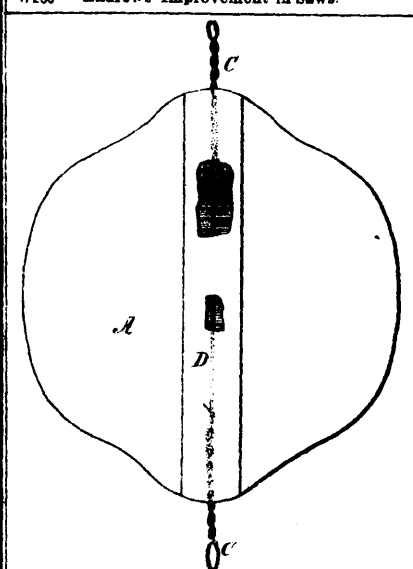
17230 Andrews' Improvement in Saws.



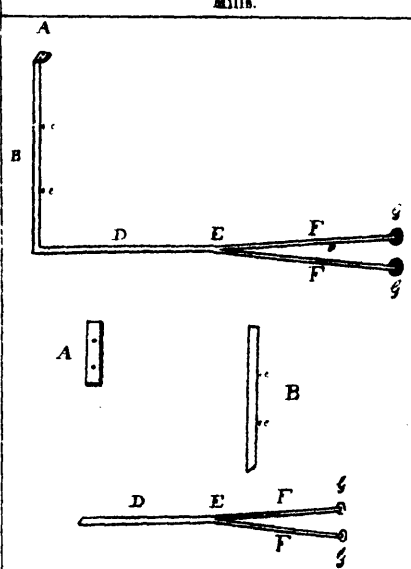
17231 Church's Feed Regulator for Grinding Mills.



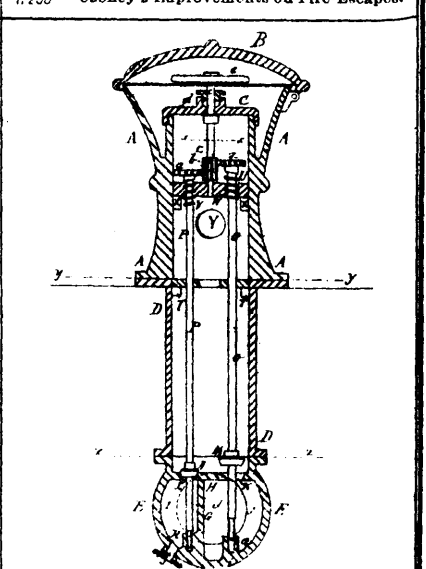
17233 Cooney's Improvements on Fire-Escapes.



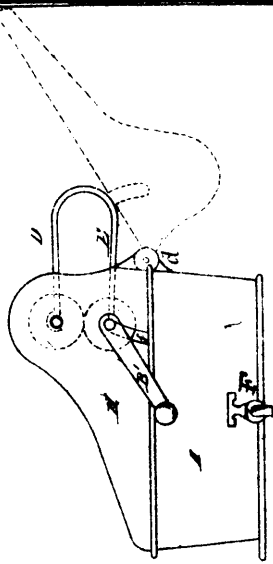
17234 Fay's Improvements in Newspaper Wrappers.



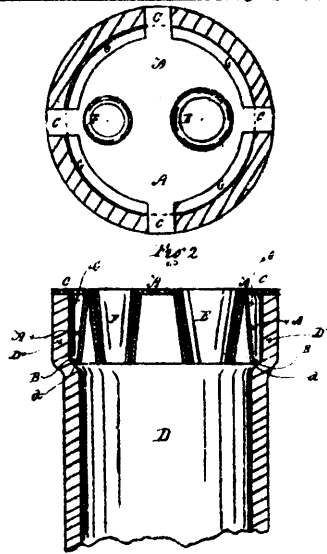
17235 White's Improvement in Hat-Holders.



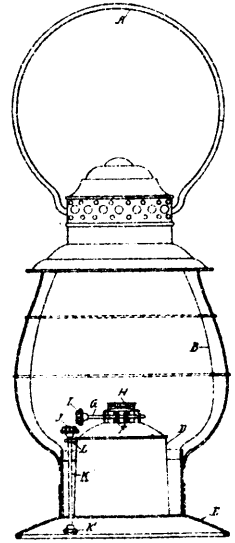
17236 Fromm's Improvements in Hydrants.



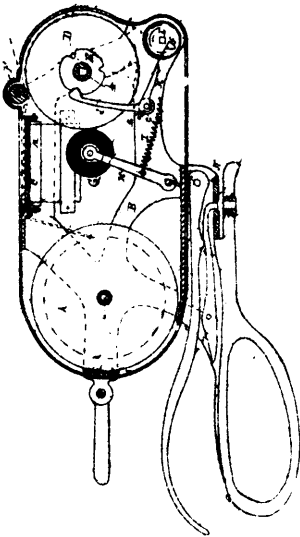
17237 Stiles' Dampening Bath for Press Copying



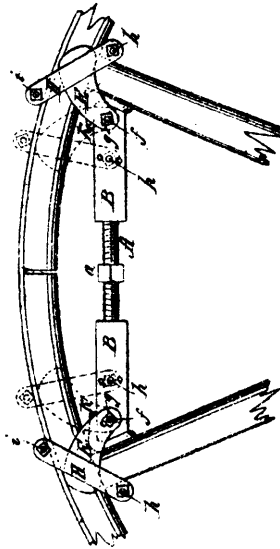
17238 Dineen's Improvements in Sewer Joints.



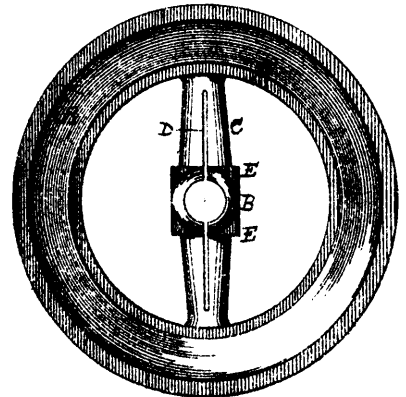
17240 McLeod's Improvements in Lamps.



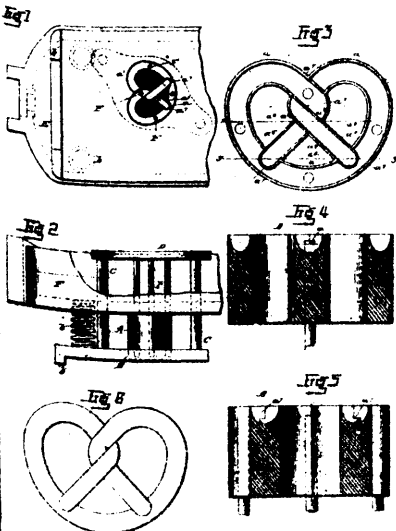
17241 Asseltine's Improvements in Recording Devices.



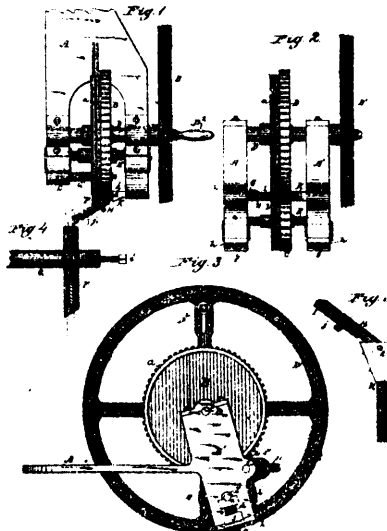
17242 Galbraith's Felloe and Spoke Tighteners



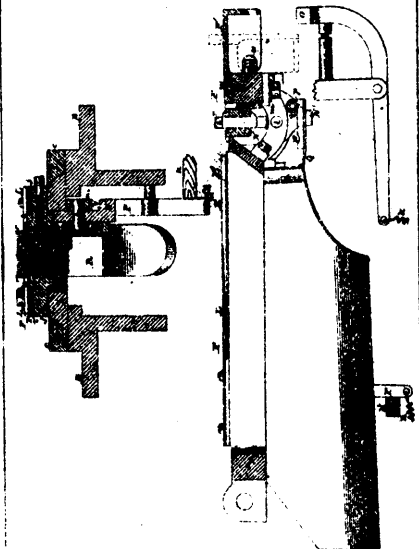
17243 Dodge and Phillon's Improvements in Pulleys.



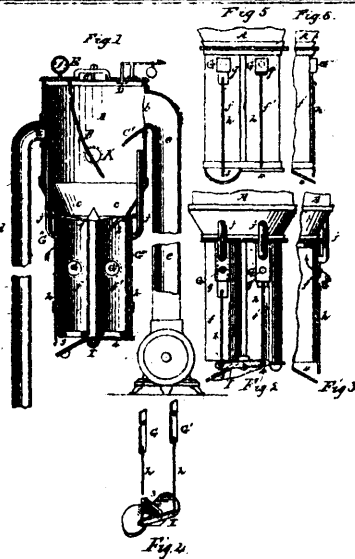
17244 Butler, Earhart and Crawford's Improvements in Bretzel Cutters.



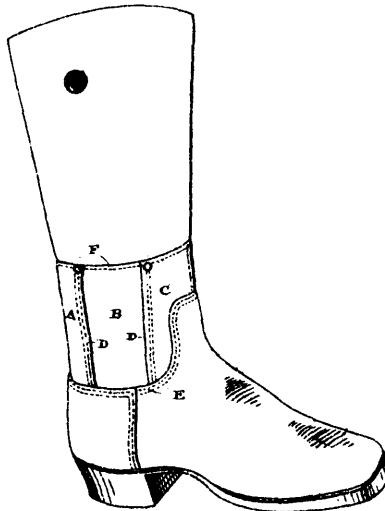
17245 Durkee's Improvements in Wire Coiling Machines.



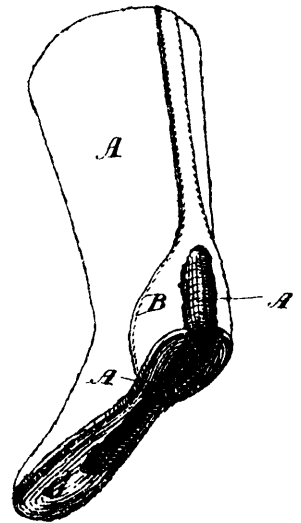
17245 Haggood's Improvements in Match Machines.



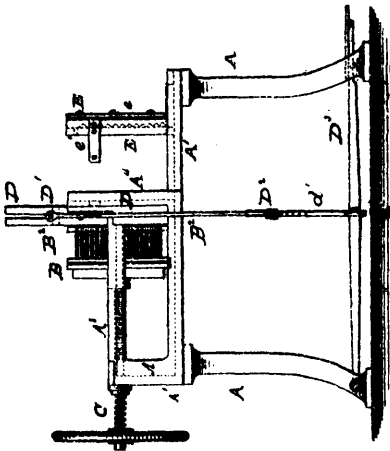
17247 Smith's Pneumatic Grain Elevator.



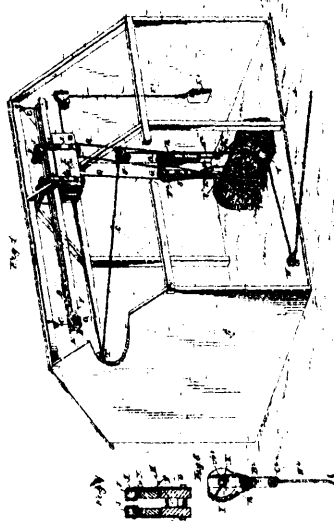
17248 Roos' Improvements in Boots.



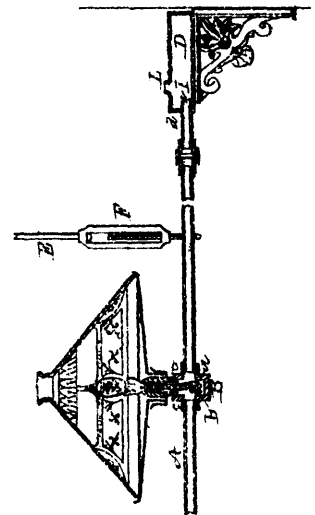
17249 Weeks' Improvements in Felt Boots and Shoes.



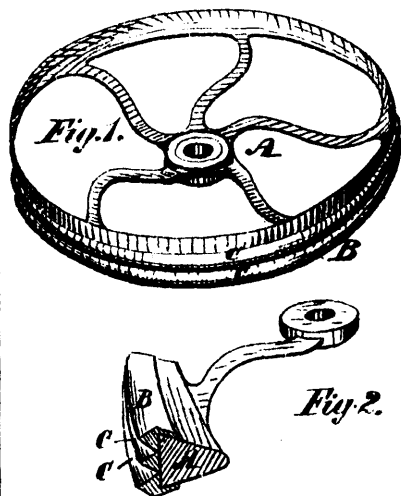
17250 Bonhack's Improvements in Match Machines.



17251 Chambard's Improvements in Hay Elevators.



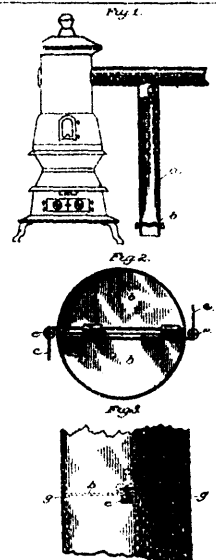
17253 Thompson's Improvements in Kerosene Oil Lamps.



17254 Beauchemin's Improvements in Spinning Wheels.



17255 Church's Improvements in Cots.

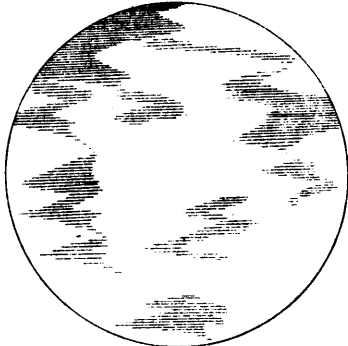


17265 Church's Ventilator and Draft Regulator.

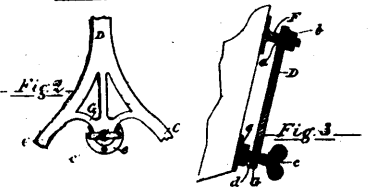
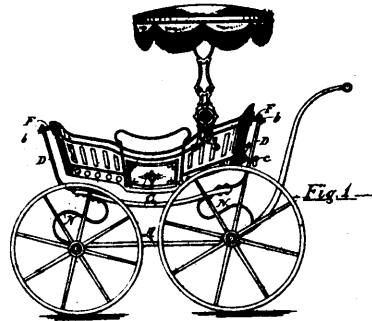
Fig. 1.



Fig. 2.

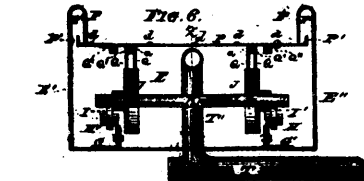
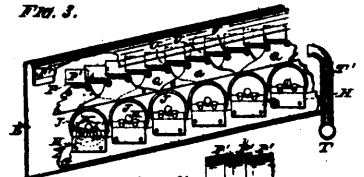


17257 Church's Improvements in Grinding Mills.

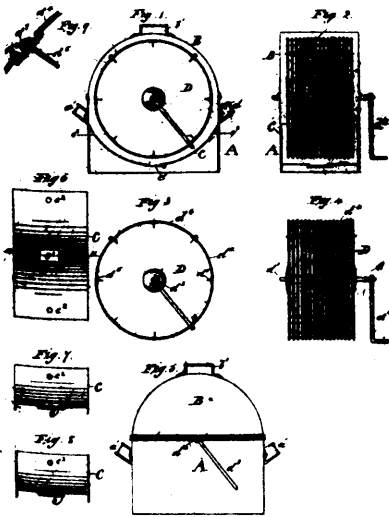


17258 Krueger's Combined Child's Carriage and Cradle.

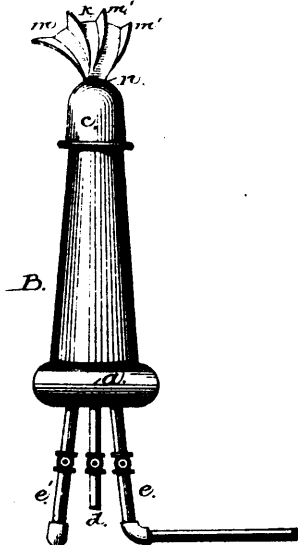
Fig. 3.



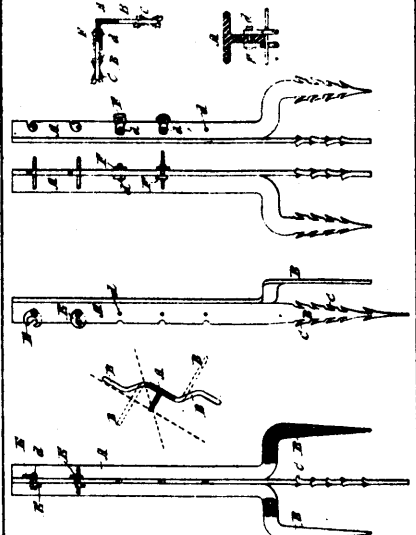
17259 Mey's Dryer and Cooler for Grain, &c.



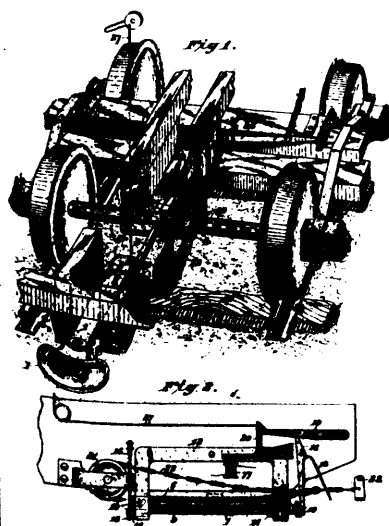
17260 Huffman's Improvements in Washing Machines.



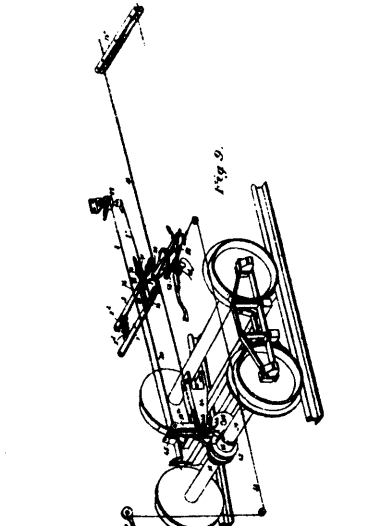
17261 Blumenberg and Whiting's Hydrocarbon Vapour Generators and Burners.



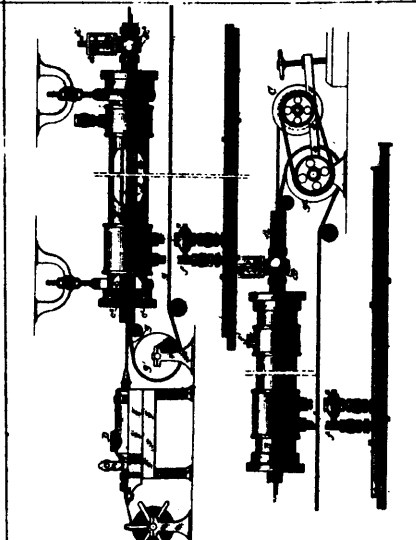
17262 Arthur, Spaulding and Davison's Improvements in Fence Posts.



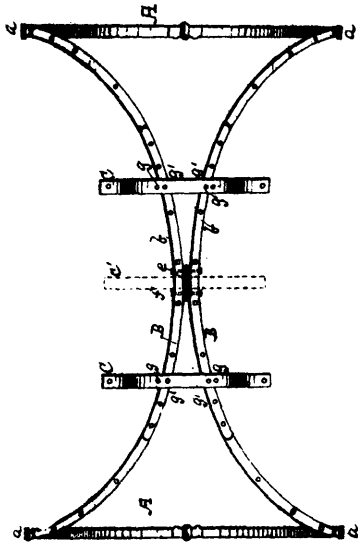
17263 Torrey's Improvements in Railroad Brakes.



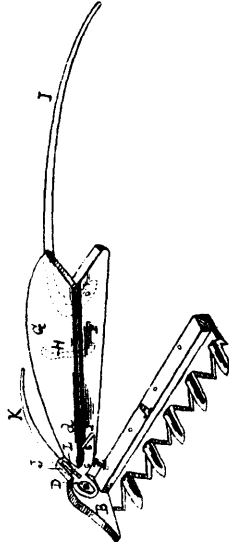
17264 Torrey's Improvements in Railroad Brakes.



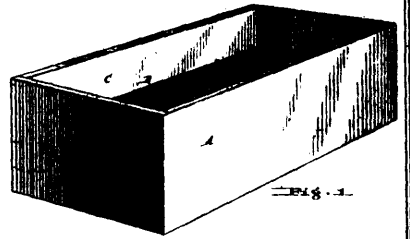
17265 Eddy's Art of, and Apparatus for Working and Vulcanizing Compounds of Caoutchouc and Analogous Gums.



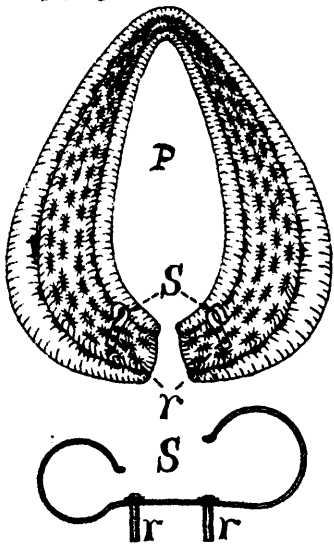
17266 Clancy's Improvements on Carriage Body Supports.



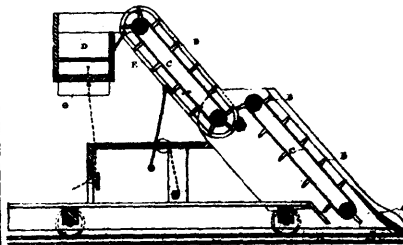
17267 Love's Improvements in Mowing Machines.



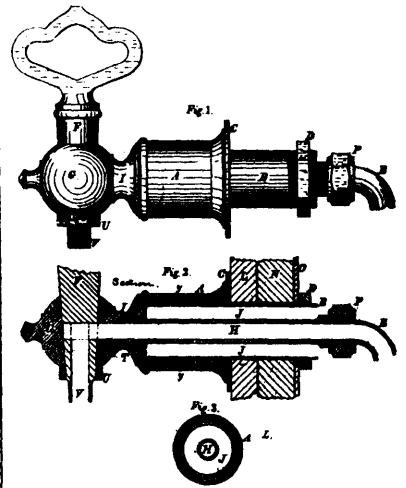
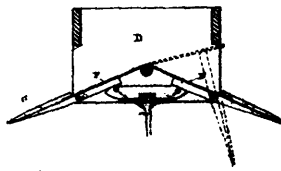
17268 Hobb's Apparatus for Treating Artificial Butter, &c.



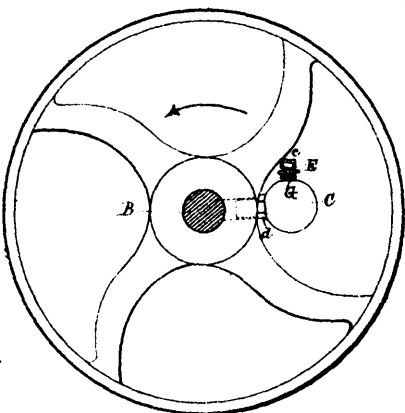
17269 McClain's Improvements in Horse Collar Pads.



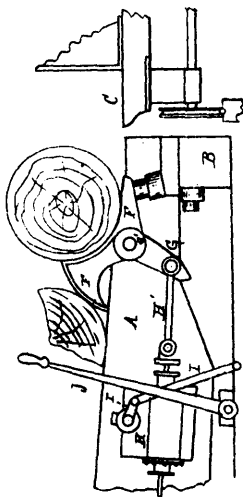
17270 Short's Improvements in Snow Ploughs.



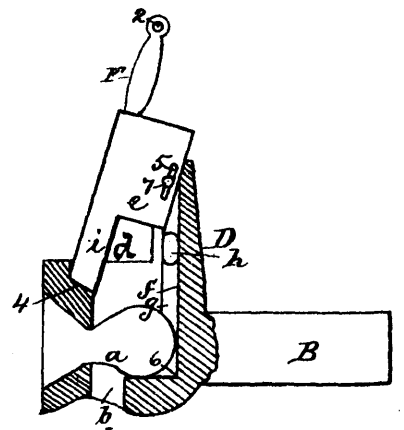
17271 Magin's Improvements in Faucets.



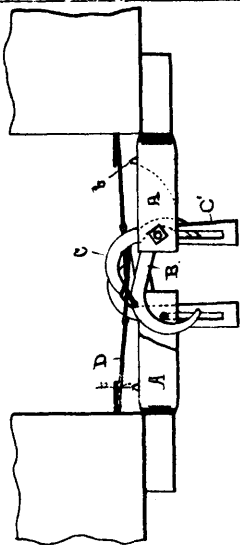
17272 Van Dusen's Lubricator for Loose Pulleys.



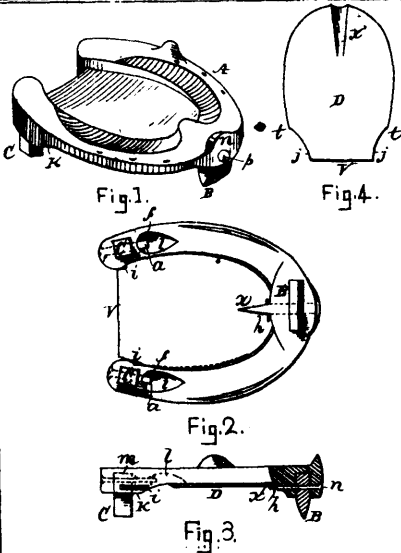
17273 Kline's Improvements in Log Rollers.



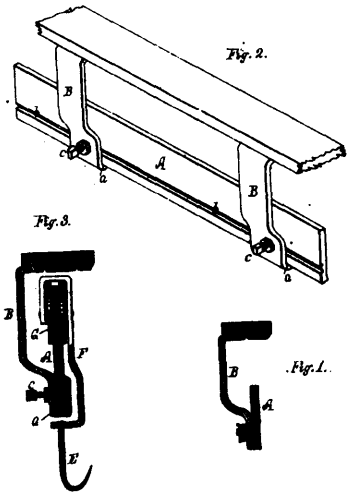
17274 Blocher's Improvements in Car-Couplings.



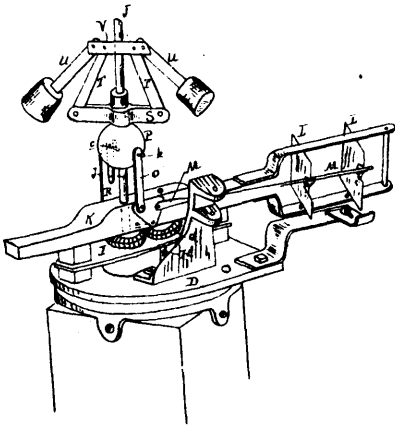
17276 Thigpen's Improvements in Car-Couplers.



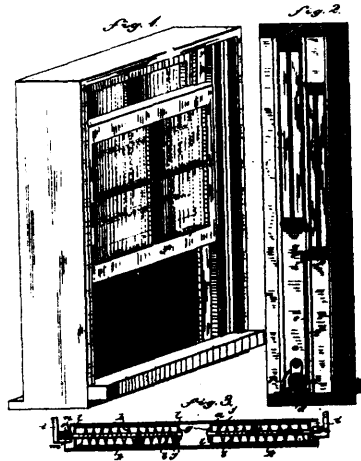
17278 Holland's Improvement in Horse Shoes.



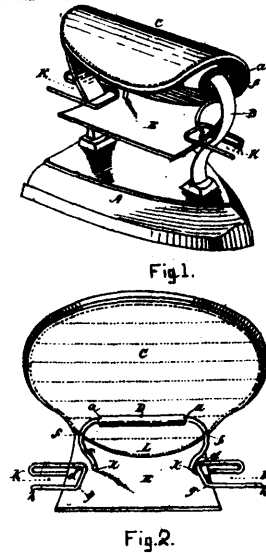
17277 Davis' Improvements in Animal Slinging Railways.



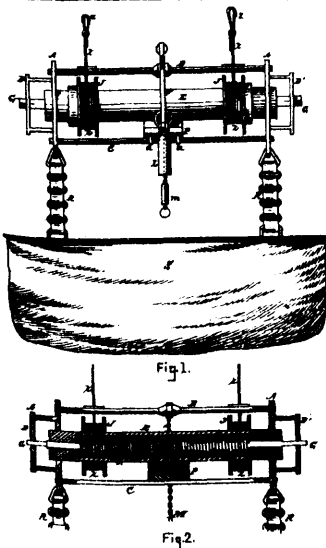
17278 Hill's Improvements in Windmills.



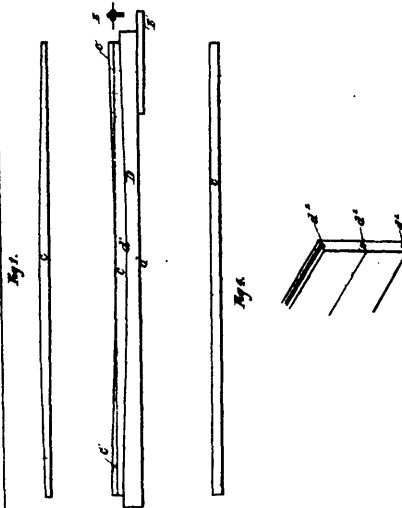
17279 Parrett's Automatic Window Screen.



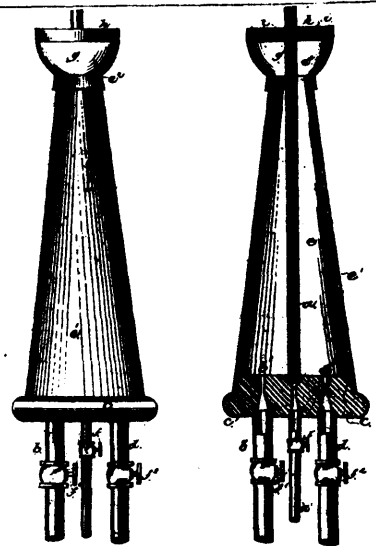
17280 O'Neill's Improvements in Sad Iron Holders.



17281 Hodson's Improvement in Fire-Escapes.



17282 Dean's Improvements in Small Boats.



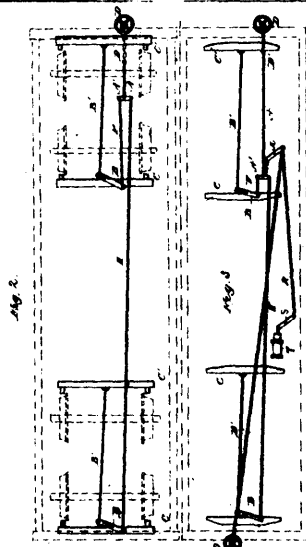
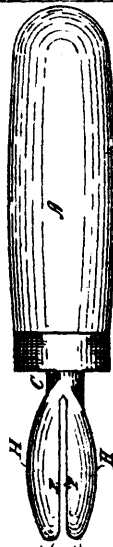
17283 Blumenberg and Whiting's Hydrocarbon Vapour Generator and Danton Hydrocarbon Burner for Furnaces.

— FIG. 3 —



17284 Addison's Knife for Peeling Potatoes.

— FIG. 2 —



17285 Weller, Wance and Roesch's Improvements in Car Brakes.

Fig. 1 Plan

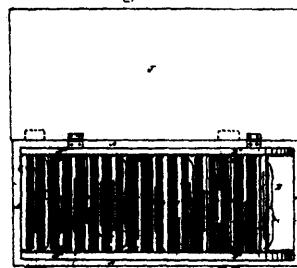
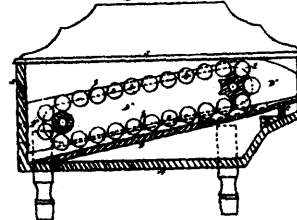
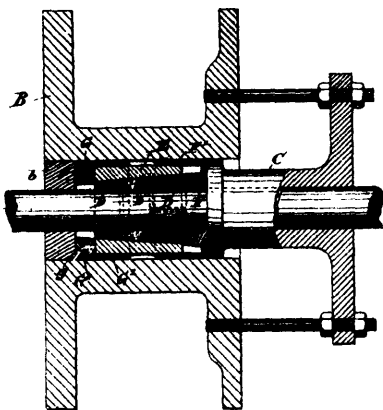


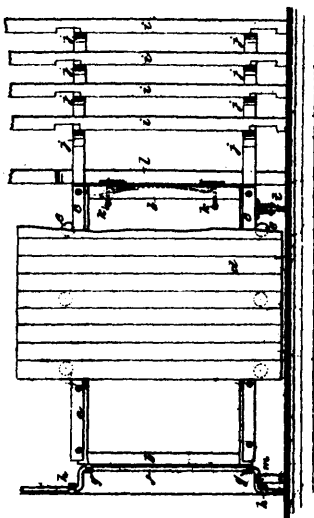
Fig. 2



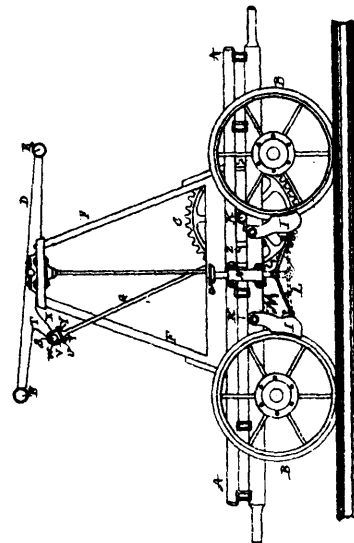
17286 Troy's Machine for Washing Textile Fabrics.



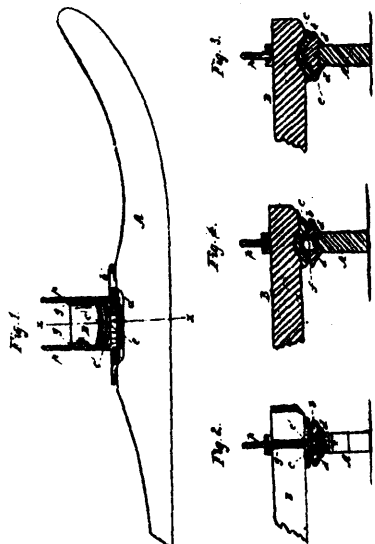
17287 Weale's Automatic Metallic Packing for Piston Rods, &c.



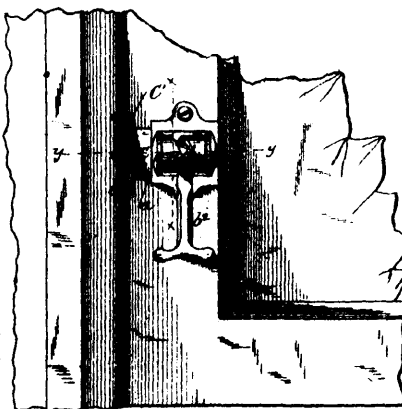
17288 Lindop's Apparatus for Changing and Storing Photographers' Back Grounds and other Movable Scenery.



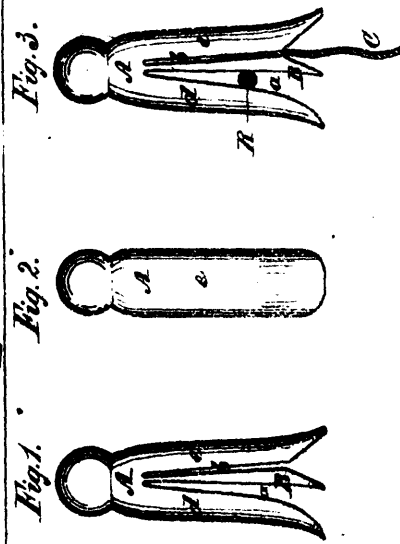
17289 Sheffield's Improvements in Hand Cars.



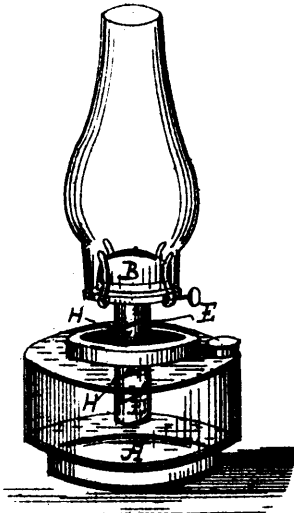
17291 Sanford's Improvements in Sleds.



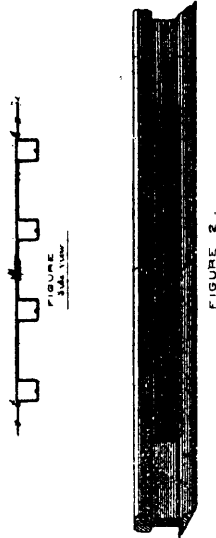
17292 Carson's Improvements in Sash-Holders.



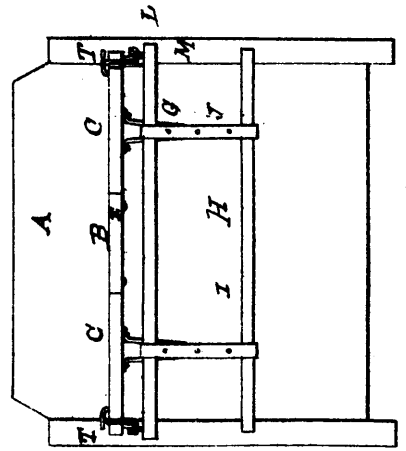
17293 O'Neil's Improvements in Clothes Pins.



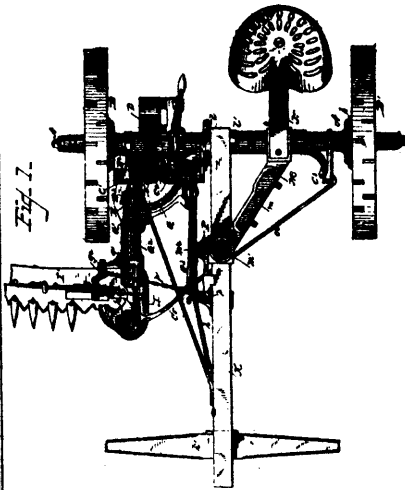
17284 Kimball's Automatic Lamp Extinguisher.



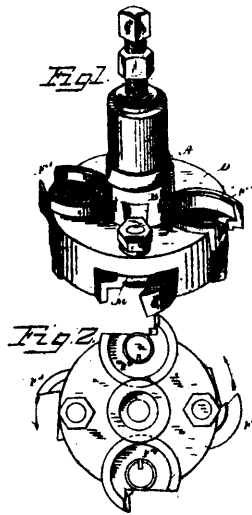
17285 Meagher and Anderson's Improvement in Nut Locks.



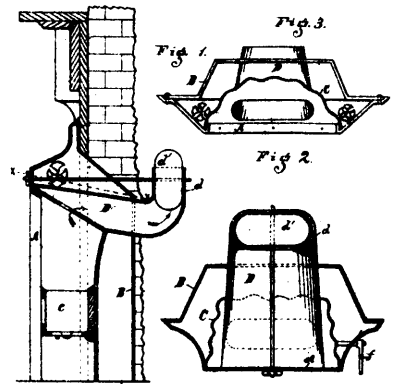
17297 Phelps' Improvements in Pillow Sham Holders.



17298 Gause's Improvement in Mowing Machines



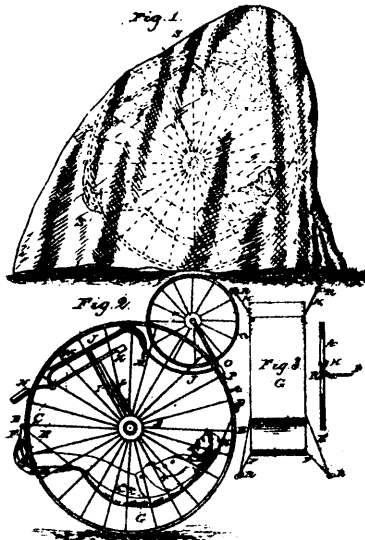
17299 Shimer's Improvements in Cutter-Heads.



17300 Cook's Improvements in Grate Fire-Places.



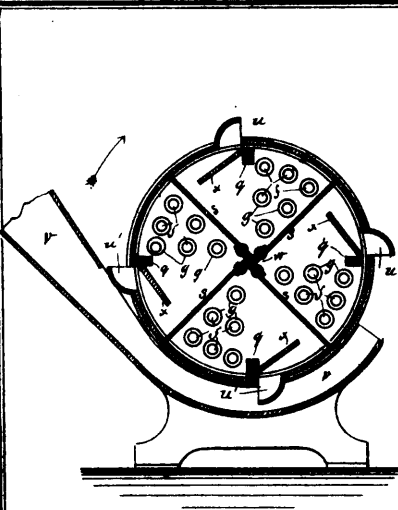
17301 Schmidt's Improvements in Sickle Bars.



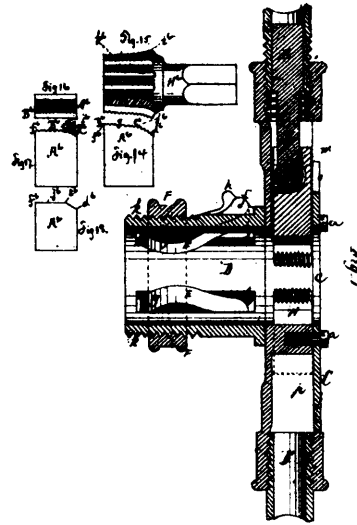
17302 Hiester's Improvements in Hammocks.



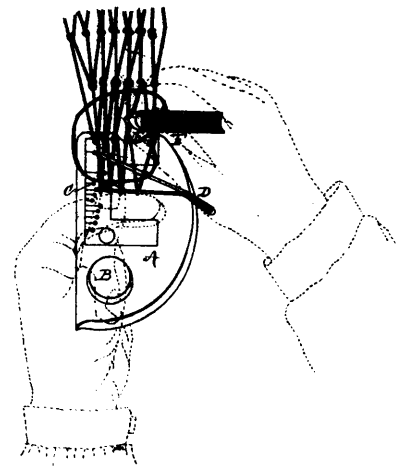
17303 Hilliard's Improvements in Draw-Bars and Car-Couplers.



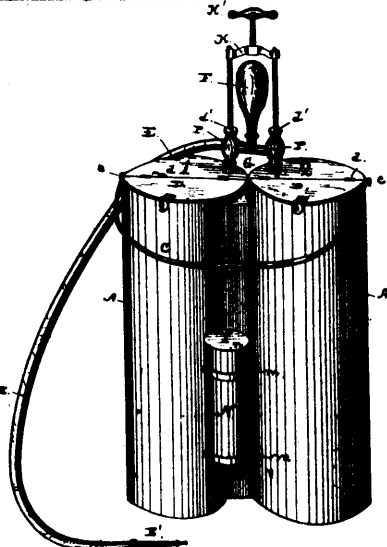
17304 Cutler's Improvement in Grain Dryers.



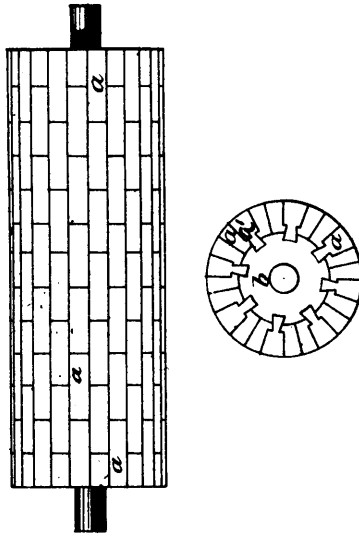
17305 Lancaster's Improvement in Screw Cutting Tools.



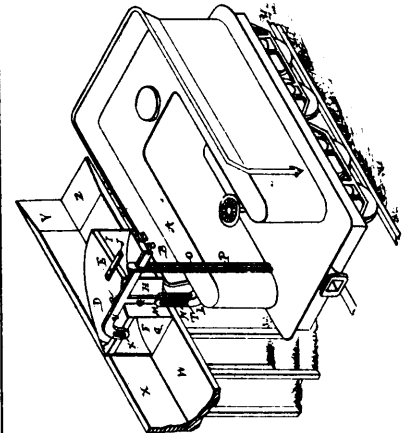
17306 Sollers' Improvements in Net Knitting Boards.



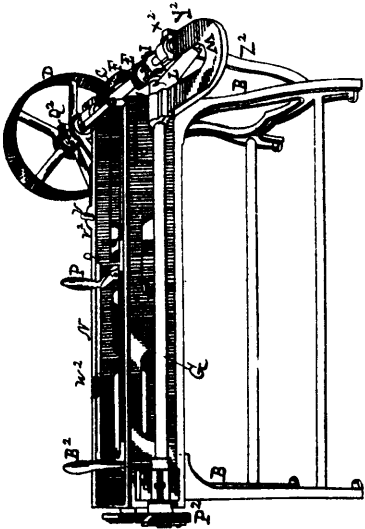
17307 Spawn's Improvements in Fire-Extinguishers.



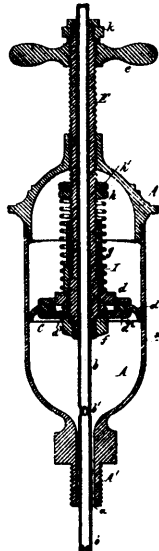
17308 Allen's Improvement on Wood Grinders for Making Paper Pulp.



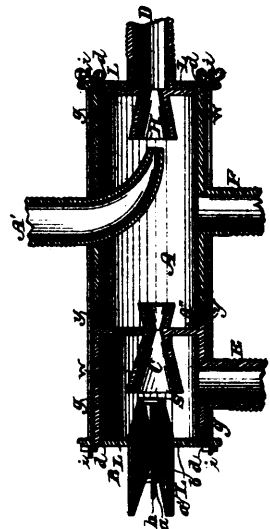
17309 Lantz's Method and Device for Taking Coal in Locomotive Tenders while in Motion.



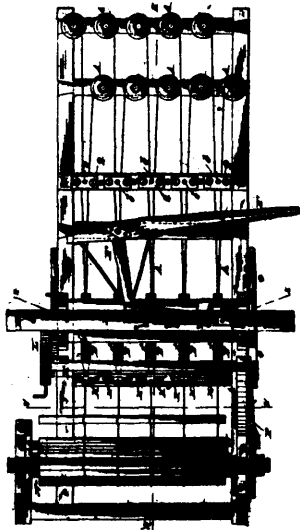
17310 Smith's Machine for Cutting Wooden Plates.



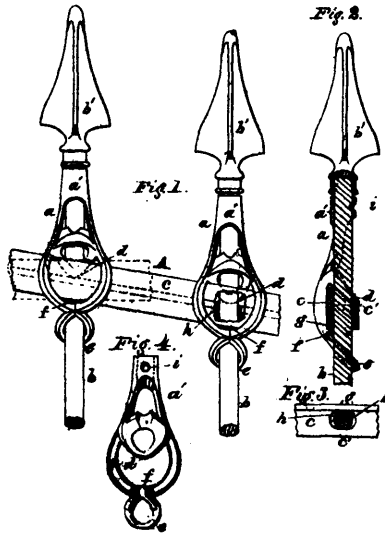
17311 Ortman and Gilbert's Improvement in Grease Cups.



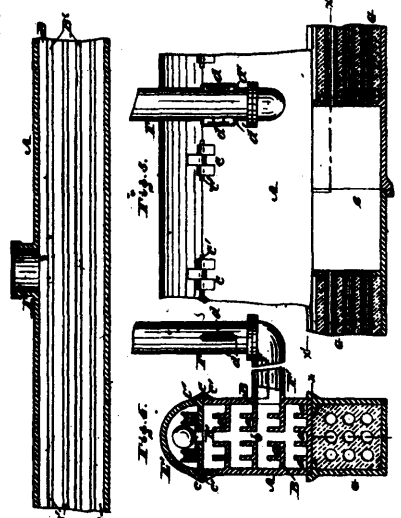
17312 Desmond's Improvements in Steam Injectors.



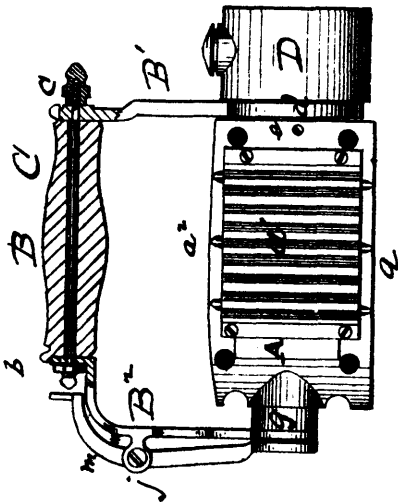
17313 Ash's Improvements in Wire Fence Machines.



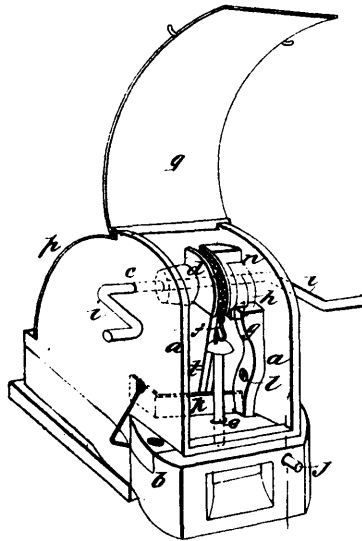
17314 De Voe's Improvements in Iron Fences.



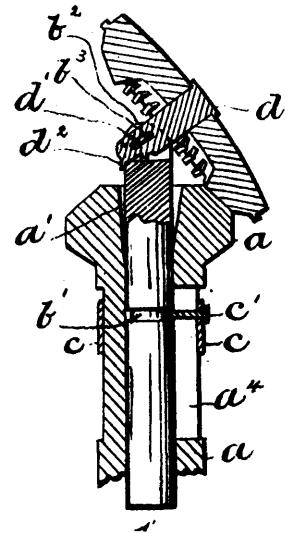
17315 Du Bois' Underground Conduits for Electric Wires.



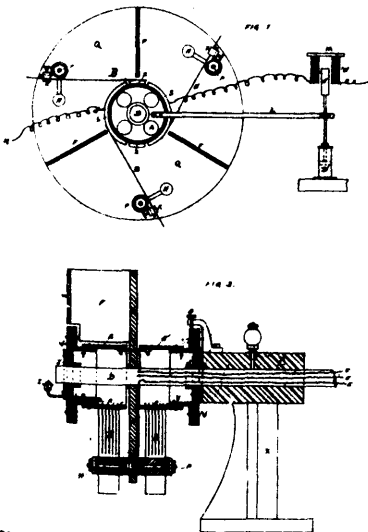
17316 Fox's Improvements in Sad Irons.



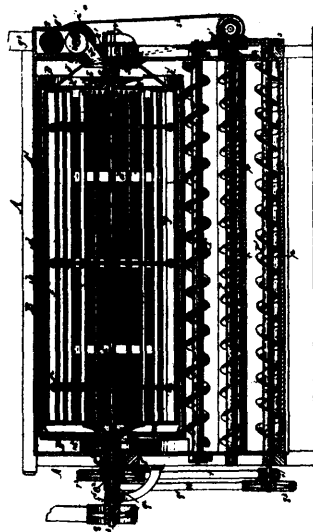
17317 Huth's Improvements in Car-Couplings.



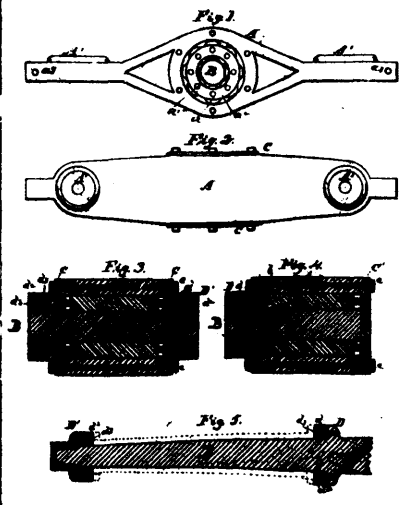
17318 Hauck's Improvements in Peg Cutters.



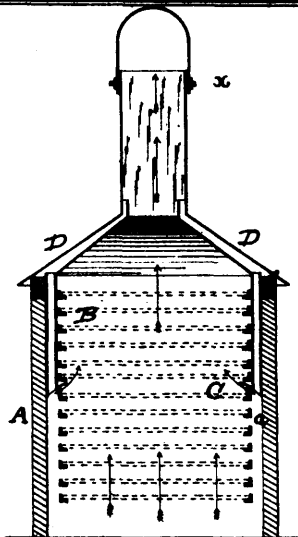
17319 Wright's Commutator and Regulator for Dynamo Electric Machines.



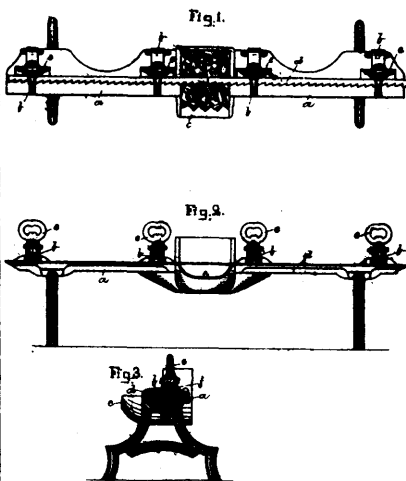
17320 Holcomb and Heine's Improvement in Centrifugal Flour Bolts.



17321 Thomas' Improvements in Devices for Applying Anti-Friction Rollers to Journal Boxes.



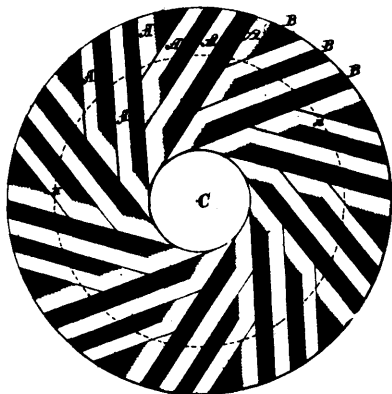
17322 Plummer's Improvement in Drying Chambers for Fruit Evaporators.



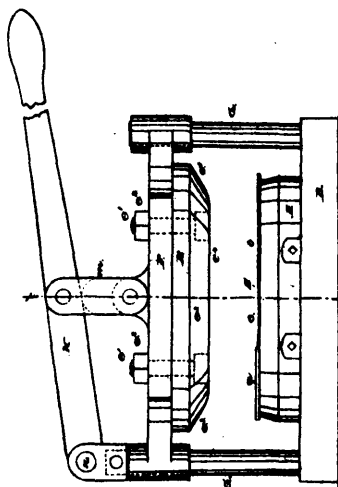
17323 Stevens' Apparatus for Brasing Metals.



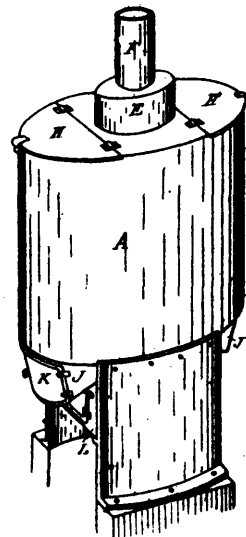
17324 Gibson's Improvements in Ties for Bags, Bales, &c.



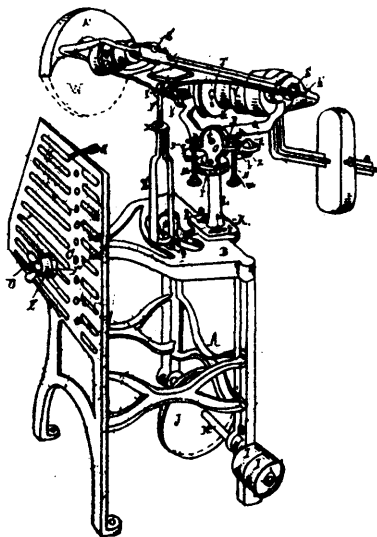
17325 Lehmann's Improvements in Grinding Disks.



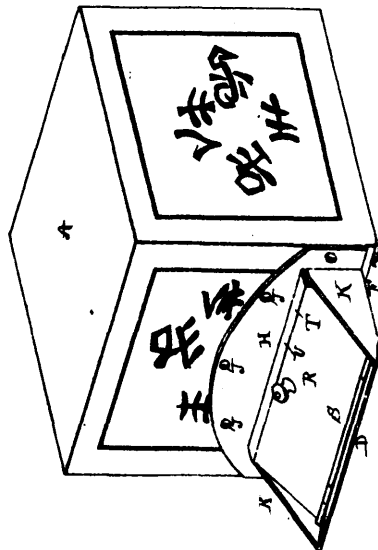
17326 Tougas' Apparatus and Method for Cutting Elastic Soles or Heels.



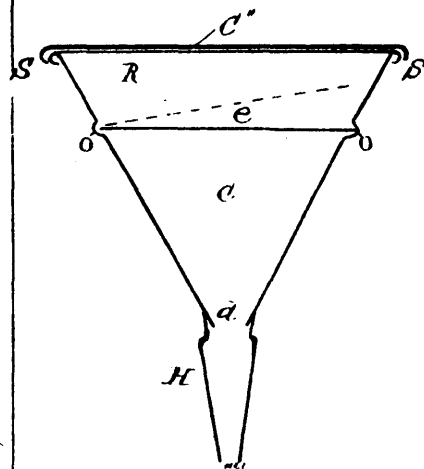
17327 Burt's Improvements in Charcoal Furnaces.



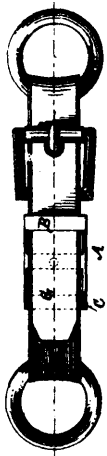
17328 Olney's Improvements in Saw Gummers.



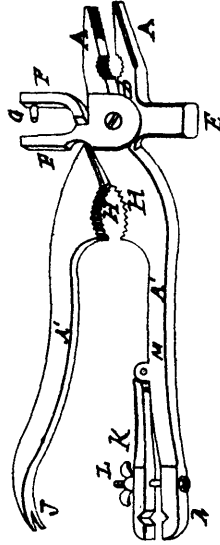
17330 Gage's Improvements in Tea Chests.



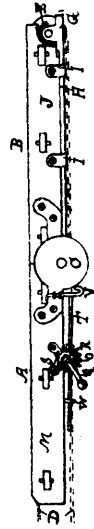
17332 Hart's Improvements in Blacking Boxes.



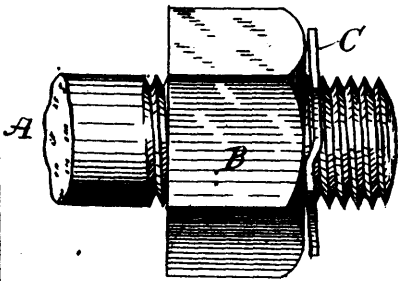
17333 Pott's Improvements in Harness Loops.



17335 Erdman's Improvements in Combination Tools.



17336 Hartwich's Improvements in Straw Stackers.



17337 McTighe's Improvements in Nut Locks.

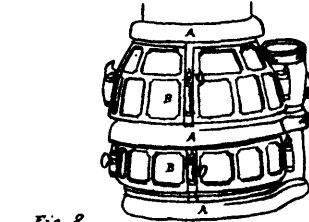


Fig. 2.

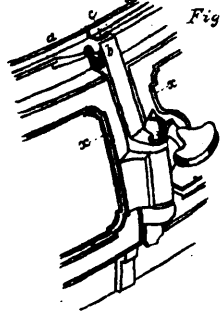


Fig. 1.

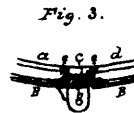
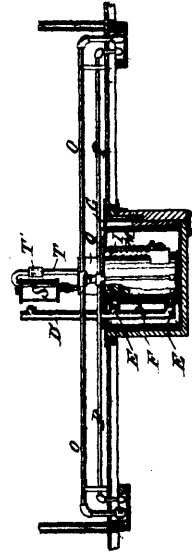
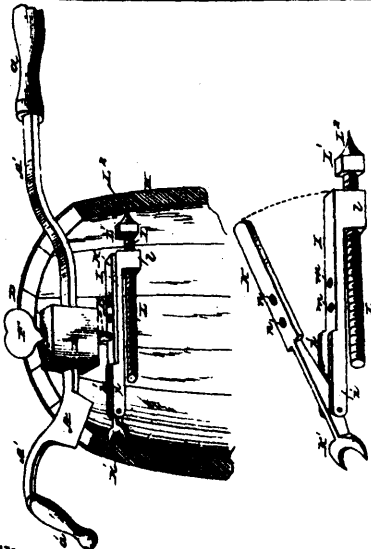


Fig. 3.

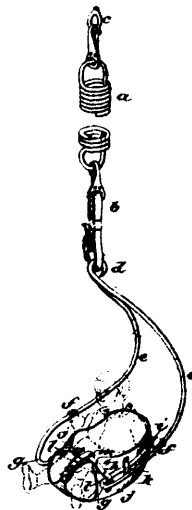
17338 Dwyer's Improvements in Heating Stoves



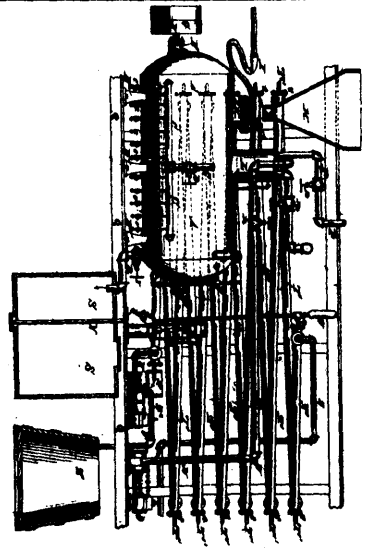
17339 Thayer's Improvements in Car Heaters.



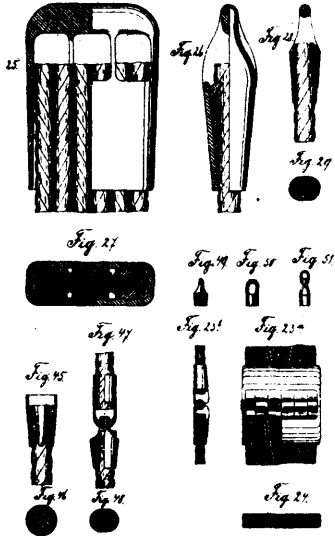
17340 Tobin's Improvements in Chamfering Machines.



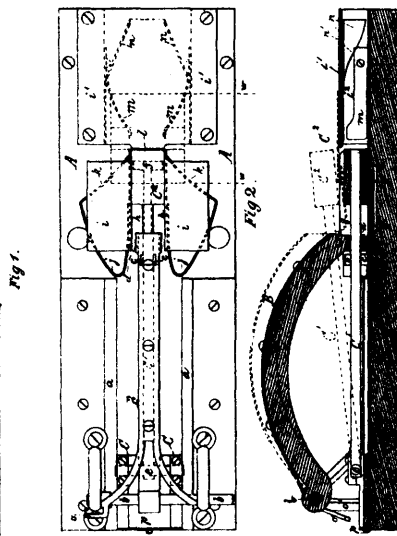
17341 Raymond's Improvement in Baby Jumpers.



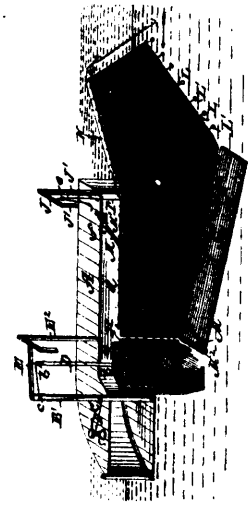
17342 Moore's Apparatus for Preparing Mash for Fermentation.



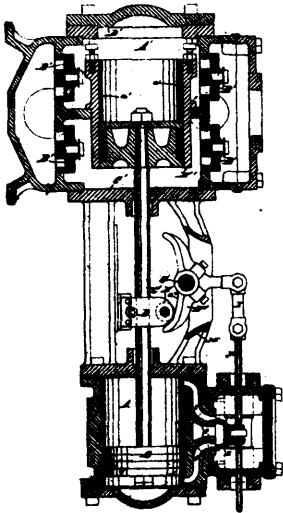
17343 Kortum's Improvements in Couplings for Ropes, Belts, &c.



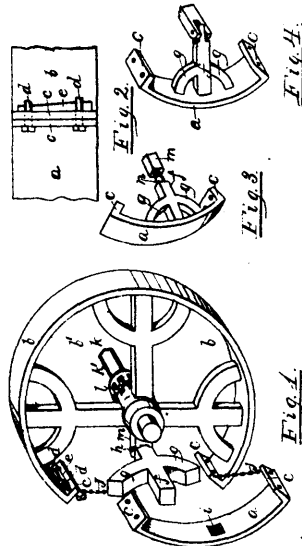
17344 Steber's Machine for Making Paper or other Boxes for Matches and other Uses.



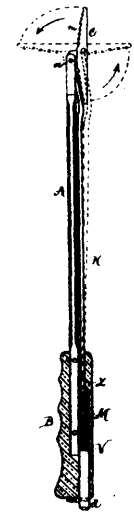
17345 Frazer's Improvements in Fish Traps.



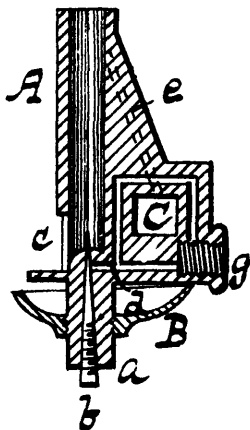
17346 Valle's Improvements in Pumping Engines.



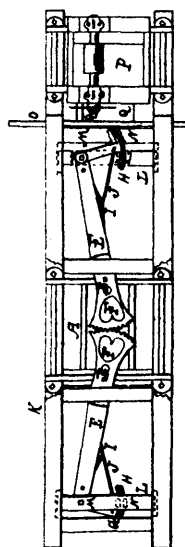
17347 Irvine's Improvements in Sectional Pulleys for Belts.



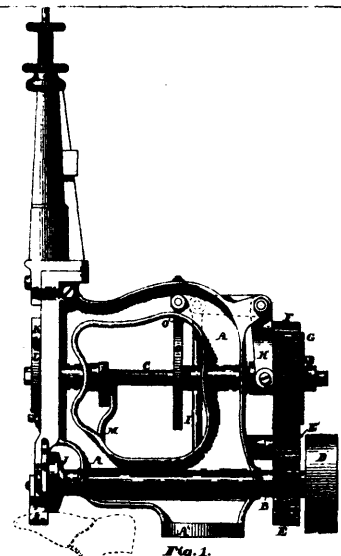
17348 Slater's Improvements in Cranial Tractors.



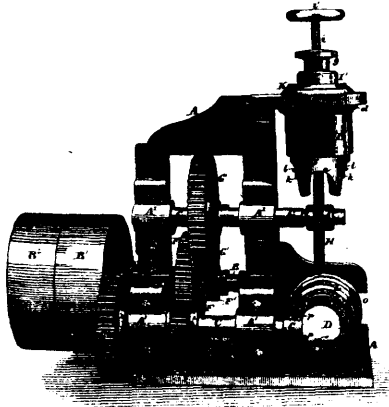
17349 Best's Improvements in Vapour Burners.



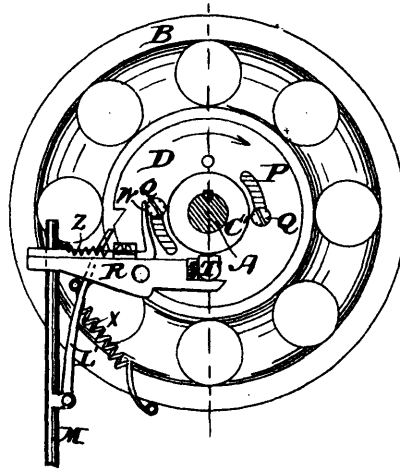
17350 Cole's Improvements in Saw Tables.



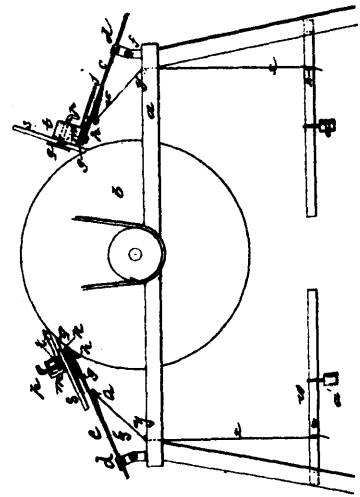
17351 Coté's Improvements in Lasting Boots and Shoes and Machinery therefor.



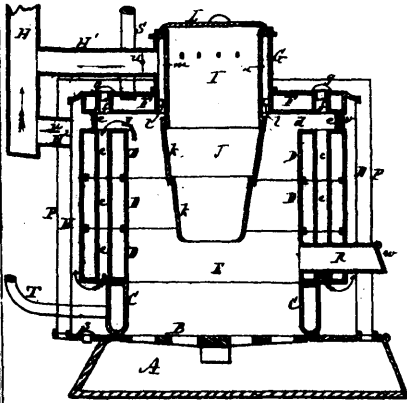
17352 Coté's Improvements in Machines for Shaping Boot and Shoe Counters.



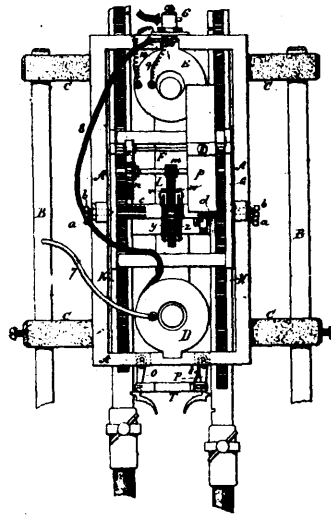
17353 Horton's Improvements in Friction Movements.



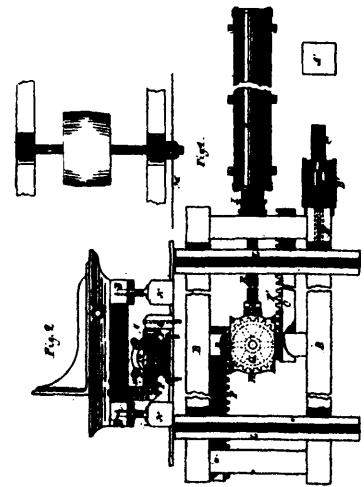
17354 Lander's Improvements in Tool-Holder.



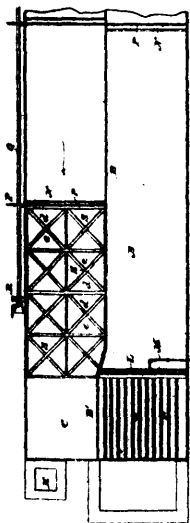
17355 Wheat and Catchpole's Improvements in Heating Apparatus.



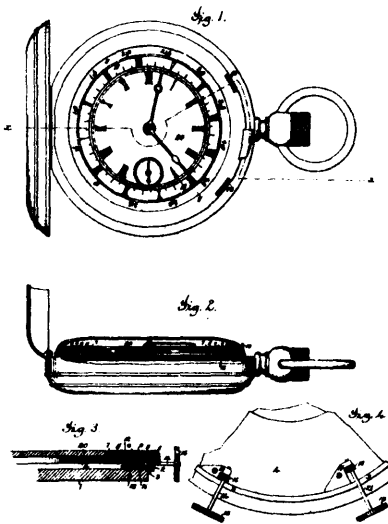
17356 Hochhausen's Improvements in Electric Lamps.



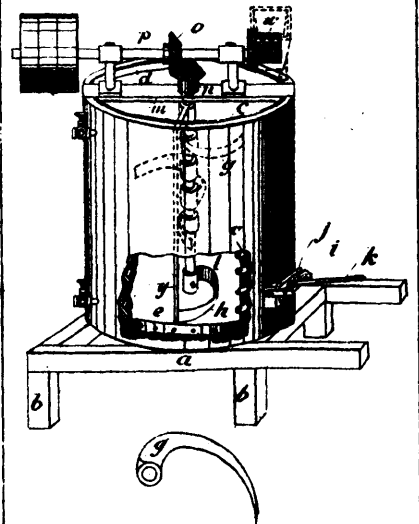
17357 Cunningham's Machine for Feeding the Carriages of Saw Mills by Steam.



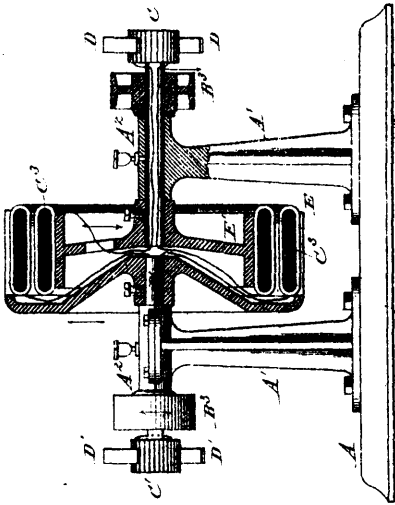
17358 Frasch's Method of, and Apparatus for Evaporating Salt Brines, &c.



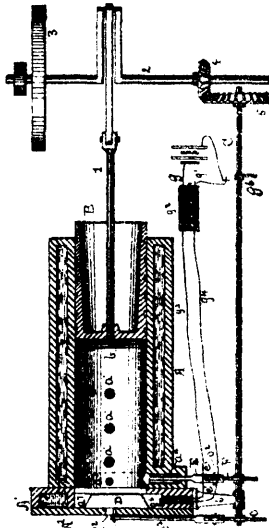
17359 Trenor's Improvements on Dials for Watches and other Time-Pieces.



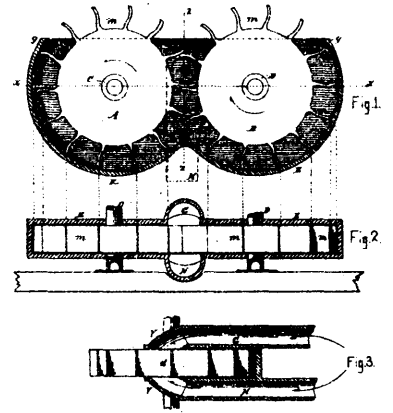
17380 Freeland's Improvements in Soap Making Machinery.



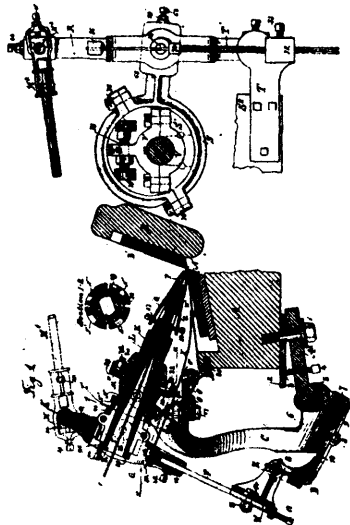
17361 Hall's Improvements in Dynamo-Electric Machines.



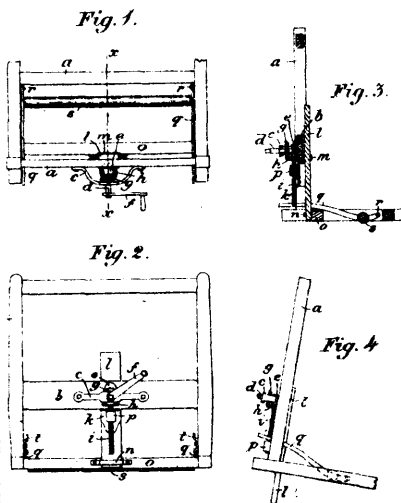
17362 Parker's Improvements in Gas Engines.



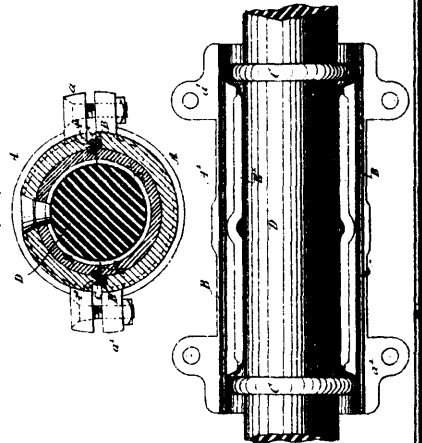
17263 Morse's Improvements in Water Wheels.



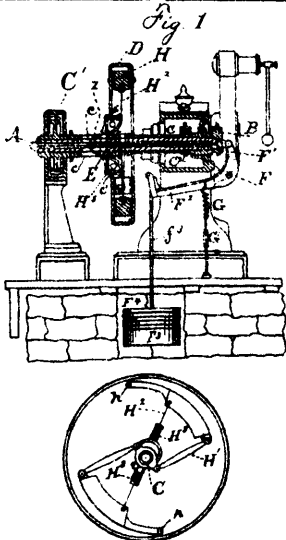
17364 Hammond's Machine for Feeding Nail Plates.



17365 Durocher's Apparatus for Moving Thrashing Machines.



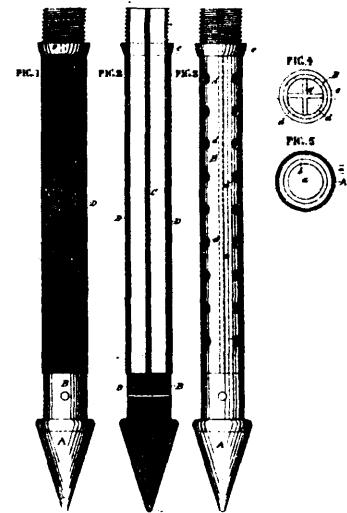
17366 Cramer's Improvements in Boxes for Shafting.



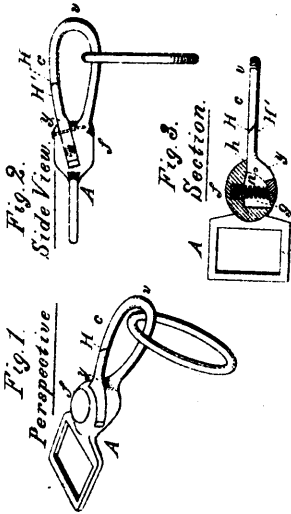
17367 Cummer's Improvements in Governors for Steam Engines.



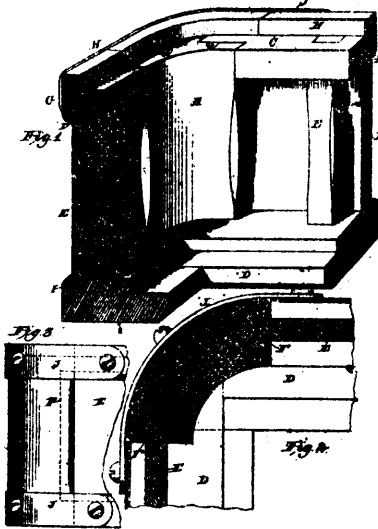
17368 Hendrick's Improvements in Syringes.



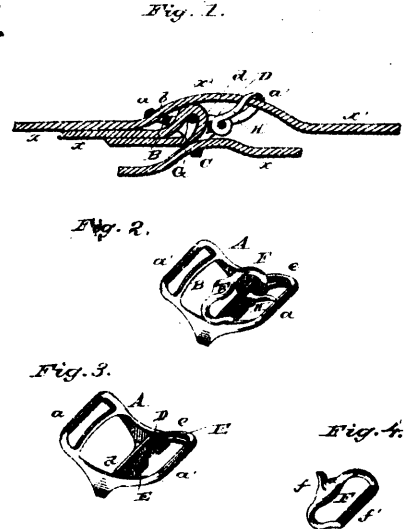
17369 Byrie's Improvements in Drive Well Points.



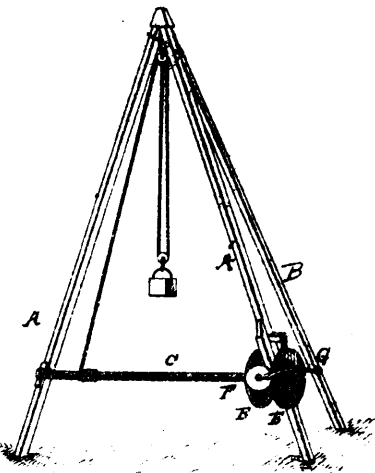
17370 Ayres' Improvements in Snap Hooks.



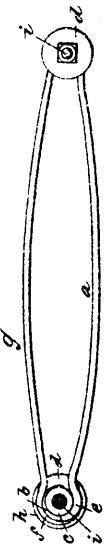
17371 Calkins' Improvements in Carriage Bodies.



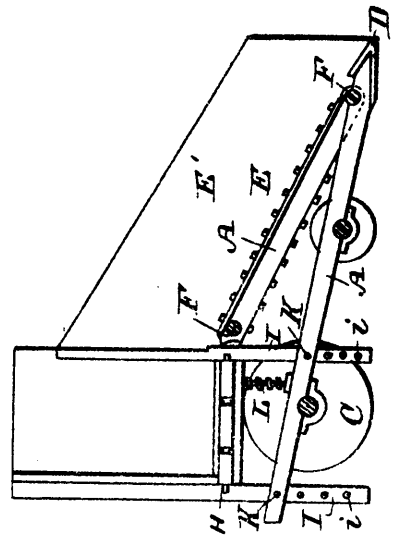
17372 Park's Improvements in Buckles.



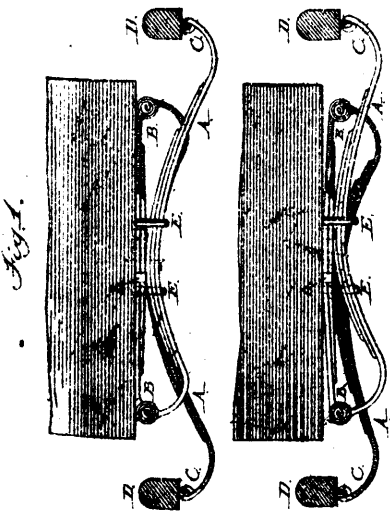
17373 Richardson's Improvement in Hoisting Gine



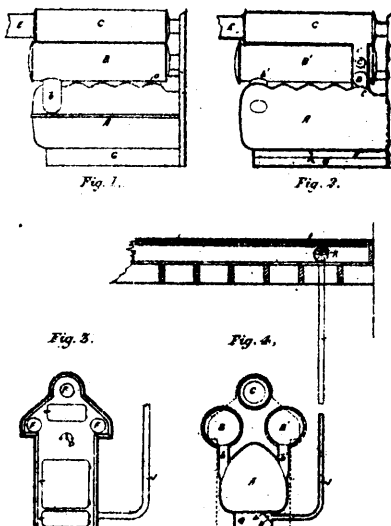
17374 Parson's Improvements in Elliptic Springs.



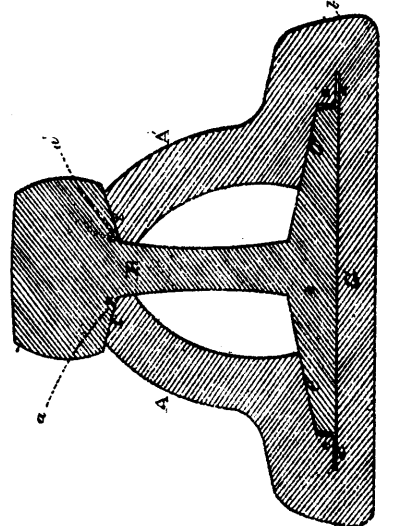
17375 Menze's Improvement in Snow Removers



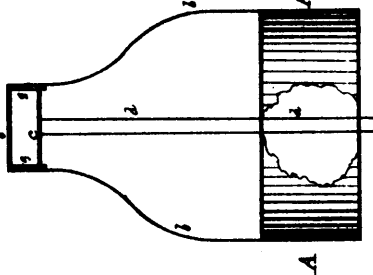
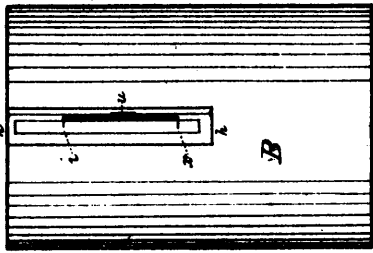
17376 Moran's Improvements in Vehicle Springs.



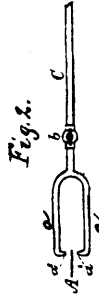
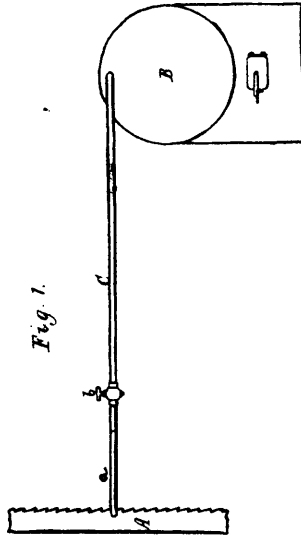
17377 Linklater's Improvements in Heating Furnaces.



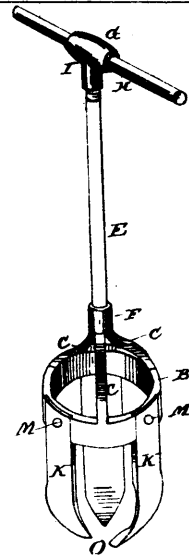
17378 Tostevin's Improvement in Railway Rail Chairs.



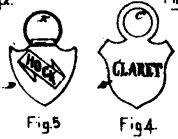
17379 Harland's Improvements in Milk Pans.



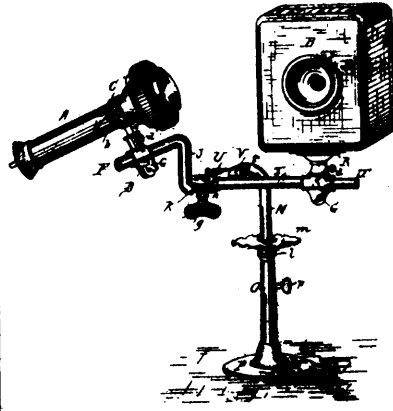
17381 Bowker's Improvements in Cleansing Saws.



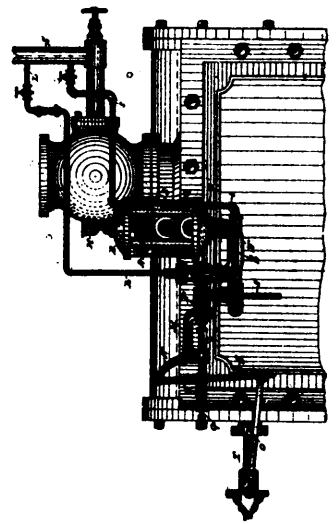
17383 Switzer's Improvements in Post-Hole Diggers.



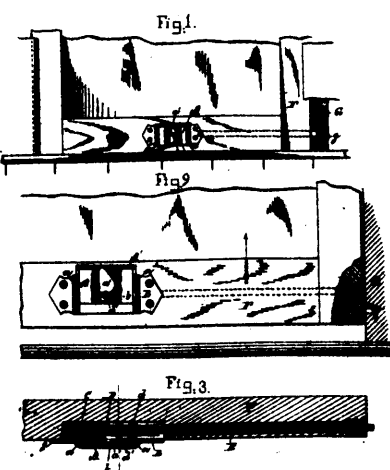
17384 Stanly's Improvement in Bottle Tags.



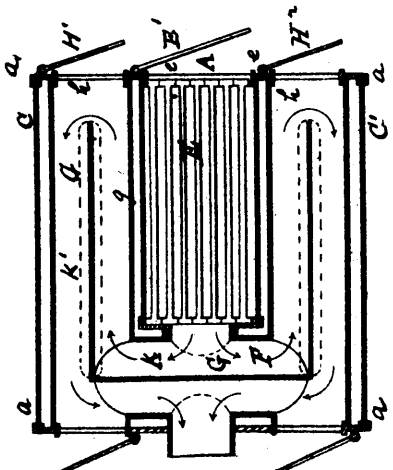
1738b Loring's Support for Telephones and Transmitters.



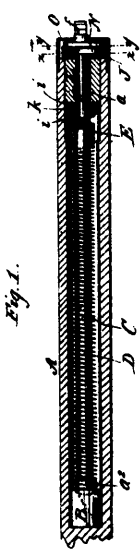
17386 Jareochi's Lubricator for Cylinders of Steam Engines.



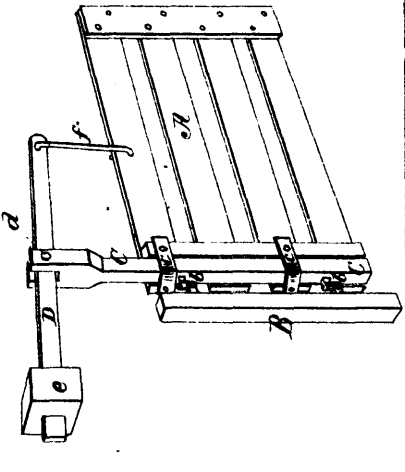
17387 Elliott's Improvements in Sash Lifters and Fasteners.



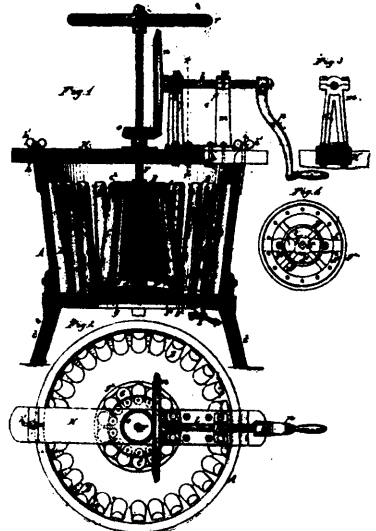
17388 Plummer's Combined Heater and Base for Dryers.



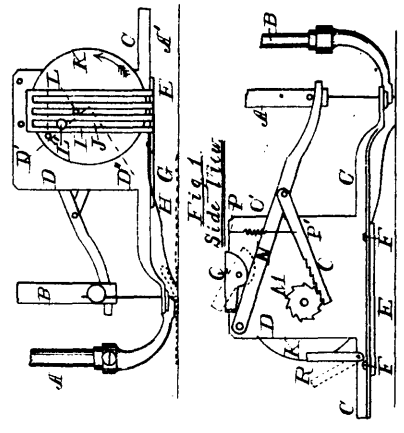
17389 Ruse's Balanced Shade Roller.



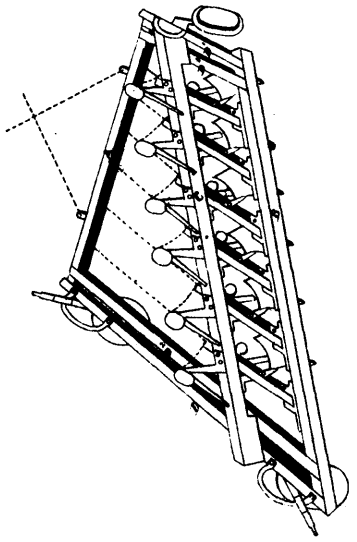
17390 Sturgen's Improvement in Gates.



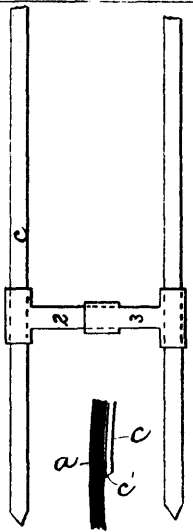
17391 Shadbolt's Improvements in Washing Machines.



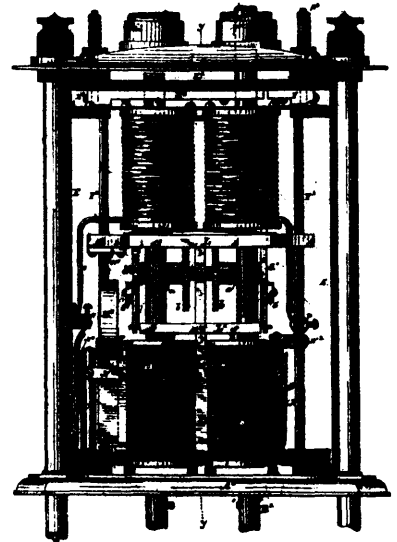
17392 Cox's Improvements in Sewing Machines.



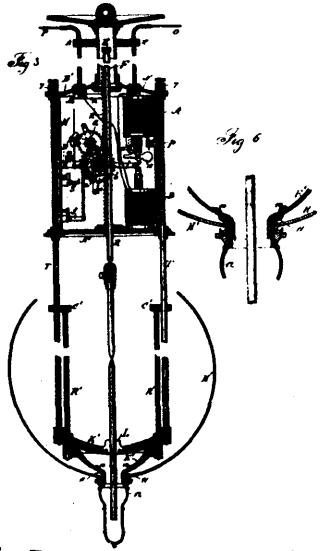
17393 Whealy's Improvement in Steam Ploughs.



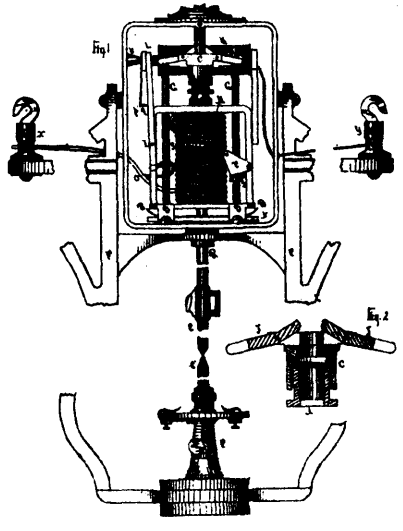
17394 Carriek's Ribbon or Label-Holder for Hats.



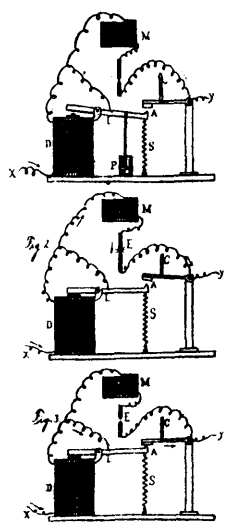
17395 Hochhausen's Improvements in Electric Lamps.



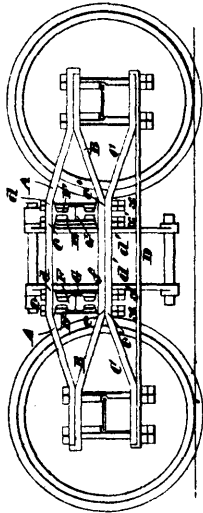
17396 Hochhausen's Improvements in Electric Lamps.



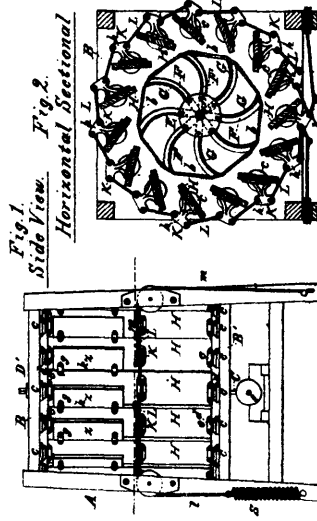
17397 Thomson's Improvements in Electric Arc Lamps.



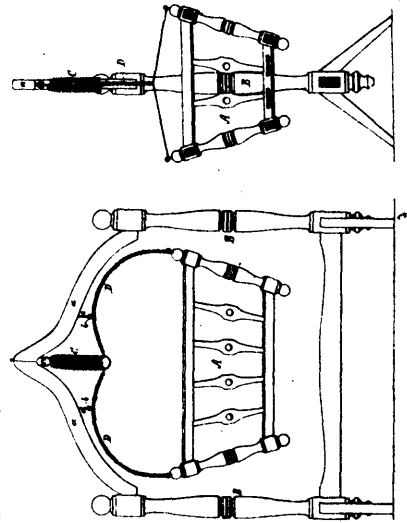
17398 Thomson's Improvements in Electric Arc Lamps.



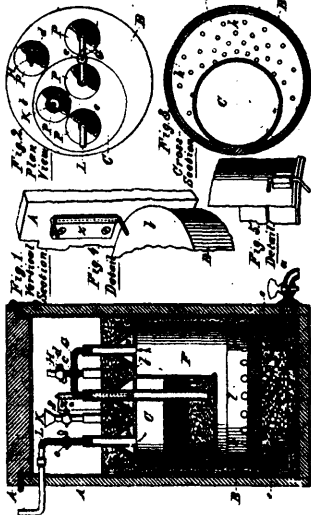
17399 Terry's Improvements in Car Trucks.



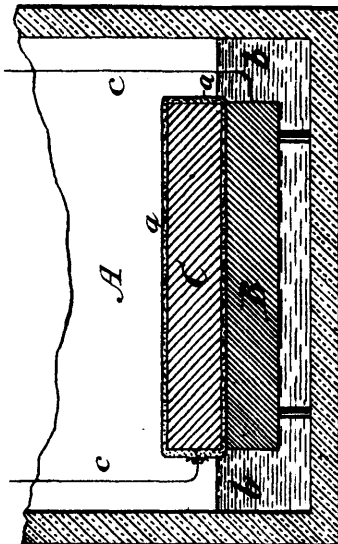
17400 Toomb's Improvements in Windmills.



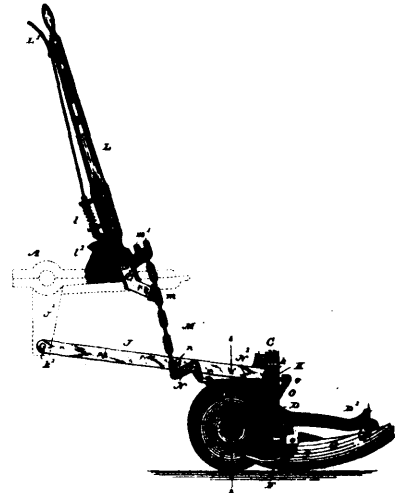
17401 Barker's Improvement in Cradles.



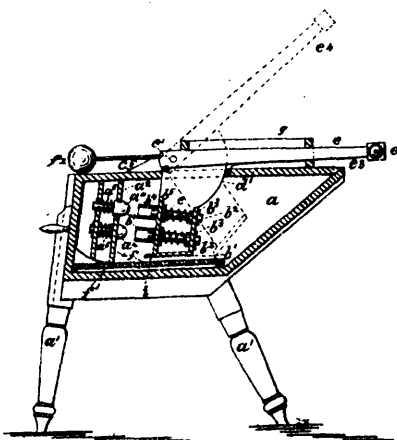
17402 Groves' Apparatus for Generating and Carbureting Hydrogen Gas.



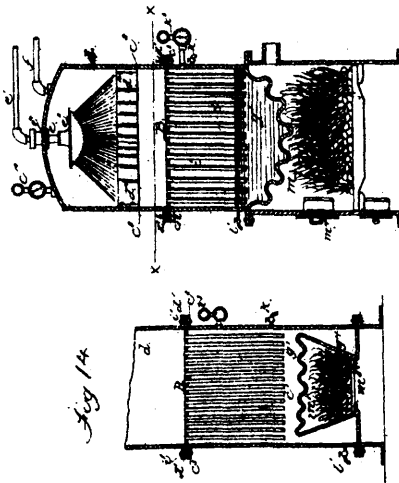
17403 Bernstein's Improvements in Galvanic Elements



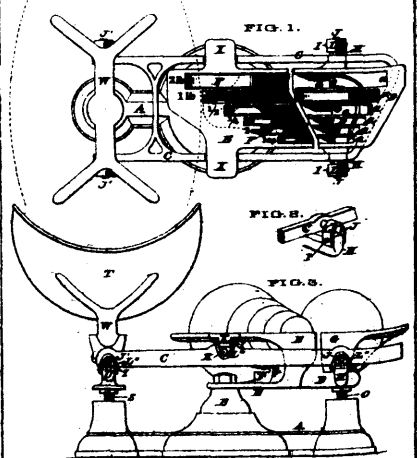
17404 Bramer's Improvements in Mowing Machines.



17405 Brillinger and Beam's Improvements in Washing Machines



17406 Blumenberg's Improvements in Vapour Generators and Motors, &c.



17407 Farmum's Improvements on Weighing Scales

INDEX OF INVENTIONS.

Asbestos impervious to water, J. B. Amyot..... 17,148
Back grounds, C. F. and W. E. Lindop..... 17,288
Bath damping, N. C. Stiles..... 17,237
Bed bottoms, E. W. Grafton..... 17,132
" H. B. Howard..... 17,128
" S. E. Moore..... 17,119
" spring, W. L. Phillips..... 17,194
Berth for sleeping cars, G. Leve et al..... 17,104
Blade, window, W. S. Laycock..... 17,149
Block, geometrical, A. H. Kennedy..... 17,189
Boards, net knitting, N. D. Sollers..... 17,306
Boats, life, J. F. Coombs..... 17,226
" small, J. Dean..... 17,282
Bolt locks, D. F. Blinghton..... 17,155
Bolts, centrifugal flour, A. P. Holcomb et al..... 17,320
Bolt, black leaf check, The Grip Printing and Publishing Co..... 17,166
" cheque and account, A. Gardner..... 17,205
Boot and shoe counter shaping, L. Coté..... 17,352
Boots, E. Roos..... 17,248
" and shoes, H. R. Adams et al..... 17,164
" lasting, L. Coté..... 17,351
" felt, J. Brandy..... 17,217
" W. M. Weeks..... 17,249
Bottles for aerated liquids, H. Codd..... 17,163
Bowls, wooden, C. Neff..... 17,118
Boxes, blacking, C. W. Hart..... 17,332
" devices for applying anti-friction rollers to journal, J. Thomas..... 17,321
" for shafting, P. Cramer et al..... 17,366
" machines for paper, B. T. Steber..... 17,344
" stuffing, S. Fox..... 17,116
Brackets, air fixture, F. Gross..... 17,227
Brake shoes, J. J. Lappin..... 17,213
Brakes, car, S. P. Weller et al..... 17,285
" railroad, D. Torrey..... 17,263
Brazing metals, apparatus for, J. C. Stevens..... 17,323
Bretzel cutters, T. H. Butler et al..... 17,244
Brick machines, L. B. Kennedy..... 17,190
Brushes, grooming, R. W. Thompson..... 17,224
Buckle and snap, J. A. Park et al..... 17,167
Buckles, J. A. Park et al..... 17,372
Burner, hydrocarbon, I. R. Blumenberg et al..... 17,283
Burners, vapour, J. R. Blumenberg et al..... 17,261
" M. L. Best..... 17,349
Butter, apparatus for treating artificial, J. Hobbs..... 17,268
" oleomargarine, J. Hobbs..... 17,290
Button for gloves, E. Pringle..... 17,221
Candlesticks, C. Sherman et al..... 17,214
Caoutchouc, compounds of, A. C. Eddy..... 17,205
Carburettling gas, L. S. Groves..... 17,402
Car couplers, T. J. Hilliard..... 17,303
Cars, hand, The Sheffield Velocipede Car Co. et al..... 17,289
Carriage and cradle, J. W. Krueger..... 17,268
" bodies, A. J. Calkins et al..... 17,371
" body support, P. G. Clancy..... 17,266
Carrier, cash and parcel, G. R. Elliott et al..... 17,162
Cement, plastic, W. McKay..... 17,239
Chain, drive, J. H. Weaver et al..... 17,186
Chains, binding, N. Smith..... 17,126
Chairs, adjustable, J. D. King..... 17,160
" rail, T. Tostevin..... 17,378
Chamfering machines, T. Tobin..... 17,340
Chest attachments, tea, M. L. Gage..... 17,330
Churns, G. L. Potter et al..... 17,177
Cleaning saws, W. Bowker..... 17,381
Coal in tenders, device for taking, W. H. Lantz et al..... 17,309
Coating and painting, M. B. Church..... 17,232
Colling machines, E. W. Durkee..... 17,245
Collar pads, horse, E. L. McLain..... 17,269
Commutator and regulator for dynamo electric machines, J. J. Wright..... 17,319
Conductors, system of laying electrical, J. Grievés et al..... 17,216
Conduits for electric wires, under ground, J. S. Dubois et al..... 17,315
Cooking and heating range, P. Brake..... 17,124
Cooler and dryer, F. H. C. Ney..... 17,259
Cots, M. B. Church..... 17,255
Couplers, car, J. Thigpen..... 17,275
Couplings, car, C. A. Huth..... 17,317
" J. C. Blocher..... 17,274
" J. P. B. and D. Rarey..... 17,184
" L. Anderson et al..... 17,172
" shaft, L. E. McKinnon..... 17,209

Cradles, The Climax Cradle Co..... 17,401
Cradle and carriage, J. W. Krueger..... 17,268
Creamers, A. Stuart..... 17,187
Crushing wilnes, W. Leslie, Jr..... 17,179
Cups, grease, B. F. Orman et al..... 17,311
Cutter heads, S. J. Shimer..... 17,299
Cutters, peg, A. Hauck..... 17,318
Cutters, pretzel, T. H. Butler et al..... 17,214
Cutting apparatus, L. T. Tongas..... 17,326
" machines, grain, H. E. Pryor..... 17,196
" " plates, The Smith Manufacturing Co..... 17,310
Dials, watch, J. J. D. Tenor..... 17,369
Diggers, post hole, W. C. Switzer..... 17,883
Draw bars, T. J. Hilliard..... 17,303
Dredging machines, J. Kennedy..... 17,159
" R. R. Osgood..... 17,154
Drills, rock, G. M. Derby..... 17,203
Dryer and cooler, F. H. C. Ney..... 17,259
Dryers, grain, H. Cutler..... 17,304
" heaters for, W. S. Plummer..... 17,388
" lumber, J. Lynch..... 17,120
" sand, J. G. McPherson..... 17,105
Dring apparatus, glue, W. A. Hoeveler..... 17,103
" chambers for fruit evaporators, W. S. Plummer..... 17,322
Electric machine, dynamo, D. A. Schuyler..... 17,191
" " J. J. Wright..... 17,319
" " R. E. Ball..... 17,361
Elevator, grain, L. Smith..... 17,247
" hay, P. F. Chamberland..... 17,251
Engines, gas, L. C. Parker..... 17,362
" pumping, J. H. Valle..... 17,346
Evaporating salt brines, The American Chemical Co..... 17,358
Extinguisher, lamp, W. H. Kimball..... 17,294
" fire, A. F. Spawm..... 17,307
Extractors, stump, O. Mignault..... 17,121
Fabrics, washing textile, R. Troy et al..... 17,286
Fastener, tub and box, W. H. Blake..... 17,206
Fasteners, pencil, J. F. Webster..... 17,204
" sash, C. W. Elliott et al..... 17,387
Fastening for gloves and mittens, B. D. Eaton et al..... 17,161
" button, S. L. Pratt..... 17,219
Faucets, M. Magin..... 17,271
Feeder for mill rolls, T. Reid..... 17,222
Feeding machines, J. T. Hammond..... 17,364
" The Feler and Stowell Co..... 17,357
Felloe tighteners, A. Galbraith..... 17,242
Fence locking device, A. C. Scarr..... 17,188
" post, A. A. Arthur et al..... 17,129
Fences, barbed wire, A. Dillman et al..... 17,171
" iron, F. F. De Vo..... 17,314
" rail, W. C. Scarr..... 17,228
Fire escapes, J. T. Hodson..... 17,281
" J. W. Cooney..... 17,233
" extinguishers, A. F. Spawm..... 17,307
" places, grate, J. M. Cook et al..... 17,300
Fish meal, C. Thomson..... 17,137
" taps, J. M. Trazer..... 17,345
Flaung machines, A. Wilbur..... 17,151
Flour, manufacture of, L. Gatham..... 17,252
Fork, hay, The Ney Manufacturing Co. et al..... 17,174
Freezing apparatus, E. Kells et al..... 17,134
Friction movements, J. A. Horton..... 17,353
Frogs, railway, J. Staples..... 17,146
Fuel, manufacture of, G. Yale..... 17,131
Furnaces, metallurgic gas, W. W. Waplington..... 17,110
" charcoal, J. Burt..... 17,327
" heating, T. Linklater..... 17,377
" hydrocarbon, B. Sloper..... 17,220
Galvanic elements, A. Bernstein..... 17,403
Gates, T. Sturgin..... 17,390
Generating gas, L. S. Groves..... 17,402
Generators, vapour, I. R. Blumenberg et al..... 17,261
..... 17,283
Geometrical blocks, A. H. Kennedy..... 17,406
Gloves, lacing device, W. F. Foster..... 17,130
Glue drying apparatus W. A. Hoeveler..... 17,103
" stock washer, W. A. Hoeveler..... 17,109
Glycerine, manufacturing process, E. O. Banjard..... 17,150
Governors for steam engines, F. D. Cummer..... 17,367
Grating wall, C. Fleroe..... 17,334
Grate fire places, J. M. Cook..... 17,300
Grinders for making paper pulp, wood, The Canada Pulp Co..... 17,308
Grinding disks, W. Lehmann..... 17,225
" mills, M. B. Church..... 17,257
Hammocks, C. E. Heister et al..... 17,302
Harness loops, H. A. Pott..... 17,333

Harrow, rotary, J. Barker.....	17,188	Plough, snow, F. W. Menze.....	17,875
" B. F. Rix.....	17,189	Ploughs, snow, R. Shorts.....	17,270
Harvester binders, D. Maxwell et al.....	17,112	" steam, J. Whealy.....	17,303
Harvesters, J. P. Manny.....	17,144	Posts, fence, A. A. Arthur et al.....	17,129
Hat holders, J. White.....	17,235	Power, horse, G. B. and J. Ellis.....	17,262
Header, Thresher and Separator, W. H. Parrish et al.....	17,173	Press, copying, N. C. Siles.....	17,237
Heater for dryers, W. S. Plummer.....	17,388	Printing machines, stencil, A. G. Shannon.....	17,223
" car, J. M. Thayer.....	17,339	Propellers, screw, J. Gartner.....	17,123
Heating apparatus, C. Wheat et al.....	17,355	Pulleys, W. H. Dodge et al.....	17,243
" stoves, J. Dwyer.....	17,338	" for belts, J. J. Irvine et al.....	17,347
" and cooking range, P. Brake.....	17,124	Pulp, paper, G. Archbold.....	17,207
Holisting gins, S. T. Richardson.....	17,373	Pulverizing machines, R. D. Gates.....	17,142
Holder for hats, ribbon or label, W. Carrick.....	17,394	Range, cooking and heating, P. Brake.....	17,124
" pillow sham, A. H. Phelps et al.....	17,297	Reamers, pipe, J. H. Lancaster.....	17,211
" sad iron, J. O'Neill.....	17,280	Recording devices, E. M. Asseltine.....	17,241
Hooks, snap, F. C. Ayres.....	17,370	Regulator, draft, M. B. Church.....	17,256
" swivel, C. Dutton et al.....	17,133	" for dynamo-electric machines, J. J. Wright.....	17,319
Horizon, artificial, S. Pattee et al.....	17,173	" for electric lamps, J. J. Wright.....	17,155
Horse shoes, H. Holland.....	17,278	" for grinding mills, feed, M. B. Church.....	17,231
Hydrants, W. H. Fromm.....	17,238	Roller, J. Barker.....	17,186
Injectors, steam, The Desmond Injector Co.....	17,312	Rollers, log, L. T. Kline.....	17,273
Insulating materials, J. A. Fleming.....	17,192	" to journal boxes, device for applying anti-friction, J. Thomas.....	17,321
Insulator for electric wires, L. B. Gray.....	17,197	Roller, shade, J. H. Russ.....	17,389
Iron holders, sad, J. O'Neill.....	17,280	Root Cutters, E. L. Byron.....	17,125
Irons sad, H. C. Fox.....	17,316	Ropes, couplings for, C. M. E. Kortum.....	17,343
" " W. Hilton et al.....	17,163	Sash holders, W. C. Carson.....	17,292
Joints, sewer, J. Dineen.....	17,238	Saw gummery, S. P. Olney.....	17,328
Jumpers, baby, M. M. Raymond.....	17,341	" mills, (The) Feler and Stowell Co'y.....	17,357
Knife for peeling potatoes, W. Addison.....	17,284	Saws, E. Andrews.....	17,230
Knitting boards, net, N. D. Sollers.....	17,306	" cleaning, W. Bowker.....	17,351
Lacing gloves, W. F. Foster.....	17,130	Scales, weighing, W. C. Farnum et al.....	17,407
Lamp extinguisher, automatic, W. H. Kimball.....	17,204	Screen, automatic window, J. M. Bryant et al.....	17,279
Lamps, T. M. McLeod.....	17,240	Screw cutting tools, J. H. Lancaster.....	17,305
" electric, A. Swan 17,198 17,199 17,200 17,201	17,202	Seeding machines, J. O. and W. S. Wisner et al.....	17,163
" " W. Hochhausen.....	17,396	Separator, W. H. Parrish et al.....	17,178
" " arc, E. Thomson.....	17,398	Setting machine, button, S. L. Pratt.....	17,218
" " C. E. Ball.....	17,127	Sewing machines, R. M. Cox.....	17,392
" kerosene oil, T. P. Thompson.....	17,253	Sextants, horizon for, S. Pattee et al.....	17,173
" oil, S. Maxim.....	17,111	Shingle machines, M. Marcoux.....	17,133
" regulator for electric, J. J. Wright.....	17,158	Shoes, felt, J. Brandy.....	17,127
Lanterns, G. F. Fisher.....	17,157	" " W. M. Weeks.....	16,249
" tubular, T. Davidson.....	17,135	Sickle bars, C. Schmidt et al.....	17,301
Lasting boots and shoes, L. Colé.....	17,351	Signal, automatic air railroad, J. S. McLeod.....	17,225
Leaf-turner, music, J. M. Wittman.....	17,108	Sled for inclined plane, R. Steel et al.....	17,165
Levels, J. Macdonald.....	17,141	Sleds, A. Sanford.....	17,291
Life boats, H. F. Coombs.....	17,226	Slinging railways, aulmal, R. J. Davis.....	17,277
Lifters, sash, C. W. Elliott et al.....	17,387	Snow removers, F. W. Menze.....	17,375
Locks, door, W. Roe et al.....	17,170	Soap-making machinery, R. Freeland.....	17,360
Loops, harness, H. A. Pott.....	17,333	Soles or heels, apparatus for cutting, L. T. Tongas.....	17,326
Lubricator, F. Jarecki.....	17,386	Spoke tighteners, A. Galbraith.....	17,242
" J. Allen.....	17,185	Springs, elliptic, C. H. Parsons.....	17,374
" for loose pulleys, E. W. Van Duzen.....	17,272	" vehicle, W. J. Moran.....	17,376
Mash for fermentation, H. F. Moore.....	17,342	Staining, wall, C. Fieroe.....	17,334
Match machines, C. F. Bonhack.....	17,250	Stalk-cutter, J. Barker.....	17,186
" " H. L. Hapgood.....	17,246	Stencil printing machines, A. G. Shannon.....	17,223
Meal, fish, C. Thomson.....	17,137	Stockings, felt, J. Brandy.....	17,217
Medicinal compound, G. F. Day.....	17,296	Stoves, heating, J. Dwyer.....	17,338
" " M. E. Sangster.....	17,331	Straw stackers, F. F. Hartwich.....	17,336
" syrup, E. Tremblay.....	17,215	Sulphide of zinc, T. Macfarland.....	17,382
Mills, feed regulator for grinding, M. B. Church.....	17,231	Suppositories, compound for, A. Larsen.....	17,329
" grinding, M. B. Church.....	17,257	Swing, rotary, C. Watkins.....	17,115
Motors, vapour, I. R. Blumberg.....	17,406	Syringes, O. Henderick.....	17,368
Mouth-piece for cornets, H. E. Jones.....	17,117	Syrup, medicinal, E. Tremblay.....	17,215
Mowing machines, C. W. Lowe.....	17,267	Tables, saw, J. W. Cole.....	17,350
" " F. Bramer.....	17,404	Tags, bottle, N. K. Stanly.....	17,384
" " W. Gause et al.....	17,298	Telephones, J. H. Robertson.....	17,195
Nail plate machine, J. F. Hammond.....	17,364	" support for, C. T. Loring.....	17,384
Nut locks, A. Dion et al.....	17,212	Tenders, device for taking coal in, M. H. Lantz et al.....	17,309
" " E. Dubord et al.....	17,212	Thrashers, W. H. Parrish et al.....	17,177
" " D. Stewart et al.....	17,182	Thrashing machine, moving apparatus, Z. Durocher.....	17,365
" " M. W. Mesgher et al.....	17,295	Ties for securing bags, bales, etc., W. Gibson.....	17,324
" " W. J. McTighe.....	17,837	Tire setting machines, J. D. McPherson.....	17,107
" " W. S. F. Dillon et al.....	17,181	Tool holders, W. T. Lander.....	17,354
Octants, horizon for, S. Pattee et al.....	17,173	Tools, combination, R. Erdman.....	17,335
Organs, J. B. Hamilton.....	17,193	" screw cutting, J. H. Lancaster.....	17,305
Ornamenting walls, C. Fieroe.....	17,334	Tractors, cranial, S. Slater.....	17,348
Oxides of lead, G. T. Lewis.....	17,140	Traction wheels, J. Enright.....	17,113
Packing, metallic, S. M. Weale.....	14,287	Transmitters, support for, C. T. Loring.....	17,385
Pads, horse collar, E. L. McLain.....	17,269	Truck, car, I. C. Terry, et al.....	17,399
Painting and coating, M. B. Church.....	17,232	Truck, car, E. L. Cleveland.....	17,122
Pans, milk, W. S. Harland.....	17,379	Tab and box fastener, W. H. Blake.....	17,204
Pencil fasteners, J. F. Webster.....	17,204	Turner, music leaf, J. M. Wittman.....	17,106
Pillow sham holders, A. H. Phelps et al.....	17,297	Valves, balance slide, J. J. DeLancey.....	17,145
Pins, clothes, M. R. O'Neill.....	17,293	" pump, J. Barrett.....	17,208
Plane, inclined, R. Steel et al.....	17,165	Ventilator, M. B. Church.....	17,256
Plastering walls, E. Chartier.....	17,114	Ventilators, L. G. Fisher, Jr. et al.....	17,180
Plates, cutting machine, (The) Smith Man'g Co'y.....	17,310	Vulcanizing compounds, A. C. Eddy.....	17,285
Plating, nickel, L. F. Dunn.....	17,380		

Washer, glue stock, W. A. Hoeveler.....	17,109
Washing machines, C. T. Shadbolt.....	17,891
“ “ M. Huffman.....	17,290
“ “ M. H. O'Dell et al.....	17,183
“ “ S. Brillinger et al.....	17,405
“ textile fabrics, R. Troy et al.....	17,288
Weighting scales, W. C. Farnum et al.....	17,407
Well points, drive, R. A. Rylie, et al.....	17,309
Wheels, traction, J. Enright.....	17,113
“ spinning, A. S. Beauchemin.....	17,254
“ vehicles, S. Whitehall et al.....	17,156
“ water, H. T. Morse.....	17,863
Windmills, H. N. Hill.....	17,278
“ J. E. Toombs.....	17,400
Wire, barbed, D. H. Donovan.....	17,175
“ for fences, A. Cary et al.....	17,176
“ fence machines, C. A. Everett.....	17,313
“ machines, E. W. Durkee.....	17,245
Wires, insulator for electric, L. B. Gray.....	17,197
“ forming the ends of conducting, A. Swan.....	17,198 17,109 17,200 17,201
Withes, crushing, W. Leslie, Jr.....	17,179
Wrappers, newspaper, G. Fay.....	17,234
Wrenches, pipe, A. W. Case.....	17,229

INDEX OF PATENTEES.

Abbott, T. G., et al., automatic metallo packing for piston rods, etc.....	17,287
Adams, H. R., et al., boots and shoes.....	17,184
Addison, W., knife for peeling potatoes.....	17,284
Alken, G. E., et al., combined header, thrasher and separator.....	17,178
Alden, H. P., et al., berth for sleeping cars.....	17,104
Allen, J., lubricator.....	17,185
American (The) Chemical Co'y, apparatus for evaporating salt brines.....	17,358
Amyot, J. B., asbestos impervious to water.....	17,148
Anderson, J. C., et al., nut locks.....	17,295
“ L., et al., car couplings.....	17,172
Andrews, E., saws.....	17,230
Archbold, G., paper pulp.....	17,207
Arthur, A. A., et al., fence posts.....	17,282
Asselstine, E. M., recording devices.....	17,241
Ayres, F. C., snap hooks.....	17,870
Ball, C. E., electric arc lamps.....	17,127
“ R. E., dynamo electric machines.....	17,381
Barker, J., combined rotary harrow, stalk cutter or roller.....	17,186
Barrett, J., pump valves.....	17,208
Bass, J. H., et al., mowing machines.....	17,298
Banlard, E. O., process for manufacturing glycerine....	17,150
Beam, J. F., et al., washing machines.....	17,405
Beauchemin, A. S., spinning wheels.....	17,254
Beam, M., et al., drive chain.....	17,136
Bernstein, A., galvanic elements.....	17,408
Best, M. L., vapour burners.....	17,349
Bingham, N. W., et al., boots and shoes.....	17,164
Blackman, J. M., et al., ventilators.....	17,180
Blake, W. H., tub and box fastener.....	17,206
Bleco, J. H., et al., system of laying electrical conductors.....	17,216
Blighton, D. F., bolt locks.....	17,155
Blocher, J. C., car couplings.....	17,274
Blumenberg, I. R., et al., hydro-carbon vapour generators and burners.....	17,281
Blumenberg, I. R., et al., vapour generator.....	17,283
“ vapour generators and motors, etc.....	17,406
Bonhack, C. F., match machines.....	17,250
Bowker, W., cleansing saws.....	17,381
Brake, P., cooking and heating range.....	17,124
Bramer, F., mowing machines.....	17,404
Brandy, J., felt boots, shoes and stockings.....	17,217
Brenner, R., et al., lock nuts.....	17,181
Brillinger, S., et al., washing machines.....	17,405
Bryant, J. M., et al., automatic window screen.....	17,279
Bulder, J., et al., grate fire-places.....	17,300
Burt, J., charcoal furnaces.....	17,327
Butler, T. H., et al., pretzel cutters.....	17,244
Byron, E. L., root cutters.....	17,125
Calkins, A. J., et al., carriage bodies.....	17,371
Canada (The) Pulp Company, grinders for making pulp from wood.....	17,308
Carrick, W., ribbon or label holder for hats.....	17,394
Carson, W. C., sash holders.....	17,292

Carter, J. R., et al., black leaf check book.....	17,160
Cary, A., et al., barbed wire for fences.....	17,176
Case, A. W., pipe wrenches.....	17,229
Catchpole, A., et al., heating apparatus.....	17,355
Chambers, P. F., hay elevators.....	17,251
Chartler, E., plastering walls.....	17,114
Chilson, E., et al., sad irons.....	17,163
Church, H. L., et al., freezing apparatus.....	17,134
“ M. B., coils.....	17,147
“ feed regulator for grinding mills.....	17,231
“ coating and painting.....	17,232
“ grinding mills.....	17,257
“ ventilator and draft regulator.....	17,256
Clancy, P. G., carriage body supports.....	17,200
Clarke, J. A., et al., door locks.....	17,170
Clark, M., et al., cash and parcel carrier.....	17,182
Cleveland, E. L., car trucks.....	17,122
Climax (The) Cradle Co'y, cradles.....	17,401
Codd, H., bottles for aerated liquids.....	17,153
Colby, C. C., et al., boots and shoes.....	17,164
Cole, J. W., saw tables.....	17,350
Cook, J. M., et al., grate fire places.....	17,300
Coombs, H. F., life boats.....	17,226
Cooney, J. W., fire escapes.....	17,233
Cornee, W. P., et al., boots and shoes.....	17,164
Coté, L., lasting boots and shoes.....	17,351
“ shaping boot and shoe counters.....	17,252
Cox, R. M., sewing machine.....	17,392
Cramer, P., et al., boxes for shafting.....	17,306
Crawford, W. M., et al., pretzel cutters.....	17,244
Cummer, F. D., governors for steam engines.....	17,387
Cutler, H., grain dryers.....	17,304
Davidson, T., tubular lanterns.....	17,136
Davis, A., et al., berth for sleeping cars.....	17,104
“ C. J., et al., snap and buckle.....	17,167
“ R. J., animal slinging railways.....	17,277
Dayson, W., et al., fence posts.....	17,129
Day, G. F., medicinal compound.....	17,296
Dean, J., small boats.....	17,282
De Lancey, J. J., balance slide valves.....	17,145
Derby, G. M., rock drills.....	17,203
Desmond (The) Injector Co'y, steam injectors.....	17,312
De Voe, F. F., iron fence.....	17,314
Dillman, A., et al., barbed wire fences.....	17,171
Dillon, W. S. F., et al., lock nuts.....	17,181
Dineen, J., sewer joint.....	17,238
Dion, A., et al., nut locks.....	17,212
Dodge, W. H., et al., pulleys.....	17,243
Donnelly, M., et al., sash lifters and fasteners.....	17,387
Dubois, J. S., et al., under-ground conduits for electric wires.....	17,315
Dubord, E., et al., nut locks.....	17,212
Dunn, L. F., nickel plating.....	17,380
Durkee, E. W., wire-coiling machines.....	17,245
Durocher, Z., apparatus for moving thrashing machines.....	17,365
Dutton, C., et al., swivel hooks.....	17,138
Dwyer, J., heating stoves.....	17,338
Earhart, G. W., et al., pretzel cutters.....	17,244
Eaton, B. D., et al., fastening for gloves and mittens.....	17,161
Eddy, A. C., compounds of caoutchouc.....	17,285
Elliott, C. W., et al., sash lifters and fasteners.....	17,387
“ G. R., et al., cash and parcel carrier.....	17,162
Ellis, G. B. and J., horse powers.....	17,169
Enright, J., traction wheels.....	17,113
Erdman, R., combination tools.....	17,335
Everett, C. A., wire fence machines.....	17,313
Farnum, W. C., et al., weighing scales.....	17,407
Farrington, L., et al., carriage bodies.....	17,371
Fay, G., newspaper wrappers.....	17,234
Feler (The) and Stowell Co'y, machine for feeding the carriage of saw mills by system.....	17,357
Fieroe, C., staining, graining and ornamenting walls.....	17,334
Fisher, A. A., et al., washing textile fabrics.....	17,286
“ G. F., lanterns.....	17,167
“ L. G., Jr., et al., ventilators.....	17,180
Fleming, J. A., insulating materials.....	17,192
Foster, W. F., device for lacing gloves.....	17,130
Fox, H. C., sad irons.....	17,318
“ S., stuffing boxes.....	17,116
Frazier, J. M., fish traps.....	17,345
Freeland, R., soap-making machinery.....	17,360
Fromm, W. H., hydrants.....	17,236
Gage, M. L., tea chest attachments.....	17,330
Galbraith, A., felloe and spoke tighteners.....	17,212
Gardner, A., cheque and account book.....	17,205
Gartner, J., screw propellers.....	17,123
Gates, R. D., pulverizing machines.....	17,142

Gathman, L., manufacture of flour.....	17,252	McPherson, J. D., machine for setting tires.....	17,107
Gause, W., et al., mowing machines.....	17,208	" J. G., sand dryers.....	17,105
Gibson, W., tles for securing bags, bales, etc.....	17,324	McTigue, W. J., nut locks.....	17,337
Gilbert, L. G., et al., grease cups.....	17,311	Macdonald, J., levels.....	17,141
Goold, E. L., et al., seedling machines.....	17,168	Mace, C., et al., inclined plane and sled.....	17,165
Grafton, E. W., bed bottoms.....	17,132	Macfarlane, T., sulphide of zinc.....	17,382
Gray, L. B., insulator for electric wires.....	17,197	Magin, M., faucets.....	17,271
Grieves, J., et al., system of laying electrical conduc- tors.....	17,216	Manny, J. P., harvesters.....	17,143
Grip (The) Printing and Publishing Co'y, et al., black leaf check book.....	17,166	Marcoux, M., shingle machines.....	17,133
Gross, F., air fixture brackets.....	17,227	Maxim, S., oil lamps.....	17,111
Groves, L. S., apparatus for generating and carburet- ting hydrogen gas.....	17,402	Maxwell, D., et al., harvester binders.....	17,112
Haddon, T. D., et al., drive well points.....	17,369	Meagher, M. W., et al., nut locks.....	17,295
Hamilton, J. B., organs.....	17,193	Menze, F. W., snow removers.....	17,375
Hammond, J. T., machine for feeding nail plates.....	17,364	Merrill, H., et al., swivel hooks.....	17,138
Haggood, H. L., match machines.....	17,246	Mignault, O., stump extractors.....	17,121
Harland, W. S., milk pans.....	17,379	Miller, E. G., et al., grease cups.....	17,311
Hart, C. W., blacking boxes.....	17,332	Mitchell, B., et al., washing machines.....	17,183
Hartwich, F. F., straw stackers.....	17,336	Moen, E. A., et al., barbed wire for fences.....	17,176
Hanck, A., peg cutters.....	17,318	Moore, H. F., apparatus for preparing mash for fer- mentation.....	17,342
Heale, H. P. & S. M., et al., automatic metallic packing for piston rods, etc.....	17,287	Moore, S. E., bed bottoms.....	17,119
Heine, A., et al., centrifugal flour bolts.....	17,320	" Z. S., et al., pillow sham holders.....	17,297
Henderick, O., syringes.....	17,368	Moran, W. J., vehicle springs.....	17,376
Hernstaut, E. M., et al., car couplings.....	17,172	Morse, H. T., water wheels.....	17,363
Hiestor, C. E., et al., hammocks.....	17,302	Madelhoffer, J. W., et al., barbed wire fences.....	17,171
Hill, H. N., windmill.....	17,278	Nedon, J. et al., pillow sham holders.....	17,297
Hilliard, T. J., draw bars and car couplers.....	17,303	Neff, C., wooden bowls.....	17,118
Hilton W., et al., sad irons.....	17,163	Newlin, W., et al., vehicle wheels.....	17,166
Hobbs, J., apparatus for treating artificial butter, etc.. " oleomargarino butter.....	17,208 17,290	Ney, F. H. C., dryer and cooler.....	17,259
Hochhausen, W., electric lamps.....	17,358 17,395	" J., et al., hay fork.....	17,174
Hodson, J. T., fire escapes.....	17,231	" (The) Manufacturing Co'y, et al., hay fork.....	17,174
Hoever, W. A., apparatus for drying glue.....	17,108	Nichols, F. B., fish meal.....	17,137
" glue stock washer.....	17,109	Noble, G. C., et al., boots and shoes.....	17,164
Holcomb, A. P., et al., centrifugal flour bolts.....	17,320	O'Dell, A. & M. H., washing machines.....	17,183
Holden, W. R., et al., nut locks.....	17,182	Olney, S. P., saw gummers.....	17,328
Holland, H., horse shoes.....	17,276	O'Neil, J., sad iron holders.....	17,280
Horton, H. L., et al., hammocks.....	17,302	" M. B., clothes pins.....	17,203
" J. A., friction movement.....	17,363	Ortman, B. F., et al., grease cups.....	17,311
Howard, H. B., bed bottoms.....	17,128	Osgood, R. R., dredging machines.....	17,154
Huffman, M., washing machines.....	17,260	Pancoast, D. P., et al., underground conduits for elec- trical wires.....	17,316
Huntress, J. H., et al., swivel books.....	17,138	Park, J. A., et al., buckles.....	17,372
Huth, C. A., car couplings.....	17,317	" " snap and buckle.....	17,167
Ireland, J. S., J. and D., et al., fastening for gloves and mittens.....	17,161	Parker, L. C., gas engines.....	17,362
Irvine, L. L., and L. L., sectional pulleys for belts.....	17,347	Parrett, R. J., et al., automatic window screen.....	17,279
Jarecki, F., lubricators.....	17,386	Parrish, W. H., et al., combined header, thrasher and separator.....	17,178
Jones, H. E., mouth-piece for cornets.....	17,117	Parsons, C. H., [elliptic] springs.....	17,374
Kelle, E., et al., freezing apparatus.....	17,134	Pattee, S., et al., artificial horizon for sextants, octants, etc.....	17,173
Kennedy, A. H., geometrical blocks.....	17,189	Peck, E. S., et al., weighing scales.....	17,407
" J., dredging machines.....	17,159	Phelps, A. H., et al., pillow sham holders.....	17,297
" L. B., brick machines.....	17,190	Phillon, G., et al., pulleys.....	17,243
Kent, W. H., et al., boots and shoes.....	17,104	Phillips, W. L., spring bed bottoms.....	17,194
Kimball, W. H., lamp extinguisher.....	17,294	Plummer, W. S., combined heater and base for dryers.....	17,388
King, J. D., adjustable chairs.....	17,160	Plummer, W. S., drying chambers for fruit evapora- tors.....	17,322
Kline, L. T., log rollers.....	17,273	Pott, H. A., harness loops.....	17,333
Knowlton, E. R., et al., barbed wire fences.....	17,171	Potter, G. L., et al., churns.....	17,177
Kortum, C. M. E., couplings for ropes.....	17,343	Pratt, S. L., button fastenings.....	17,219
Krueger, J. W., carriage and cradle.....	17,258	" " button setting machine.....	17,218
Lacke, L., et al., candlesticks.....	17,214	Pringle, E., " for gloves.....	17,221
Lancaster, J. H., pipe reamers.....	17,211	Fryor, H. B., grain cutting machine.....	17,186
" " screw cutting tools.....	17,305	Rarey, J. P. B. and D., car couplings.....	17,184
Lanning, J. D., et al., buckles.....	17,372	Raymond, M. M., baby jumpers.....	17,341
Lantz, W. H., et al., device for taking coal in loco- motive tenders while in motion.....	17,309	Reid, F., feeder for mill rolls.....	17,221
Lappin, J. J., brake shoes.....	17,213	Richardson, S. T., hoisting gins.....	17,373
Larsen, A., compound for forming suppositories.....	17,329	Rix, B. F., harrows.....	17,139
Lauder, W. T., tool holders.....	17,364	Robertson, J. H., telephone.....	17,195
Laycock, W. S., window blinds.....	17,149	Robinson, G., et al., nut locks.....	17,182
Lehmann, W., grinding disks.....	17,325	Roesch, G. R., et al., car brakes.....	17,255
Leslie, W. jr., crushing witbes.....	17,179	Roos, E., boots.....	17,248
Leve, G., et al., berth for sleeping cars.....	17,104	Rowe, W., et al., door locks.....	17,170
Lewis, G. T., oxides of lead.....	17,140	Ruggles, N., et al., sash lifters and furnaces.....	17,367
Lindop, C. F. and W. E., apparatus for changing back grounds.....	17,288	Russ, J. H., balance shade roller.....	17,389
Linklater, T., heating furnaces.....	17,377	Ryrie, R. A., et al., drive well points.....	17,369
Loring C. T., support for telephones and transmitters.....	17,385	Sanford, A., sleds.....	17,291
Lowe, C. W., mowing machine.....	17,267	Sangster, M. E., medicinal compound.....	17,331
Lynch, J., lumber dryers.....	17,120	Scarr, A. C., fence locking device.....	17,188
McKay, W., plastic cement.....	17,239	" " W. C., rail fences.....	17,226
McKinnon, S. E., shaft coupling.....	17,209	Schuyler, D. A., dynamo electric machine.....	17,191
McLain, E. L., horse collar pads.....	17,269	Scribner, J. M., et al., churns.....	17,177
McLeod, J. S., automatic air railroad signal.....	17,225	Shadbolt, C. T., washing machines.....	17,391
" T. M., lamps.....	17,240	Shannon, A. G., stencil printing machines.....	17,223
McLintock, C. H., et al., boots and shoes.....	17,164	Sheffield, G. S., et al., hand cars.....	17,289
		" (The) Velocipede Car Company, et al., hand cars.....	17,299

Sherman, C., et al., candlesticks.....	17,214	Thomson, E., electric arc lamps.....	17,397	17,398
Shlmer, S. J., cutter heads.....	17,299	" R. W., grooming brushes.....		17,224
Shorts, R., snow ploughs.....	17,270	Tobin, T., chamfering chambers.....		17,340
Slater, S., cranial tractors.....	17,348	Tomlinson, W. M., et al., boots and shoes.....		17,161
Sloper, B., hydro-carbon furnaces.....	17,220	Tongas, L. T., apparatus and method for cutting elastic soles or heels.....		17,326
Schmidt, C., et al., sickle bar.....	17,301	Toombs, J. E., windmills.....		17,400
Smith, L., grain elevators.....	17,247	Torrey, D., railroad brakes.....	17,263	17,264
" N., binding chains.....	17,128	Tostevin, T., rail chairs.....		17,878
(The Manufacturing Company, machine for cutting wooden plates.....	17,310	Tremblay, E., medicinal syrup.....		17,215
Sollers, N. D., net knitting boards.....	17,806	Trenor, J. J. D., watch dials.....		17,350
Spaulding, E. F., et al., fence posts.....	17,262	Troy, R., et al., washing textile fabrics.....		17,286
Spann, A. F., fire extinguishers.....	17,307	Valle, J. W., pumping engines.....		17,346
Stanly, N. K., bottle tags.....	17,384	Van Duzen, E. W., lubricator for loose pulleys.....		17,272
Staples, J., railway frogs.....	17,146	Wance, S., et al., car brakes.....		17,285
Steber, B. T., machine for making paper or other boxes.....	17,344	Waplington, W. W., metallurgic gas furnaces.....		17,110
Steel, R., et al., inclined plane and sled.....	17,165	Warren, A., et al., car trucks.....		17,399
Stevens, J. C., apparatus for brazing metals.....	17,323	Watkins, C., spring lever rotary swing.....		17,115
Stewart, D., et al., nut locks.....	17,162	Weaver, J. H., et al., drive chain.....		17,136
Stiles, N. C., bath for press copying.....	17,237	Webster, J. F., pencil fasteners.....		17,204
Stocker, J., et al., sickle bars.....	17,301	Weeks, W. M., felt boots and shoes.....		17,249
Stuart, A., creamers.....	17,187	Weller, S. P., et al., car brakes.....		17,235
Stubbendorff, H., et al., boxes for shafting.....	17,366	Whealy, J., steam ploughs.....		17,393
Sturgin, T., gates.....	17,390	Wheat, C., et al., heating apparatus.....		17,355
Swan, A., electric lamps... 17,198 17,199 17,200 17,201	17,202	White, J., hat holders.....		17,235
Switzer, W. C., post hole diggers.....	17,383	Whitehall, S., et al., vehicle wheels.....		10,156
Tennent, T., et al., artificial horizon for sextants, octants, etc.....	17,173	Whiting, H. W., et al., hydro carbon vapour generators and burners.....		17,281
Terry, S. C., et al., car trucks.....	17,399	Whiting, H. W., et al., vapour generator.....		17,283
Thayer, J. M., car heaters.....	17,339	Wilbur, A., flanging machines.....	17,151	17,152
Thigpen, J., car couplers.....	17,275	Wisner, J. O. and W. S., et al., seeding machines.....		17,168
Thomas, J., device for applying anti-friction rollers to journal boxes.....	17,321	Wittman, J. M., music leaf turner.....		17,106
Thompson, T. P., kerosene oil lamps.....	17,253	Wright, J. J., commutator and regulator for dynamo electric machines.....		17,319
Thomson, C., fish meal.....	17,137	Wright, J. J., regulator for electric lamps.....		17,158
		Yale, G., manufacture of fuel.....		17,131