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The Canadian Patent Office Record

Vol. VIII.—No. 10. OCTOBER, 1880. { Price in Canada $2.00 per An. / United States - $2.50 "

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INVENTIONS PATENTED.

No. 11,659. Improvements on Back Stay for Shoes. (*Perfectionnements aux renforts des souliers.*)

Charles E. Whittlesey and Samuel A. Stevens, New Haven, Ct., U. S. 19th August, 1880; for 5 years.

Claim.—A heel stay shaped from leather or other suitable flexible material and adapted for attachment to the inside of the finished shoe.

No. 11,660. Improvements on Chromatic Printing Machines. (*Perfectionnements aux machines à imprimer en couleur.*)

George M. Wright, Philadelphia, Pa., U. S., 19th August, 1880; for 5 years.

Claim.—1st. The platen D, in combination with the double crank shaft G, cross heads F and yokes E. 2nd. The platen D, in combination with the yokes E, provided with stems H, and the base *a*. 3rd. The platen D, in combination with the weighted levers V, pivoted to the base *a* and bearing against the stems H. 4th. The inking rollers J and guided boxes or bearings J_1, in combination with the jointed arms K, rock shaft L, arm M_1 nd cam M. 5th. The vibrating rollers S, in combination with the hinged bar T, consisting of two or more pieces hinged together, and each hinged to the frame A and provided with ears *m*. 6th. The cylinders N N_1 N_{11}, the intermittently operated fountain roller Q and oscillating roller P. 7th. The stop or throw off Z, in combination with the elbow lever X, which carries the pawl of the feed ratchet. 8th. The ratchet W, pawl W_1, elbow lever X, screw or throw off Z, and telescopic piece Y, in combination with the feed rollers. 9th. The combination with the feed rollers, of the telescopic piece Y, spring *t* and adjusting nut t_1.

No. 11,661. Improvements on Bolt Fastenings. (*Perfectionnements aux arrête-boulons.*)

Edward Leslie, Orangeville, Ont., 21st August, 1880; (Extension of Patent No. 11,004.)

No. 11,662. Improvements on Bolt Fastenings. (*Perfectionnement aux arrête-boulons.*)

Edward Leslie, Orangeville, Ont., 23rd August, 1880; (Extension of Patent No. 11,004.)

No. 11,663. Governor for Horse Power. (*Gouverneur de manége.*)

Josiah D. Heebner, Marritonville, and Anthony H. Seipt, Skippackville, Pa., U. S., 24th August, 1880; (Extension of Patent No. 5,119.)

No. 11,664. Governor for Horse Power. (*Gouverneur de manége.*)

Josiah D. Heebner, Marritonville, and Anthony H. Seipt, Skippackville. Pa., U. S., 25th August, 1880; (Extension of Patent No. 5,119.)

No. 11,665. Improvements on Car Links. (*Perfectionnements aux chaînons des chars.*)

Allen Middleton, Philadelphia, Pa., U. S., 26th August, 1880; for 5 years.

Claim. A weldless link of steel, the ends of which are re-enforced in thickness and in which the grain of the metal is straight throughout.

No. 11,666. Improvements on Boat Sliding Seats. (*Perfectionnements aux siéges des bateaux en coulisse.*)

Octavius L. Hicks, Etobicoke, Ont., 26th August, 1880; for 5 years.

Claim.—The combination of the rollers or wheels G G, which may be loose or fixed on their axis, concave or convex on their surface, or fixed in such a manner as to carry the seat on their circumference and run on the tracks B B.

No. 11,667. Improvements on Rollers for Printing, Dyeing, Embossing and other like purposes. (*Perfectionnements aux rouleaux pour imprimer, teindre, bosseler et autres fins semblables.*)

Joseph J. Sachs, Manchester, Eng., 26th August, 1880; for 5 years.

Claim.—Casting Spence's metal, or other metal or composition of a like nature, in a tube of copper, brass or other suitable material.

No. 11,668. Improvements on Machines for Grinding and Reducing Grain and other Materials. (*Perfectionnements aux machines à triturer et réduire le grain et autres objets.*)

John Stevens, Neenah, Wis., U. S., 26th August, 1880; for 5 years.

Claim.—1st. A grinding mill or cylinder having a dress composed of a series of rounded ribs with the advancing sides of easy bevel, and the retreating sides of sharper bevel. 2nd. A grinding concave having a dress composed of a series of rounded ribs, with the sides opposed to the revolution of the cylinder of easy bevel and the other sides of sharper bevel. 3rd. In a grinding mill, the combination of a cylinder having a dress composed of a series of parallel rounded ribs with a concave having a dress composed of a series of parallel rounded ribs of easy bevel, on the sides opposed to the revolution of the concave and of sharper bevel on the other sides. 4th. The combination of a cylinder having a dress composed of a series of rounded ribs of which the advancing sides are of easy bevel and the retreating sides of sharper bevel, with a concave having a similar dress applied reversely to that upon the cylinder, so that corresponding faces of the ribs may meet. 5th. The concave journalled in sliding blocks, in combination with the rearwardly extending lever rigid therewith, and the adjusting screw working in such lever. 6th. The concave journalled in sliding blocks, in combination with the rearwardly extending lever rigid therewith, and an adjusting screw working in or against such lever and taking into a swivel block on the frame. 7th. The combination, with the concave mounted in sliding blocks, of the adjusting screws for determining its maximum of retreat from the cylinder, and the springs for holding it against such cylinder. 8th. The combination, with the concave mounted in sliding blocks, of the adjusting screws for determining its maximum of retreat from the cylinder, springs for holding it against the cylinder and means for adjusting the stress of such springs without affecting the adjustment of the screws. 9th. The combination, with the concave mounted in sliding blocks, of the adjusting screws for determining its maximum of retreat from the cylinder, springs for holding it against the cylinder coiled about such adjusting screws and nuts upon the screws to adjust the stress of the springs. 10th. The combination with the concave mounted in sliding blocks, of adjusting screws having their heads at the exterior of the machine passing through the frame and threaded into such blocks, and bearing against the pillow-blocks of the cylinder, to determine the minimum of distance between said cylinder and concave. 11th. The combination of the concave mounted in sliding blocks, of springs to press against the cylinder and adjusting screws having their heads at the exterior of the machine passing through the frame and threaded into pillow blocks, of the concave and bearing against the pillow blocks, of the cylinder to determine the limit of approach of said concave to the cylinder. 12th. The combination, with the sliding blocks in which the concave is mounted, of springs to press it against the cylinder, adjusting devices to determine its maximum of retreat from said cylinder and adjusting devices to determine the minimum of distance between the two. 13th. The combination of the concave, the adjusting screws E to determine its maximum by retreat from the cylinder, and the adjusting screws F passing axially through the former threaded into the sliding blocks of the latter and bearing against the pillow blocks of the cylinder, to determine the minimum of distance between the

concave and cylinder. 14th. The combination of the concave, the screws E with their springs and adjusting nuts, and the screws F passing axially through the first named screws. 15th. The combination, with the sliding blocks c having bearings for the journals of a grinding agent, of the adjusting screws F threaded through said block and bearing against the block, in which the converse grinder is mounted, to determine the minimum of distance between the two grinding surfaces. 16th. The combination, with the sliding block c having bearings for the journals of the grinding agent, of the adjusting screws E and the adjusting screws F passing axially through the latter and threaded into and through the sliding blocks to bear against the pillow blocks of the converse grinder. 17th. The combination of the screws for determining the maximum of retreat of the concave, the sliding blocks, the concave journalled therein, the lever extending rearwardly from the concave and the adjusting screw working in the lever, and taking into a swivel block upon the frame. 18th. The combination of the screws for determining the maximum of retreat of the concave, the springs upon such screws, the sliding blocks, the concave journalled therein, the lever extending rearwardly from the concave and the adjusting screws working in the lever and taking into a swivel block upon the frame. 19th. The combination of the screws for determining the maximum of retreat of the concave, the screws for determining the minimum of approach of such concave, the sliding blocks, the concave journalled therein, the lever extending rearwardly from the concave and the adjusting screw working in the lever and taking into a swivel block upon the frame.

No. 11,669. Hose Coupling. (*Manchon de boyau.*)

John Amor, Hamilton, Ont., 26th August, 1880; (Extension of Patent No. 5,135.)

No. 11,670. Improvements on Moccasin Ties. (*Perfectionnements aux courroies des mocassins.*)

Phillipe Vincent, Jeune Lorette, Que., 26th August, 1880; for 5 years.

Claim.—The heel loop and ring F in combination with a moccasin having loops or other public devices for the passing through of the string or lace.

No. 11,671. Improvements on Salt Sowers. (*Perfectionnements aux semoirs à sel.*)

John Harrison and Caleb Caister, Woodstock, Ont., 26th August, 1880; for 5 years.

Claim.—The cylinder crusher C driven by the wheel D D and the pinion E, and revolving in the concave bottom of the hopper B, in combination with the adjustable aperture *c*.

No. 11,672. Improvements in Machines for Grooving Pipes. (*Perfectionnements aux machines à canneler les tuyaux.*)

Garret P. Roseboom and Charles S. Trowbridge, Auburn, N. Y., U. S., 26th August, 1880; for 5 years.

Claim.—1st. The combination, with a cylindrical die D constructed with a peripheral screw thread and secured to a rotating shaft *d* which is provided with a screw thread *e* working in a threaded bearing *f*, of a circular die K rotating in the same plane with the cylindrical die and having no motion in the line of its axis, and means whereby a positive rotary motion is imparted to the circular die. 2nd. The combination, with a rotating cylindrical die constructed with a peripheral screw thread, and means whereby the cylindrical die is positively moved in line with its axis, of a circular die rotating in the same plane with the cylindrical die, and having no motion in the line of its axis, and means whereby the circular die is rotated with greater peripheral speed than the cylindrical die.

No. 11,673. Improvements on Weather Strips. (*Perfectionnements aux bourrelets des portes.*)

George W. Bell, St. Joseph, Mo., U. S., 26th August, 1880; for 5 years.

Claim.—The door B and moulding *a* having spring *c* with arm *d*, in combination with the hinged weather strip C, and rod E connected to the moulding and weather strip, one end of the rod projecting beyond the end of the strip and moulding.

No. 11,674. Improvements in Locks. (*Perfectionnements aux serrures.*)

Flewwelling W. Taft, Montreal, Que., 26th August, 1880; for 5 years.

Résumé. 1o. Le ressort H en combinaison avec le fermoir F ou le loquet d_5 ou F_1 d_6 F_3 F_4, et les dits fermoir et loquet procédant comme équivalents de l'un quelconque, et le dit ressort H. 2o. En combinaison avec les fermoir and loquet F F_1 F_3 F_4 et d_5 d_6, les clefs fixes J_6 J_7 et les clefs de poche J_3 J_4 J_5 J, ou toutes autres clefs procédant d'icelles ou employées comme équivalant aux présentes clefs. 3o. En combinaison avec un couvercle de boite ou quelconque, l'angle l_3 de l'armature E, chevilles e, et à biseau e_1, trous e_2 et avec ou sans contre-armature G.

No. 11,675. Improvements in Bakers' Ovens. (*Perfectionnements aux fours de boulangeries.*)

Thomas Hunter, Toronto, Ont., 26th August, 188 ; (Re-issue of Patent No. 10,702.)

Claim. 1st. A fire pot or furnace placed within a baker's oven, below the sole thereof, and provided with a door situated above the grate. 2nd. A fire pot or furnace placed within a baker's oven provided with a door above the level of the sole of the oven and connected to the said furnace by an inclined guide. 3rd. A flue H leading from below the grate B to the flue E. 4th. A baker's oven provided with a circular tilting grate situated below the sole of the oven and provided with a door. 5th. A cinder grate K placed beneath the fire grate B, in combination with a flue H.

No. 11,676. Improvements in Bolting Machines. (*Perfectionnements aux machines à bluter.*)

Charles J. Shuttleworth (co-inventor with Orville M. Morse), Springville, Joseph D. Larabee, Ashford, George P. Kellogg, East Pike, Edward Wilhelm and John J. Bonner, Buffalo, N. Y., U. S., 28th August, 1880; for 5 years.

Claim.—1st. The combination of the mechanism C, whereby the material to be bolted is elevated, an inclined bolting surface D facing the descending side of the elevating mechanism, and a similar bolting surface D^1 facing the ascending side of the elevating mechanism. 2nd. The combination with mechanism C, whereby the material to be bolted is elevated of an inclined bolting surface D arranged to face the elevating mechanism, and divided into two independent sections arranged side by side, each section being provided with independent discharge devices for the material rolled through each section. 3rd. The combination, with an elevating mechanism C, of an inclined bolting surface D facing the elevating mechanism J, and a feed mechanism J, whereby the material to be rolled can be introduced into the machine at a greater or less distance from the head thereof. 4th. The combination, with an elevating mechanism C and an inclined bolting surface D composed of two independent sections arranged side by side, of a feed mechanism J provided with a separating screen M, whereby the coarse bran is separated and conducted to the head of the first section of the bolting surface together with the re-ground middlings, and the material passing through the screen is admitted to the machine at the head of the second section of the bolting surface. 5th. The combination, with an elevating mechanism C, of an inclined bolting surface D facing the elevating mechanism and deflecting boards O, whereby the motion of the material through the machine is regulated. 6th. The combination, with the elevating mechanism C, of the inclined bolting surface D composed of two sections arranged side by side and the spout Q receiving the material bolted through the tail portion of the head section. 7th. The combination, with the elevating mechanism C, of the inclined bolting surface D, the feed chamber H provided with a series of discharge openings in its bottom, and the conveyor J arranged on the bottom of the feed chamber H. 8th. The combination, with the elevating mechanism C and inclined bolting surface D, of the feed chamber H, screen M arranged in said chamber, the opening *h* which admits the tailing of the screen to the head of the machine, the conveyor J receiving the material which passes through the screen, and one or more discharge openings h^4.

No. 11,677. Improvements in Pocket Match Boxes. (*Perfectionnements aux étuis à allumettes.*)

Augustus B. Wood and Moses A. Rice, Hamburg, Ark., U. S., 28th August, 1880; for 10 years.

Claim.—1st. A match-box formed by the combination of the plates A having their forward side edges bent inward, the spring catch bar B b_1, the hinged bar C and its spring D, the slide E and its foot or hook e_1, the end bar F having its forward end bent outward, and the pivoted friction-block G and its spring H with each other.

No. 11,678. Improvements on Diaphragm Pumps. (*Perfectionnements aux pompes à diaphragme.*)

Jacob Edson, Boston, Mass., U.S., 28th August, 1880; for 5 years.

Claim.—1st. In a diaphragm pump, the stationary supporting surface a_{III} having annular bars a_V a_V, grooves a_{IV} a_{IV} and radial grooves a_{VI} a_{VI}, and reciprocating supporting surface e_1 with its radial supporting bars e_{II} e_{II}, and annular ring e_{III} combined with a flexible diaphragm *c*. 2nd. The suction valve *i* with its tapering top i_1, conic frustum i_{III} and chamber i_{III} combined with the lift valve *h* having conical recess h_1 and inclined projections h_{II} h_{II}. 3rd. In a ship's pump, the lift valve *h* with its upper annular recess h_{III}. 4th. The suction valve *i* with its conical projection i_{II}, provided with finger hole i_{IV} and hook hole i_V. 5th. In a diaphragm ship's pump, the piston *e* with its posts e_V e_V and cross head *f*, in combination with the lift valve *h*, the automatic adjustable valve stops and weight *k* having a slot hole k_1 and guide piece k_{II}. 6th. The moulded rubber diaphragm *c* adapted to fit, when at rest, the conical bearing or supporting surface a_{III}. 7th. In combination with the cross head *f* and its concentric surfaces f_1 f_{II}, the lever *l* with its recess l_1, lip l_{II}, simicircular sleeve l_{IV} and the skeleton bearing b_{III} with its tee-headed fastening bolt *n*. 8th. In a ship's pump, the inclined lever *l* with its tapering socket l_{III}, in combination with the reversible handle *m*. 9th. In combination with a ship's pump, the head *b* with its delivery place or nose b_1 provided with projections b_2 b_{II}. 10th. The combination, with the base a_1 a_1 and flexible diaphragm *c* of a ship's pump, of the upper head piece *b*. 11th. In combination with the handle *m*, the adjustable balance weight m_1 having set screws m_{II}.

No. 11,679. Improvements on Steam Boiler Tube Cleaners. (*Perfectionnements aux nettoyeurs des bouilleurs des chaudières à vapeur.*)

Stephen C. Taft and Fenner Darling, Franklin, Mass., U. S., 28th August, 1880; for 5 years.

Claim.—1st. A boiler tube cleaner adapted to be forced through the tube and provided with rotating scraper blades or cutters, actuated by jets of steam impinging thereon. 2nd. The combination, with the hollow body or casing A adapted to be secured to the end of a steam pipe and forced through the boiler tube, of the curved or inclined rotating scraper blades or cutters E pivoted to the spool or hub D, revolving on the journal or spindle C and actuated by jets of steam issuing from passages or discharged outlets *f* in the body A. 3rd. The combination with the hollow body A provided with steam discharge outlets *f*, of the revolving spool or hub D provided with pivoted scraper blades or cutters E and auxiliary steam blades *g* arranged between the blades E. 4th. The combination, with the hollow body A and its rotating scraper blades or cutters E, actuated by jets of steam, of the tapering guide H composed of a series of rigid or spring arms or bars *i* inclined toward the axis of the implement and applied to the front end thereof. 5th. The combination, with the rotating spool or hub D, of the curved or inclined

scraper blades or cutters E having their rear portions 12 pivoted between the flanges *d e* and adapted to strike the spool so as to limit the outward throw of their cutting edges 10. 6th. The body A provided with a steam passage or discharge exit *h*, for the purpose of conducting steam from the steam chamber to the space between the rotating spool D and its spindle or journal C.

No. 11,680. Improvements on Ageing and Purifying Whisky and other Liquors. (*Perfectionnements dans la méthode de vieillir et épurer le whisky et autres liqueurs.*)

George Goewey and George F. Godley, Philadelphia, Pa., U. S., 28th August, 1880; for 5 years.

Claim—1st. The combination of an inner vessel of conical or other form, and an outer surrounding vessel of larger dimensions, whereby a continous space is formed between the two vessels which is filled with atmospheric air at its natural temperature, the inner vessel being perforated to admit of the forcing of whisky, or other spirituous liquor, from the interior of the vessel at a temperature of from 120 to 165 degrees Fahrenheit through the perforations, whereby it is broken up into small particles or atoms before coming into the atmosphere at its natural temperature in said surrounding space. 2nd. The process of ageing and purifying liquors which consists in breaking up the whisky or other liquor in a heated state, and commingling it with atmospheric air at its natural temperature and withdrawing the excess of air from the liquor. 3rd. The combination of a perforated vessel F of conical or other form, air-tight jacket D, cylinder C1 having a steam jacket E, and cylinder C2 having a jacket E1. 4th. The combination of a series of cylindrical or other vessels C C1 C11, with the tank A, perforated vessels F F1 air jackets D D1, air tank B having pipes *a a1 a11*, and steam jacket E E1 having in connection steam pipes *b b1*.

No. 11,681. Improvements in Spring Scales. (*Perfectionnements aux pesons à ressorts.*)

Chauncey C. Parker and Simon B. Parker, Brooklyn, N. Y., U. S., 28th August, 1880; for 5 years.

Claim.—1st. A spring scale having its outer casting formed from a continuous coil of wire, the coils being compressed together and secured by soldering. 2nd. The casing A, index bar *b* and spring *a*, in combination with the indicator consisting of the slide *h* and pointer *i*. 3rd. A spring scale consisting of the casing A, bar *b*, spring *a* and the slide *h*, with the pointer *i*, said bar *b* having pivoted to it the bail B.

No. 11,682. Improvements on Pipe Crimping Machines. (*Perfectionnements aux machines à cambrer les tuyaux.*)

Frank C. Packham, Mechanicsburg, Ohio, U. S., 28th August, 1880; for 5 years.

Claim.—1st. In a pipe crimping machine, the combination of two longitudinally corrugated rolls tapered in opposite directions, whereby they are caused to meet on a line at an angle to their axes. 2nd. The combination of a driving-roll and a driven-roll, both provided with longitudinal corrugations and made reversible end for end, arranged one with its small end opposite the large end of the other. 3rd. The combination of the two longitudinally corrugated rolls, one adjustable bodily to and from the other, and a supporting shaft for one of said rolls mounted on a pivot or bearing adjustable to and from the line of the axis of the other roll. 4th. In combination with the shaft having its end supported upon a point seated in a socket, the spring *e* bearing upon the shaft and serving to hold the point in its seat. 5th. In combination with the shaft provided with the screw c and spring *e*, the spring *f* for raising the shaft when relieved from pressure. 6th. In combination with the shaft G provided with spring *f* and screw c, the nut *d* serving both to retain the spring in place and as a jam-nut to prevent the screw from working loose. 7th. In combination with the shaft G provided with the screw *c* and spring *e* and mounted in the frame A, the detachable cap H. 8th. A crimping rod provided with one or more recesses in each end adapted to receive a pin or stud, whereby the roll is rendered capable of being turned end for end, and connected with the pinion in either position. 9th. In a machine for crimping pipe, the combination of a driving shaft, a non-rotating shaft, each furnished with a crimping roll, a pinion rigidly attached to the driving shaft and its roll, and a second pinion mounted loosely upon the non-rotating shaft, locked firmly to the roll thereon and gearing with the first pinion.

No. 11,683. Method of and Apparatus for Drying Paper. (*Méthode et appareil pour sécher le papier.*)

Nicolaus Kaiser, Grellinger, Switzerland, 28th August, 1880; for 5 years.

Claim.—1st.. The method of drying paper or pasteboard in continuous sheets, that is by the direct action of the hot air, gases or vapours. 2nd. The apparatus for drying paper or pasteboard in continuous sheets, consisting of the drying chamber fitted with rows of rollers or carrying devices arranged in two or more lines and with the inlet and outlet passages for heated air or gases. 3rd. In apparatus for drying paper or pasteboard in continuous sheets, the plates *i* combined with the carrying rollers *g*.

No. 11,684. Improvements on Pumps. (*Perfectionnements aux pompes.*)

Julius Morlock, Stephen, Ont., 28th August, 1880; for 5 years.

Claim.—The combination of bracket C, rod D, lever E, rod F, bracket G and handle B as a new device for attaching and operating pump handles from the outside.

No. 11,685. Improvements on Mechanical Musical Instruments. (*Perfectionnements aux instruments de musique mécaniques.*)

The American Automatic Organ Company, Boston, (Assignee of Oliver H. Arno, Wilmington), Mass., U.S., 28th August, 1880; for 5 years.

Claim.—1st. A music sheet, or a strip of paper or similar material provided with two parallel rows or lines of perforations successively alternating with each other. 2nd. A pair of levers arranged in relation to a valve, or its equivalent, and the strip of paper having a row of perforations for each lever, which rows of perforations are in parallel lines and otherwise disposed, as set forth, whereby one of said levers will operate to open the said valve D and the other to close the same. 3rd. The combination, with the pair of levers E E2, of the tilting lever H and of the valve D. 4th. The combination, with a pair of levers E E2, of a sliding valve arranged and connected for operation. 5th. The combination with a perforated strip of paper, of a sliding valve to a reed, said valve being arranged to be operated by mechanism through the perforations of said paper.

No. 11,686. Process for Obtaining Starch and Gluten from Indian Corn. (*Procédé pour extraire l'amidon et le gluten du blé d'Inde.*)

Lewis J. Bennett and Thomas A. Jebb, Buffalo, N. Y., U. S., 28th August, 1880; for 5 years.

Claim.—The process of obtaining the glutinous and starchy substances from Indian corn or maize, which consists in whipping or beating the corn, whereby the glutinous portions of the kernels are broken into coarse fragments and the starchy portions are reduced to flour, and then separating the fragments of glutinous matter from the starch flour by suitable sieves or bolts.

No. 11,687. Means for Preventing Explosions of Steam Boilers. (*Moyens d'empêcher les explosions des chaudières à vapeur.*)

Daniel T. Lawson, Wellsville, Ohio, U. S., 28th August, 1880; for 5 years.

Claim—1st. The method of preventing concussive strains in boilers due to the intermittent escape of steam into the cylinder, which consists in retarding or prolonging the flow of the steam from the water to the steam space through a greater length of time than is allowed for the escape of the same quantity of steam from the steam space. 2nd. A steam boiler adapted to carry a permanent bulk of water, having a partition dividing the main steam space from the water space with an opening in said partition of less area than the opening through which the steam is led from the steam space to the cylinder.

No. 11,688. Machine for Finishing Horseshoe Nails. (*Machine pour finir le clou à cheval.*)

Charles S. Watson, (Assignee of Charles W. Woodford,) Montreal, Que., 28th August, 1880; (Extension of Patent No. 7,065).

No. 11,689. Machine for Finishing Horseshoe Nails. (*Machine pour finir le clou à cheval.*)

Charles S. Watson, (Assignee of Charles W. Woodford.) Montreal, Que., 30th August, 1880; (Extension of Patent No. 7,065.)

No. 11,690. Improvements in Heel Trimming Machines. (*Perfectionnements aux machines à finir les talons.*)

Joseph Langlois, St. John, and Gustave Des Troismaisons, Montreal, Que., 30th August, 1880; for 5 years.

Claim.—1st. In a heel trimming machine the combination, with the trimming knife L1, of rod H1, provided with yoke *h1* and levers *h111*, sliding block I1, provided with set screws *i*, and socketed block I11, whereby the said knife is fixed in contact with the heel to be trimmed. 2nd. The combination with the knife L, knife frame L1 and knife supporter K1, of the plates I I11, the latter provided with pin *i*, socketed block I11, and knife lever K provided with diagonal slot *i11*, whereby the said knife L is adjusted in respect to the heel plate B. 3rd. The combination, with the knife L, of the lever K, knife supporter K1, provided with clamp and screw K11, and adjustable arched knife frame L, whereby the said knife may be adjusted and inclined. 4th. The combination with the knife L, of the plate I, block K11, screws *l l1* and lever K, whereby the said knife is moved to centre at the heel plate B1. 5th. The combination with the socketed block I11, knife supporter K1, levers *h111*, yoke *h1* and lugs *h*, of the sliding block I1 provided with set screw *i*, whereby the movement of the knife L toward the heel plate B1 is adjusted. 6th. The combination with the driving shaft F and sliding plate I, of the slotted eccentric M, slotted eccentric rod M1 and adjustable fulcrum M11, whereby the said sliding plate and its attachments are reciprocated backward and forward. 7th. As a means for adjusting the fulcrum M11, the clamp and screw *m*, hand wheel *m11*, cog wheel *m111* and rack N. 8th As a means for throwing the loose Pulley F11 in gear, the combination of the shaft F, clutch gear *f*, rod G and stud O. 9th. As a means for throwing the loose pulley F11 off gear, the combination of the shaft F, clutch gear *f*, rod G, levers P Q and stud O. 10th. The combination with the frame A1, of the revolving rod B, supporting heel plate B1, rack B11, and curve C provided with rod C1 and cog wheel c, holder E, clamp E1, sliding block C111, rest *c11*. 11th. As a means of holding a boot or shoe on the heel plate, the combination with the curve C and its attachments, of the lever D and rack B11

No. 11,691. Improvements on Grinding Mills. (*Perfectionnements aux moulins à triturer.*)

George Raymond and Albert Raymond, Wanpun, Wis., U. S., 30th August, 1880; for 5 years.

Claim—1st. The combination of two grinding discs, one of which is provided with a cheripheral flange, or a series of studs adapted and arranged to turn upon or in close proximity to the face of the other disk, to serve the double purpose of preserving exact parallelism between the disks and preventing the contact of their faces. 2nd. The combination of the grinding disk having the annular meal space surrounding the grinding face, and the peripheral flange surrounding the meal space, and the co acting disk adapted to run in close proximity to the flange to retain the meal, and provided with teeth *b1* traveling in the meal chamber. 3rd. The combination of the

shaft, the wooden pin and the grinding disk having the exposed hub to receive the pin, said parts being constructed to permit the instantaneous removal and replacement of the pin without removing or disconnecting the other parts. 4th. The combination of the shaft, the disk seated upon and firmly against the end of the shaft, and the wooden pin inserted and operated to turn the disk without receiving the pressure thereof, whereby the use of a weak pin is permitted without danger of its being broken by the grinding pressure. 5th. The grinding disk, provided with the teeth d^1 e^1 extending lengthwise in substantially the same lines or directions, but inclined in opposite directions in cross section. 6th. A disk grinder having internal abrupt cutting teeth and external backwardly inclined crushing teeth. 7th. The combination with the pendulous shaker h, the eccentric i adapted to vibrate the shaker. 8th. In combination with the inclined conductor d, the suspending cord f and winding spindle j. 9th. In combination with the two disks C F and the main frame, the adjustable guides m. 10th. In combination with the adjustable disk F, the swinging bar G, bolt O and nut p. 11th. In combination with the swinging bar G, bolt O and nut p, the dog s adapted to engage with and prevent the unscrewing of the nut. 12th. The method of constructing a grinding surface, consisting in casting a body with grooves or openings therein, and subsequently running or pouring molten metal into said grooves or cavities, whereby the body is provided with chilled grinding surfaces or projections. 13th. As a new article of manufacture, a grinder consisting of a cast metal body, and chilled sections or strips of metal cast therein

No. 11,692. Improvements in Turbines. (*Perfectionnements aux turbines.*)

John H. Staples, Worcester, Mass., U. S., 30th, August, 1880; for 5 years.

Claim.—1st. The turbine A as composed of the shaft sustaining head, the cylindro-conical bucket supporter. and the series of buckets arranged as set forth. 2nd. The chute E, annulus D grooved and provided with the annular packing n, in combination with the gate and the wheel. 3rd. The combination of the tubular standards K with the chute support ring D and the annular gates and its sustaining screw rods and nuts, and such gate being disposed with respect to the turbine and its chute. 4th. The combination of the tubular guard H applied to the stuffing box cap, with the said stuffing box, and the wheel and its shaft, and the chute and its dome, such wheel and chute having an annular gate.

No. 11,693. Improvements on Photographic Apparatus. (*Perfectionnements aux appareils photographiques.*)

John R. Mote, Antwerp, Ohio, U. S., 30th August, 1880; for 5 years.

Claim.—1st. In a photographic apparatus, the box having an inclined top closed by a sliding cover containing an eye piece or tube opening in the sides of such box, for the admission of coloured light, inclined shelves or partitions in the bottom of box to hold the bath-dish, and sleeves attached to the box on either side. 2nd. The eye tube A in the inclined top of the box, in combination with the sleeves entering the said box at the sides thereof. 3rd. The box having inclined top, a sliding cover for giving access to the interior and an eye tube placed in such sliding cover.

No. 11,694. Improvements in Milk Coolers. (*Perfectionnements aux garde-lait.*)

Norris D. Martin and John Bean, Montreal, Que., 30th August, 1880; for 5 years

Claim.—1st. The tank frame A having a close wooden bottom C and water-tight metallic lining A, in combination with an inserted milk pan J. 2nd. The provision to the tank of an adjustable water guage consisting of a tube D having outlet orifice F sliding telescopically in the outlet tube E of the tank. 3rd. The removable water distributing pipe provided with a divided outlet at one end and a chamber H at the other end, for receiving the feed water and distributing it by a return flow. 4th. The removable milk pan constructed with a semi-oval or curved bottom C, in combination with a water tank B.

No 11,695. Improvements in Window Fastenings. (*Perfectionnements aux arrête-croisées.*)

John Grant, Gananoque, Ont., 30th August, 1880; for 5 years.

Claim.—1st. In combination with a window fastener having a guide rod and thumb screw, the collars C C having projecting pins P P, the graduating stop collar I, the check spring M, or their equivalents. 2nd. The socket post S with the adjustable spindle H having keeper K attached, or their equivalents, in combination with the guide rod, thumb screw, collars and pins, graduating collar and check spring.

No. 11,696. Improvements on Elevators. (*Perfectionnements aux élévateurs*)

Robert Dunbar, Buffalo, N. Y., U. S., 30th August, 1880; for 5 years.

Claim.—1st. An elevator A^1 provided with an engine B connected thereto, in combination with the boiler D, and a suitable arrangement of steam pipes and valves. 2nd, A series of elevators, each provided with an engine geared thereto, in combination with a steam boiler D having a steam pipe D^1, and branches and valves for connecting with and operating the several engines and elevators, either separately or together.

No. 11,697. Improvements on Millstone Dress. (*Perfectionnements au rhabillage des meules.*)

William C. Hale, Austin's Springs, Tenn., U. S., 30th August, 1880; for 5 years.

Claim.—The radial and tangential furrows $c\,c^1$ made widest at their ends and narrowest at their centres, and running into each other at the eye of the stone, whereby the grain freely enters into the furrows at their inner ends, is held back by the contraction at their centres until sufficiently reduced, and then given a speedy discharge.

No. 11,698. Cutter Heads. (*Porte-lames*)

George J. Shmer, Milton, Pa., U. S., 30th August, 1880; (Extension of Patent No. 5,124).

No. 11,699. Mould for Casting Turbines. (*Moule pour couler les turbines.*)

James C. Wilson, North Marysburgh, Ont., (Assignee of George H. Jones, Rose, N. Y., U. S., 30th August, 1880; (Extension of Patent No. 5,148.)

No. 11,700. Improvements on Water Turbines. *Perfectionnements aux turbines hydrauliques.*)

James C. Wilson, North Marysburgh, Ont., (Assignee of George J. Jones) Rose, N,Y., U. S.,) 30th August, 1880; (Extension of Patent No. 5,212.)

No. 11,701. Horse Nail Finishing Machine. (*Machine pour finir le clou à cheval.*)

Charles S Watson, (Assignee of Charles W. Woodford) Montreal, Que., 30th August, 1880; (Extension of Patent No. 5,813).

No. 11,702. Horse Nail Finishing Machine. (*Machine pour finir le clou à cheval.*)

Charles S. Watson, (Assignee of Charles W. Woodford,) Montreal, Que., 31st August, 1880; (Extension of Patent No. 5,813.)

No. 11,703. Improvements on Machine Belting. (*Perfectionnements aux courroies des machines.*)

George S. Long, Hartford, Ct., U. S., 31st August, 1880; for 5 years.

Claim.—1st. As an improved belt, the combination of wire warp and a soft fibrous weft so that the wires are bedded deeply in the fabric, and the fibre alone presented at the surface. 2nd. The wires C enclosed between two piles of the goods and adapted to receive and transmit directly the tensile strain. 3rd. A woven fabric having warps of wire combined with a compound weft, each yarn of the latter composed of a number of soft spun yarns combined and arranged relatively to each other and to the wires. 4th. A woven belting having wires A, in the warp, and caps D soldered thereon to form the ends.

No. 11,704 Improvements on Bake Pans. (*Perfectionnements aux tourtières.*)

Charles Jackson, California, Ohio, U. S., 3rd Sept., 1880; for 5 years.

Claim.—The combination, with the pans A B, the fasteners F provided with handles f^1 and made in the form of tubes slotted longitudinally, to receive and fit upon the wires a^1 b^1 of the said pans A B.

No. 11,705. Improvements on Steam Boilers. (*Perfectionnements aux chaudières à vapeur.*)

George H. Babcock, Plainfield, N. J., Stephen Wilcox and Nathaniel W. Pratt, Brooklyn, N. Y., U. S., 3rd Sept., 1880; for 5 years.

Claim—1st. A steam boiler having a barrel A with connected heating tubes M and their connections D G, the side tubes T and connecting chambers P P^1, in combination with each other and with the connecting thimbles, O, adapted to allow the water to descend into the rearmost tubes T and to ascend in those against the furnace. 2nd. The horizontal flues A^1 and connecting flues a^2, in combination with the barrel A, main heating tubes M, connections D G, partial partitions E F, side tubes T and inclosing case N. 3rd. In combination with a boiler having a barrel A, main heating tubes M, and connections D G having orifices for cleaning the exterior of the tubes, the casing N and side doors n adapted to facilitate the cleaning of the midlengths of tubes. 4th. In combination with the board A extending from front to rear of the boiler tubes M, front partition E and one or more partial partitions F in rear thereof, the horizontal bridge E^1 arranged to compel the hot gases to strike the barrel at its front end.

No. 11,706. Improvements on Mowing Machines. (*Perfectionnements aux faucheuses.*)

George Sweet, Danville, N. Y., U. S., and John Watson, Ayr, Ont., 3rd. September, 1880; for 5 years.

Claim. 1st. The combination, with the rocking coupling arm and the cutting apparatus hinged thereto, of a retaining or thrust bar, and an adjusting lever and link, said thrust bar and link being connected to the frame of machine at substantially a common point, in rear of the axle and diverging therefrom and extending forwardly to separate points of connection on the coupling arm. 2nd. The combination, with a rocking coupling arm having the cutting apparatus hinged thereto and provided with a supporting wheel, of a rearwardly extending thrust bar and an adjusting lever and link. 3rd. The combination of the fixed tongue bolted to the frame, the bracket fastened directly to the tongue, the thrust bar coupled thereto and to the cutting apparatus, all arranged and operating as described and for the purpose of transferring the strain from the frame of the machine to the tongue, when the cutting apparatus strikes an obstruction. 4th. The rocking coupling arm provided with a supporting wheel G, and a rearwardly extending bracket E^1. 5th. The combination, with the rocking coupling arm having the cutting apparatus hinged thereto, and provided with a supporting wheel and retaining and tilting devices, of a lever for lifting the cutting apparatus vertically.

No. 11,707. Improvements on Snow Ploughs. (*Perfectionnements aux charrues à neige.*)

Frank W. Hawley, (Assignee of De Witt Hawley,) Rochester, N. Y., U. S., 3rd. September, 1880; for 5 years.

Claim. 1st. The combination of the inclined plane A and the vertical screw conveyer or conveyers B, provided with suitable casings open at top and bottom, and having their lower ends located in the rear of the inclined plane. 2nd. The combination of the inclined plane A, the vertical conveyer or conveyers B and the inclined roof C. 3rd. The combination of the inclined plane A, wings D D, vertical conveyer or conveyers B and the

inclined roof C. 4th. The combination of the inclined plane A, conveyer or conveyers B, roof C, engine E and suitable connecting mechanism. 5th. The combination of the inclined plane A, conveyer or conveyers B, and roof C provided with suitable side boards *a a*. 6th. The combination of the inclined plane A, conveyers B, roof C and engine E supplied with steam from the boiler of the locomotive, under the control of the engineer. 7th. An inclined plane, one or more conveyers, an inclined roof and an engine, the whole being so constructed and arranged as to be applied to the pilot of a locomotive.

No. 11,708. Improvements on Cross Cut Saw Handles. (*Perfectionnements aux bras des scies de travers.*)

Jerome C. Dietrich, Galt, Ont., 3rd. September, 1880; for 5 years.

Claim. 1st. The arm F having holes G H transversely one to the other and provided with a socket E 2nd. The combination of the thimble J with the arm F, tang B and thumb screw C.

No. 11,709. Improvements on Pipe Tongs. (*Perfectionnements aux mordaches à tuyaux.*)

Charles H. Lovrien, Erie, Pa., U. S., 3rd. September, 1880; for 5 years.

Claim. 1st. The combination, with the part A having a hook thereon, of a part B having a recess therein, and a many sided bit seated in said recess. 2nd. The combination, with the part A having a hook thereon, of part B having a wing B_1 for embracing said part A at the point where said parts are pivoted together. 3rd. The combination, with the parts A having a hook thereon, of a part B having a recess therein and a many sided bit T seated in said recess, and pin D for retaining said bit in said recess. 4th. The opening K through the head or hook of the part A, when said part is made of malleableized cast metal, whereby said hook or head, may be more perfectly malleableized. 5th. A pipe tongs wherein the parts A and B are made adjustable so as to adapt said tongs to various sized pipes by means of a slot S, and set screw C operating upon the fulcrum pin wherein said slot, the application therein of a pivot pin P, having a square space p_1. 6th. The combination of the following elements, the part A having a hook slot S and set screw C, the part B having a recess R, bit T seated within said recess, and a wing l_1 for embracing the part A, and a pivot pin P having two round and one square bearing. 7th. The combination with the recess R and bit T, of the lug *b* in the bottom of said recess.

No. 11,710. Improvements in Mop Wringers. (*Perfectionnements aux essoreuses à torchons.*)

Arthur L. Burtis and George W. Wearer, Lockport, N. Y., U. S., 3rd. September, 1880; for 5 years.

Claim. The combination of the pail A provided with roller J, a bail D pivoted at the lower end to the pail, and arms F F carrying a roller H, and connected at the upper ends to the bail.

No. 11,711. Improvements on Machines for Assorting Leather. (*Perfectionnements aux machines à assortir le cuir.*)

Haldey P. Fairfield, West Medford, Mass., U. S., 3rd. September, 1880; for 5 years.

Claim. 1st. The lower roller *c* and the upper roller set as described with relation to the lower roller, to leave a tapering space, combined with a series of boxes or receptacles at the rear of said rollers. 2nd. The lower roller *c* combined with the upper roller, and its guard shell *k*. 3rd. The lower roller *c*, upper roller and guard shell combined with the struts of braces, to prevent the upper roller springing. 4th. The table *a* and upper and lower rollers adjusted with relation to each other, to leave a tapering space between them, in the direction of the length of the rollers, combined with a series of boxes or receptacles at the discharging side of the rollers.

No. 11,712. Improvements on Steam Engines. (*Perfectionnements aux machines à vapeur.*)

George H. Babcock, Plainfield, N. J., and Stephen Wilcox, Brooklyn, N. Y., (Co-inventors with Nathaniel W. Pratt, Brooklyn, N. Y.,) U.S., 6th September, 1880; for 15 years.

Claim.—1st. A compound engine having the independent steam and exhaust valves of the two cylinders connected together and worked by a single operating means. 2nd. The combination, with a steam engine having separate steam, and exhaust valves, of the eccentric E_2, links *g h* and separate link blocks G and H, with their trains of connections. 3rd. A steam engine having independent sets of mechanism for adjusting the degree of expansion, to the levers G_{13} H_{13} combined and arranged relatively to each other and to the valve operating mechanism. 4th. The dog G_{17} having a projection G*, in combination with the dog H_{17} having the shelf H,* and the levers G_{13} H_{13}, notched bar or bars a_3 and the trains of mechanism for separately operating the same and exhaust valves. 5th. The vertical air pump J, having the slender plunger 16 operating with a long stroke working a pump having a large longitudinal area, and adapted to give a large area of water surface, or effective piston, with a small amount of throw. 6th. The pipes K_1 K_2, separator M and internal hanging curtain M_3, combined and adapted to serve between an engine and boiler. 7th. The pipes L_1 L_2 in combination with the lower chamber of the separator *m* having the hanging curtain M_6, and with the cylinders B C of a compound engine. 8th. The coiled pipe P in combination with the separator M, horizontal partition M_1, pipes K_1 K_2, curtain M_3, pipes L_1 L_2 and curtain M_6, with provisions for discharging the water from both the upper and lower parts of the separator M. 9th. The separator M having the horizontal partition M_1, pipes K_1 K_2 L_1 L_2, curtains M_3 M_6, shield Q, and one or more feed pipes R. 10th. A boiler having a furnace T_1 T_2, and tubes W above it, the mid-feather *t* between the two portions of the furnace and the space *w* between the corresponding sets of tubes. 11th. The circulating pipes Z Z, in combination with the shell T and tubes W. 12th. The combination of the internal furnace T_1 T_2, mid-feather *t*, up-take T_3, tubes W, space *w* and circulating plates Z Z.

No. 11,713. Improvements on Palace and Sleeping Cars. (*Perfectionnements aux chars palais et dortoirs.*)

Thomas Clarke, Truro, N. S., 6th September, 1880; for 5 years.

Claim. 1st. In a sleeping car, the sliding slat screen partitions E E N N for separating respectively the upper and lower berths from the middle aisle or common passage way. 2nd. The vertically adjustable partitions D provided with sliding slat screens E. 3rd. The longitudinal grooved bars F forming ways for the upper sliding slat screens or partitions E. 4th. In a railway car-seat, the hinged back-frame G G_1 G having reversible upholstered back H, hinged and swinging within the frame. 5th. The car-seat or couch composed of the stationary frame or box K, hinged cover Q, sliding extension frame L having hinged reversible seat M, rigid back *a* and hinged back frame G G_1 G provided with the hinged reversible back H. 6th. In a railway car, the combination, with the seats having rigid back frames *a*, hinged back frames G G_1 G and sliding extensions L, of the slat screen N interposed between the rigid back-frames *a* and hinged frame G G_1 G. 7th. The combination, with the seat supporters or frames C and rigid partitions *a a*, of the sliding partition D provided with the flanged top or head *d*, and adjustable slat screen E. 8th. In a railway car, the combination of the rigid side or wall A, longitudinal bar F parallel to the wall, seat-frames or supports C having rigid partitions *a a*, and sliding partition D provided with the flanged top or head piece *d* having lock-bolts or fastening devices *i i*. 9th. In a railway car, the combination of the partitions *a a* having ledges *g g*, sliding partition D, having slat-screen E and provided with fastening devices for locking it in its extended position, hinged frame G G_1 G carrying the hinged reversible seat backs H and grooved or channelled on one side, to receive the lower end of the adjustable slat-screen E, when these and frames G G_1 G are in their extended position. 10th. In combination with the hinged and grooved arms G, the sliding slat-screen E, sliding in the upper grooves or channels, and hinged brace-rods I fitting into and concealed by the lower grooves or channels, when the frames of which said arms form part are turned down. 11th. In a sleeping car, the combination, with the transverse partitions *a a* separating the sections end-wise, of the hinged upper berth sections, composed of hinged frames G G_1 G G G_1 G provided with hinged reversible bottoms H H and devices for locking said bottoms in place, within their respective frames, with locking devices, for fastening their outer meeting ends to the side of the car with the inner lock-bolt *l* and with hinged brace-rods I, adapted to be stepped and locked into sockets in the lower arm-rests *c c*. 12th. The combination, with the upper berth, of a section of an extensible and adjustable slat-screen adapted to enclose the lower berth and support the frame or frames forming the bottom of the upper berth. 13th. In a sleeping car section, an upper berth formed of the seat backs G H G H hinged above the seats and adapted to be turned up and connected by suitable fastening devices, to form the complete berth. 14th. The combination, with the hinged seat-backs G H G H, of the hinged brace-rods or supports I I. 15th. In a parlor or drawing-room car, seats or couches composed of respectively, a seat and a back-frame having hinged and reversible seats and backs.

No. 11,714. Improvements on Grain Binders. (*Perfectionnements aux lieuses à grain.*)

George F. Green, Kalamazoo, Mich., U. S., 6th September, 1880; for 15 years.

Claim.—1st. The yielding fingers *o* projecting from the rock shaft P and combined with mechanism for tripping the lock which arrests the motion of the binding devices, whereby the grain is received from the elevator, and the bundle is seized. 2nd. The revolving separator G, whereby the stream is arrested, combined with a lock to hold said separator, and yielding fingers or apron to release said lock, when a certain quantity of grain has accumulated. 3rd. The revolving separator G mounted at its middle upon the shaft F so that each end may, during its revolution, enter the receptacle, and combined with a hinged arm N, whereby said separator is arrested, with one end in said receptacle in position to arrest the stream of grain, an automatic mechanism to raise said lock and release said separator. 4th. The yielding fingers *o* combined with the hinged arm N which arrests the revolving separator, provided with an adjustable stop Q, whereby said arm may be adjusted for release with a greater or less elevation of said fingers as desired. 5th. The hinged lock arm N provided with the tension spring *v* and adjusting screw *c*, whereby the resistance of said arm may be regulated at will. 6th. An automatic binding mechanism connected by suitable gearing with the elevation roller, or rollers, whereby said binder is actuated by the motion of said elevator. 7th. The elevator roller C provided at one end with the gear E in mesh with the gear K on the counter shaft J, which is provided with a gear I combined with the mutilated gear H on the end of the separator shaft F, whereby when said separator is at rest said gear I revolves freely in the mutilated part of gear H, and goes into mesh with said gear H only after the release of said separator and its forward movement by the weight of grain resting upon it. 8th. The separator shaft F provided at one end with the wheel L having the studs *a*, combined with the lever M and clutch *b*, whereby the elevator roller is caused to engage with the pinion D and main binder wheel Y. 9th. The divider G composed of two similar plates set upon the shaft F at a distance from each other, combined with mechanism whereby the proximate end of said plates will be brought together while passing through the stream of grain and separated laterally immediately thereafter. 10th. The separator G composed of two similar plates, one fixed upon the shaft F perpendicular to the axis thereof, and the other mounted upon the said shaft at a distance with a transverse joint combined with a stationary cam B, whereby the proximate ends of said plates are brought together, as they pass through the stream of grain, and separated laterally immediately thereafter. 11th. A separator composed essentially of two parts capable of lateral separation, combined with mechanism whereby said parts are brought together while passing into and through the stream of grain and separated laterally immediately thereafter, to open a clear path for the cord carrier. 12th. The wheel W provided with the cam groove *n*, one part whereof is concentric to the axis and the remainder a long ellipse combined with the vibrating rack F provided with stud *r*, to engage with said cam and the rotating barrel L, whereby the knotter is actuated. 13th. The ejector arm r^1 mounted upon the shaft T and provided with a joint, which permits said arm to bend forward and pass any obstructing matter in its retreat. 14th. In an automatic binder, a band securing mechanism located above the receptacle, so as to be easily guarded against obstruction by straw and dust, combined with a band carrying arm moving upward from

below said receptacle to carry the band to the band securing mechanism. 15th. A separator whose centre of motion is above the receptacle and which separates the gravel and pauses along the path of the band carrying arm, while the band is carried by an arm and secured by the band securing mechanism, both independent of said separator. 16th. The vibrating arm X constructed with the longitudinal slot *e* in one end, said slot being curved with a radius equal to the radius of motion of its driving crank pin *d*. 17th. The vibrating arm B_1 provided with a slot N curved about the axis of motion of said arm, combined with a rack bar C_1 in engagement with said slot and receiving therefrom an intermittent reciprocation. 18th. The vibrating arm B_1 provided with a slot *h* curved about the axis of motion of said arm, an offsett *k* at the upper end of said slot, combined with a reciprocating rack bar C_1 provided with a pin *i* and in engagement with said slot, whereby said rack bar is raised quickly by engagement with said offset *k* and pushed out of the same by engagement with the stop arm to permit said bar to drop to its first position again. 19th. The elastic compressors *g* and the discharger Y_1 combined with the shaft T to which is imparted a slow rotation in one direction to operate the compressors, a pause while the band is being secured and a quick return rotation to operate the discharger. 20th. The discharger mounted upon the rock shaft n_2 whereby the inflowing grain is received and the bundle seized, combined with an arm T_1 mounted upon the end of said rock shaft, and a shouldered head p_2 adjustably mounted upon said shaft, to permit a certain range of motion thereof without affecting said arm, and a rod g_2, whereby the rotation of said rock shaft, through a certain arc, will cause the detent *i* to be tripped and the binding mechanism set in motion. 21st. In a cord knotter for an automatic binder, the rotating and reciprocating neck S_1 mounted upon the end of the card W_1, by means of the axial wire *t* and hook o_1, and provided with the stud V_1 combined with the retaining sleeve T_1 provided with the slot *v* and the gripper hook N_1, and the stationary enclosing case V provided with the slot *w*. 22nd. In a cord knotter for an automatic binder, the core w_1 bearing the looper hook o_1 and provided with the pin a_1 which projects in line with the gripper hook N_1, whereby both of said hooks may be actuated by a single pusher rod M_1. 23rd. The rotating barrel E_1 combined with the cylinder S_1 which has a rotation with said barrel during a part of the rotation of the same, and a reciprocation and pause during the remainder of the rotation of said barrel, and the holder O_1 which rotates with said cylinder but reciprocates independently thereof. 24th. The cylinder S_1 constructed with a neck and lip or flange g_2 and provided with the stud V_1 combined with the barrel E_1, which carries a clamp holder N_1 and is provided with a slot *v* and a groove *w*, whereby the cylinder S_1 has imparted to it a rotation followed by a rectilinear movement and the holder C_{11} which rotates with said cylinder but reciprocates independently. 25th. The cylinder S_1 constructed with the neck *z* and the lip or flange *s* and longitudinally slotted, combined with the holder O provided with the shoulder fitted to said slot, whereby when said cylinder retreats within the barrel E_1 and confines the cord on one side beneath the lip *s* the cord on the other side will be pushed off said neck by said shoulder. 26th. The holder constructed with the cleaning shoulders to clean lint, etc., from the holder seat. 27th. The holder O_1 combined with the recessed holder seat in the end of the neck. 28th. In a device for knotting the cord of an automatic binder constructed as a single structure and composed of an outer enclosing case V_1, provided with the slot *w* and adapted to be held in a proper seat in the frame of the machine, an inner rotary sleeve T_1 provided with the slot *v* and bearing the hook N_1, and a central neck S_1 provided with a stud V_1 which engages with slots *v* and *w* at their intersection, and is thereby intermittently and alternately rotated and left at rest, and the core W_1 bearing at its end the hook o_1 and provided with the pin a_1 to engage the end of the hook N_1, whereby both of said hooks may be simultaneously projected forward, the whole being bodily removable from the machine. 29th. The holder and cutter P_1 Q_1 and knotter of a binder combined with a slitted cord guide *f* located between and in position to receive the cord and hold it in position for proper engagement with the holder and cutter. 30th. In an automatic binder and combined with the operating mechanism thereof, a band carrier having an eye near the point, through which the band material is carried to pass and a transverse slot opposite said eye and penetrating to the same, through which the band may be introduced sidewise. 31st. The holder and cutter P_1 Q_1 and the knotter of an automatic grain binder combined with a slitted cord guide f_1 located between, and in position to receive the cord and hold it in position for proper engagement with the holder and cutter.

No. 11,715. Improvements on Cross-Cut Saw Handles. (*Perfectionnements aux bras des scies de travers.*)

Jerome C. Dietrich, Galt, Ont., 6th September. 1880; for 5 years.

Claim.—1st. In combination with a saw handle D, a tang or handle G, attachable thereto and adjustable from an alignment with the saw A to an angular position for use. 2nd. A bent tang or handle G having an eye J with diametrical notches I constructed for application and use. 3rd. A bent tang or handle G having an eye or ring J and wood portion H. 4th. The combination of the handle D, ferrule E, screw rod B and tang G when the upper edge of the saw enters into notches or grooves, of the washer or eye J of the tang G for securing it fixedly adjustable. 5th. A saw handle D fixed in alignment with its thickness, having a projection or tang G as a secondary or additional handle. 6th. A handle or tang G adjustable in alignment with the saw A and sideways at an angle of 45° thereto, in combination with a non-adjustable handle D in alignment with the thickness of the saw.

No. 11,716. Improvements on Skylights.

(*Perfectionnements aux lucarnes.*)

Frank M. Campbell and Anthony C. Dunboy, St. Louis, Mo., U.S., 6th September, 1880; for 5 years.

Claim.—1st. In the construction of skylights and window sash, the sheet metal bars A A_1, each of which consists of one piece of sheet metal having a straight web from top to bottom in cross section, intermediate flanged glass supporter or gutters D E and bottom projecting stiffening flanges or gutters F G. 2nd. In combination with the bars A and plates of glass, the caps or hoods L and clamps J. 3rd. In combination with the caps or hoods L, plates of glass and webs, the packing C_1 consisting of fibrous or floeculent material.

No. 11,717. Improvements on Water Cocks.

(*Perfectionnements aux robinets à eau.*)

Henry Hough, Peter J. Coyle, Benjamin Clement, Montreal, Que., and John Rourk, Kingston, Ont., 6th September, 1880; for 5 years.

Claim.—1st. The shell B B with inlet A, and four outlets D D and water chambers E. 2nd. The plug C C with six water ways D D, &c., and key G of any suitable shape. 3rd. The graduation 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 and 16, in combination with the table of indications and mark L, the said graduation being on the shell B B with mark L on the plug, or *vice versa*, the mark L on the shell and graduation on the plug C C. 4th. The whole, in combination, forming a five way water cock. 5th. A five way cock reversed *i.e.* the outlets used as inlets, and present inlet as an outlet for distributing water, or any other liquid coming from four different places, with same combination and table of indications.

No. 11,718. Manufacture of Soap. (*Fabrication du savon.*)

Stephen Strunz, Pittsburg, Pa., U. S., 6th September, 1880; (Extension of Patent No. 5,142.)

No. 11,719. Drive Chain. (*Chaine à trainer.*)

William D. Ewart, Chicago, Ill., U.S., 6th September, 1880; (Extension of Patent, No. 5,163.)

No. 11,720. Improvements on Journal Bearings. (*Perfectionnements aux coussinets des tourillons.*)

Hiram G. Farr and Henry C. Copeland, Bremdon, Vt., (Assignees of John Smalley and William W. Smalley, Boundbrook, N. Y.), U.S., 8th September, 1880; for 5 years.

Claim.—1st. A metal journal bearing an internal groove or grooves, the sides of which are planes or made up of plane surfaces inclined to the longitudinal axis of the said bearing, for the reception of lubricating material. 2nd. The combination with a metal journal bearing having an internal groove or grooves inclined to the longitudinal axis, of the said bearing of solid or plastic lubricating material, and held in the said groove or grooves. 3rd. The anti-friction composition for bearings composed of plumbago or graphite and shellac.

No. 11,721. Improvements on Earth Cars.

(*Perfectionnements aux chars à gravier.*)

James Andrews, Biddeford, Me., U. S., 8th September, 1880; for 5 years.

Claim.—A levelling attachment for earth cars, consisting of a wing pivoted to one end of the car and provided with a device for moving its loose end inward or outward. 2nd. The combination with the car A, of the wings H provided with a joint L, of the rack K, pinion E and guide bars J J.

No. 11,722. Improvements on Nail Cutting Machines. (*Perfectionnements aux machines à couper le clou.*)

William Wickersham, Boston, Mass., U. S., 8th September, 1880; for 5 years.

Claim.—1st. In the nail cutting machines, a feed screw for feeding the nail plate toward the cutters, having its threads, part of the way, round inclined, to feed the nail plate toward the cutters, and having said threads straight or without inclination, the other portion of the way, round, (to hold the nail plate in a fixed position while the nails are being cut) and a portion of the straight part of the thread cut away on the under surface, making said under surface have a higher position than the other portions of said straight part to admit of the nail plate rising up a little while the cutters are moving back under it, to prevent the rigid pressure which the lower edge of said nail plate would otherwise make on them, as they are moving back to their first position. 2nd. In nail cutting machines, the cutter C in combination with the cutter *b* and the feed screw *a*, co-operating to trim the edge of the nail plate. 3rd. The cutter stock in two parts, the part *e* into which the cutters are fitted, in combination with the larger part or receiver *d* into which the small part *e* is secured and by which it is operated.

No. 11,723. Improvements in Bottles and Stoppers. (*Perfectionnements dans les bouteilles et les bouchons.*)

Henry Barrett, Hampton, Eng., 8th September, 1880; for 5 years.

Claim. 1st. An internal floating or gravitating bottle stopper consisting of a hollow sphere of glass, earthenware, or like vitreous material, having inherently a greater specific gravity than water. 2nd. The use, for stopping bottles, of an internal stopper consisting of a circular or slightly elliptical disc, or its equivalent, of suitable material such as glass, porcelain, ivory or pearl, such stopper having a diameter greater or not less than the diameter of the opening of the neck. 3rd. The construction and employment, in combination with an annular grooved shoulder, (or an annular groove) for receiving the seating, and with vertical slots to allow of the introduction of the disc-shaped stopper. 4th. The improved internal bottle stopper forming a combined disc stopper and seating, consisting of a ring of vulcanized India rubber surrounding a disc of suitable hard material.

No. 11,724. Combined Refrigerator and Freezer. (*Garde-manger frigorifique.*)

Charles A. Clark and Andrew A. Lockerby, St. John, N. B., 8th September, 1880; for 5 years.

Claim. 1st. The air vents I I I I, the flanges L L and the ice box D. 2nd. The combination of the ice box D and the freezer C.

No. 11,725. Improvements on Swings and Rockers. (*Perfectionnements aux balançoires-berceuses.*)

Benjamin Baker, Montreal, Que., 8th September, 1880; for 5 years.

Claim.—1st. The combination of the rockers A, extensions G H, springs

G1, trunnioned seats D, swinging trunnioned seats L, suspended seats F3, platform A2 and props D. 2nd. The combination of the rocker A provided with extensions and sides G H, pivoted arms N, racks M, trunnioned seats L. 3rd. The combination of the rocker A having extensions and sides G H, rails S, lever V, actuating prop D. 4th. The combination of the rocker A having extensions and sides G H, springs G1 and springs H. 5th. The combination of the rocker A having extensions and sides G H and springs 6th. The combination of the rocker A having extensions and sides G H, springs G, chains L having trunnions, rack M, swinging arms N.

No. 11,726. Process of Deodorizing Petroleum Tar and Crude Petroleum.

(*Procédé pour désinfecter le goudron de pétrole et le pétrole cru.*)

Martin J. Woodward, Petrolia, Ont., 8th September, 1880; for 5 years.

Claim.—1st. The art or process of deodorizing petroleum tar and crude petroleum by discharging free dry steam in said tar or oil contained in an oil still, while the oil is at a high temperature. 2nd. Petroleum tar and crude petroleum deodorized by discharging free dry steam in said tar or oil contained in an oil still, while the oil is at a high temperature.

No. 11,727. Improvements on Flour Bolts.

(*Perfectionnements aux bluteaux.*)

John Webster, Detroit, Mich., U. S., 8th September, 1880; for 5 years.

Claim.—1st. The combined bolt and bran duster, in combination with the casing B and a rotating fan within the bolt when the chamber, which contains the bolt or screen is provided with opening or openings to admit air thereto. 2nd. In combination with the chamber E1, in a combined flour bolt and bran duster, the chamber E with an opening or openings communicating between the two chambers. 3rd. In a flour bolt and bran duster combined, the combination of chambers E E1, the openings M N, spouts P Q and ventilator O.

No. 11,728. Improvements in Spinning Machines. (*Perfectionnements aux machines à filer.*)

Séraphin Vigeant and Pierre Desmarets, Holyoke, Mass., U.S., 8th September, 1880; for 5 years.

Claim—1st. In the driving mechanism of a spinning machine, the driving pulley G having the flange *o* and rim *p*, the friction wedge H, coil spring *r* and hub projection *m*1 having the flattened part *n n*1. 2nd. In the twisting mechanism of a spinning machine, the slotted bearing *b b* in the fork C. 3rd. The combination of the fork C and stock *d* with the handle nut *e* and pivot stud *f*.

No. 11,729. Improvements on Boxes for Packing and Shipping Tobacco.

(*Perfectionnements aux boites à empaqueter et expédier le tabac.*)

Thomas Balmer, Chicago, Ill., U.S., 8th September, 1880; for 15 years.

Claim.—1st. A box for packing plug tobacco, adapted to be sawed into sections when filled, each section, when detached, forming a perfect tobacco packing box. 2nd. The method described of making and filling tobacco boxes.

No. 11,730. Improvements in Railway Switches. (*Perfectionnements aux aiguilles des chemins de fer.*)

Charles E. Larocque, St. Jérome, and Auguste Laberge, jr., Montreal, Que., 8th September, 1880; for 5 years.

Claim.—1st. The switch guide C, latch piece D, both pivoted to the ties or floor of the track and latch mover F pivoted to the switch guide C. 2nd. The arrangement and combination of the switch guide C, latch mover F, latch piece D and switch lever handles E E.

No. 11,731. Improvements on Combined Clothes Washers and Wringers.

(*Perfectionnements aux laveuses-essoreuses.*)

Alexander Atkinson, Winterset, Iowa, U. S., 8th September, 1880; for 5 years.

Claim.—1st. A combined clothes washer and wringer consisting of the tub B, ribbed and wired false tub bottom C, ribbed and wired plunger D, plunger handle or lever E moving on a ball and socket joint, and a sleeve G to keep the clothes from contact with said joint. 2nd. A plunger handle provided with a ball and socket joint, whereby motion is given to the plunger. 3rd. The combination with the tub A, plunger handle or lever E and vertical shaft F, of the sleeve G, whereby the clothes within the tub are kept from contact with the uniting joint of said handle E and shaft F. 4th. The combination, with the notched handle or lever E, of the ribbed and wired plunger D provided with braces *n p*. 5th. The combination, with the vertical shaft F provided with a ball *u*, of the plunger handle or lever E provided with bent fingers *v*.

No. 11,732. Art of Making Paper Boats.

(*Art de fabriquer les chaloupes en papier.*)

Pierre A. Gendron, St. Hugues, Que., 8th September, 1880; for 5 years.

Resumé.—L'art de fabriquer des embarcations ou chaloupe légères, en papier rendu imperméable au moyen d'une composition de sucre de plomb, de gomme laque et de résine dans les proportions indiquées.

No. 11,733. Improvements in Elastic Cushions for Millstones. (*Perfectionnements aux coussinets élastiques pour les meules.*)

Squire Keith and Albert H. Spaulding, Silver Creek, N. Y., U. S., 8th September, 1880; for 5 years.

Claim.—1st. In combination with the stationary bed stone of a grinding mill, an elastic tube or cushion in which air or other gaseous substance is maintained under pressure, for the purpose of supporting the stone. 2nd. The combination of a pump or equivalent air or gas compressing device, an elastic tube or cushion for supporting the stationary stone of a grinding mill, and an intermediate pipe or hose for conveying the compressed air or gas from the pump to the tube or cushion. 3rd. The combination of the tube or cushion B, the pump E, connecting pipe or hose F, safety valve G and pressure gauge H. 4th. The combination of the elastic or yielding tube or cushion B with the pump E or other equivalent air compressing device, the connecting pipe or hose F stationary stone C and a bed plate for the support of said stone.

No. 11,734. Improvements in Steam Engines.

(*Perfectionnements dans les machines à vapeur.*)

Hugh Fairgrieve and Joseph H. Killey, Hamilton, Ont., 8th September, 1880; for 5 years.

Claim.—1st. In combination, with a steam engine, of the spring arms C C, the same being composed of one or more leaves of spring steel, with the hollow weights D D attached, also the back springs E. 2nd The rubber buffers I in combination with the weights D D. 3rd. The combination, with steam engine, of the links G G, the eccentric H and weights D D. 4th. The combination, with a steam engine, of the bridge L in the main valve.

No. 11,735. Improvements in Fruit Ladders.

(*Perfectionnements aux échelles des vergers.*)

William A. Boyd, Strathroy, Ont., 8th September, 1880; for 5 years.

Claim.—1st. The ladder *a c* when divided into two sections *a b* and *b c*, the upper section *a b* fitting into the lower section *b c* by means of tongues and grooves, so that it may be elongated or shortened by drawing out or closing combined with the movable platform *n* adjustable thereto with hooks and the stops *k* and *l*. 2nd. The back stay *d f* when divided into two sections *d e* and *e f*, the upper section *d e* fitting into the lower section *e f* by means of tongues and grooves, so that it may be elongated or shortened by driving out or closing, combined with the stops at C and M and below the base stays *i* J and *g k* and combined with the ladder *a c*.

No. 11,736. Improvements in Cabinet Wardrobes. (*Perfectionnements aux buffets-garderobes.*)

Eucharist E. Goyer, Montreal, Que., 8th September, 1880; for 5 years.

Claim.—1st. A metallic or wood cabinet wardrobe, composed of the top, bottom, sides and back A in combination with the door B having formed on its inner face, the chamber *a*, cover *c* and spout *b* with the perforations *c*. 3rd. The combination of the door A having the chamber *a*, spout *b*, perforations c and covering *c* with the vessel *d*.

No. 11,737. Improvements on Microphones.

(*Perfectionnements aux microphones.*)

Emile Berliner and Charles Williams, jr., Boston, Mass., U.S., 8th September, 1880; for 5 years.

Claim.—1st. A microphone or contact-telephone having no rubbing or frictional electric contact and having the electrodes maintained in contact with one another with a variable pressure by the pressure exerted by a body moving or sliding freely by the action of gravity at an angle inclined to said contact. 2nd. The combination, with a vibrating surface forming an electrode of an electric current, of a pin forming the opposite electrode sliding freely on a suitable support inclined at an angle towards the vibrating surface and connected to the battery in such a manner that its free movement on the support will not be interfered with. 3rd. In combination with a vibrating surface forming one electrode of an electric current, the block A provided with an opening or perforation inclined downwards to the vibrating surface, a conducting pin or cylinder F having a carbon extremity and sliding freely in the inclined opening, so as to make contact at its extremity with the vibrating surface, and a connection between said pin and the battery which will not interfere with the free movement of the pin or cylinder. 4th. The combination of the diaphragm D, the carbon block E, the damper I, the block A, the pin F sliding freely in an inclined opening in the block A, and the flexible conductor *c*. 5th. A microphone or contact telephone having only one contact effected by sound waves and consisting of two electrodes, of an electric current in contact with one another, which contact is varied during the transmission of sounds by the variation in the pressure upon said contact, of a pendulous weight which is kept out of its point of rest by the interposition of said electrodes and is supported in such a manner that there is no lateral movement or pressure between the electrodes. 6th. A microphone or contact telephone having no frictional or rubbing electric contact, a suspended weight affecting the electrical contact between the electrodes in contact with one another, said weight being held in position from at least two points which are situated on opposite sides of the centre of gravity of said weight. 7th. In a microphone or contact telephone, the combination of a vibrating surface forming one electrode of an electric current, a pendulous weight forming the opposite electrode, and a band or ribbon of flexible material suspending the said weight, which band or ribbon may or may not be a conductor. 8th. In a contact telephone or microphone, the combination of the flexible band M and the supporting strip K. 9th. In a microphone or contact telephone, the combination of the diaphragm D, carbon block E, carbon tip *b*, adjustable weight F, plate G, flexible band M and supporting strip K. 10th. A damper for the diaphragms of telephones consisting of a ring of soft rubber or other elastic material held down upon the diaphragm by a screw passing through said ring. 11th. In combination with a diaphragm or carbon, or other material forming one electrode of an electric current, the self adjusting opposite electrode of said current capable of sliding into contact with the diaphragm and capable of being firmly fixed in position after having adjusted itself in said contact. 12th. The combination with a diaphragm forming one electrode of an electric current, of the opposite non-elastic electrode of said current capable of sliding freely toward the diaphragm until both electrodes come into contact with one another. 13th. The combination of two opposite electrodes, one of which has its weight so regulated as to exert a certain amount of pressure upon the other slides toward the same and is capable of being firmly fixed in position. 14th. The combination of the diaphragm D, the block B constructed as described, the block *a* provided a perforation therein at right

angles to the diaphragm, the conducting pin F sliding therein into contact at its extremity with the diaphragm, and a device for firmly fixing this pin in position. 15th. In a microphone or contact telephone, an electrode suspended from and held in position by a permanent magnet. 16th. In a microphone or contact telephone, carbon electrodes which are first formed into the required form and afterwards hardened by being heated in presence of hydro-carbon.

No. 11,738. Improvements in Microphones and Telephones. (*Perfectionnements aux microphones et aux téléphones.*)

Abner M. Roseburgh, Toronto, Ont., 9th September, 1880; for 5 years.

Claim.— 1st. In a microphone or telephone transmitter, the arrangement of the parts so as to render the adjustment of electrodes automatic. 2nd. The combination of the electrodes, one of which is attached to a diaphragm, and the other suspended by means of a broad band of delicate metallic foil or its equivalent. 3rd. The combination of two electrodes, one or both of which is or are plane cylindrical convex or pyramidal shaped. 4th. The method of preventing the outer electrode from turning upon its vertical axis by means of a broad band by which it is suspended. 5th. The combination of two electrodes and a suspended weight, said weight being displaced from its perpendicular by the projection of the electrodes. 6th. The combination of a band of delicate metallic foil, or its equivalent, and an electrode suspended therefrom. 7th. The use of gum, or a solution of gum, for the purpose of connecting metallic foil, or its equivalent with an electrode, with the diaphragm or with the wire of a galvanic circuit. 8th. The use of gum, or a solution of gum, as a conductor in a galvanic circuit. 9th. The use of gum,, or a solution of gum for the purpose of securing in position either an electrode or metallic foil, or its equivalent, used in the construction thereof. 10th. An electrode composed of gum, or a solution of gum, and powdered gas carbon. 11th. The combination of a microphone or telephone transmitter, and the case of a magneto-electric signalling apparatus. 12th. The combination of a microphone and the diaphragm of a magneto-electric telephone. 13th. The combination of a microphone with the diaphragm of a magneto-electric telephone, the permanent magnet of which is replaced by an electro-magnet the wires of which form part of a local battery circuit. 14th. The combination of a diaphragm A, the carbon electrode B, the pendulous carbon electrode C, the metallic foil, or its equivalent H J and the pendulous weight C111, with the primary wires D E of a local battery and induction coil.

No. 11,739. Improvement on Horseshoes. (*Perfectionnements aux fers à cheval.*)

Henry G. Yates, New York, U. S., 11th September, 1880 for 5 years.

Claim.—A horseshoe having its thickest portion in the toe, the toe bevelled in front and tapering in thickness from the toe to the heel, and having its sides bevelled outward and longitudinally divided into two parts A and B, the part B being swaged below the plane of the part A.

No. 11,740. Improvements on Inhalers. (*Perfectionnements aux inhalateurs.*)

George H. Hurd, Cleveland, Ohio, U. S., 11th September, 1880; for 5 years.

Claim.—The combination with the supply pipe A of a telescope section B and lever D, the said portions A and B constituting a valve which may be opened by pressing upon the lever, and closed by releasing it. 2nd. The pipe A provided with a rubber or flexible section A1, in combination with a telescoping section B provided with orifices *b* and valves C. 3rd. The combination with pipe A and the telescoping section B, of lever D and spring whereby the valve is closed automatically by releasing the lever. 4th. The combination with the mouthpiece B2 and telescopic section B having inhaling apertures, of the valve C which is enclosed by the end of said section being folded over the same and the flexible section O1.

No. 11,741. Improvements on Devices for Capping Cartridges. (*Perfectionnements aux machines à poser les capsules aux cartouches.*)

Alva Warden, Ypsilanti, Mich., U. S., 11th September, 1880; for 5 years.

Claim.—1st. A re-capping device for shell cartridges, the post having a vertical or reciprocating movement within the cylinder. 2nd. In combination with the cylinder, of a re-capping device, within which a post has a reciprocating movement, the lever provided with a cam-shaped projection to hold the shell within the cylinder while the exploded cap is being removed. 3rd. A re-capping device consisting of the cylinder A, post B having a reciprocating movement within said cylinder, and a lever provided with cam-shaped projection *e* and lug *h*.

No. 11,742. Improvements on Ore Separators. (*Perfectionnements aux séparateurs de minerais.*)

John H. Babcock, St. Johnsburg, Vt., U. S., 11th September, 1880; for 5 years.

Claim.—1st. A pneumatic ore separator provided with an adjustable ore bed A connected with the air chamber or bellows H by an air tight connection O O, whereby the inclination of the ore bed may be changed without altering the position of the bellows or bellows mechanism. 2nd. The combination with the adjustable ore bed A and bellows H. of the flexible sides O connecting the two. 3rd. The combination of the supporting bolts P P and adjusting nuts S S, with the ore bed A and air chamber H having a flexible air tight connection O. 4th. The combination, with an ore separator, of a hopper T adjustable over the bed A, whereby the ore may be delivered at different points over said bed. 5th, An ore separator provided with an ore bed A, and an air chamber or bellows H combined with adjusting nuts S S and bolts P P, whereby the ore bed may be set at varying degrees of distance from the acting part of the bellows. 6th. In an ore separator, the combination of an air chamber or bellows H with adjusting nuts S S and bolts P P attached to its casing, whereby a portion of said casing may be extended to increase its air holding capacity independent of the air forcing parts. 7th. In combination with the bed A of an ore separator, an air chamber or bellows H having independently adjustable walls, whereby the capacity of said bellows or chamber may be graduated without changing the position of the air forcing parts. 8th. The construction of the duplex adjustable eccentric J, whereby the length of stroke or throw may be regulated. 9th. The combination of the eccentric J, rod K, spring Q, and balance wheel Z, with the ore separator.

No. 11,743. Process of Purifying, Cleaning, and Refining Wax, Fatty Matters, Resins and Gums. (*Procédé pour purifier, nettoyer et épurer la cire, les matières grasses, résines et gommes.*)

Louis G. Bertram, Brooklyn, N. Y., (Assignee of William Bell, William M. Sloane, New York, and Robert Potter, Jersey, N. J.,) U. S., 11th September 1880; for 5 years.

Claim.—1st. In introducing the wax or fatty matter and naptha into a cylinder, heating the same by means which do not allow the contact of the heating agent with the wax or fatty matter and naptha, agitating the said wax or fatty matter and naptha until thoroughly combined, then passing the compound into a filter, keeping it heated as it passes through the filter, and subsequently separating the wax or fatty matter from the remainder of the compound. 2nd. The combination of the cylinder A the agitating blades C revolving therein, means for heating the contents of said cylinder, the filter F with its steam jacket, the pump A4, the pipe E leading from the cylinder to the pump, and the pipe E leading from the pump to the filter. 3rd. The combination of the cylinder A, means for heating the contents thereof, the tank A3 for containing the solvent, the filter F provided with a steam jacket, the pump A4 and pipes connecting the said pump with the cylinder, tank and filter provided with suitable valves, whereby the pump may be used to supply the solvent to the cylinder from the tank or to pump the contents of said cylinder therefrom into the filter.

No. 11,744. Improvements on Street Lamps. (*Perfectionnements aux réverbères des rues.*)

John Laxton, Toronto, Ont., 11th September, 1880; for 5 years.

Claim. The standards C provided with ends *b*, fitted to the ring A, in combination with the ferrule E, provided with sockets D, formed to receive the tapered ends of the standards C.

No. 11,745. Improvements on Spring Beds. (*Perfectionnements aux lits à ressorts.*)

Edouard Julien, Montreal, Que., 11th September, 1880; for 5 years.

Claim.—1st. The combination of the spring B carried independently of the side frames, the block and plate C C1 and laths D. 2nd. The combination of the spring B, clip E and lath D. 3rd. The combination with the laths resting on springs, carried independently of the side frames, of the spring bar F.

No. 11,746. Improvements on Grinding Machines. (*Perfectionnements aux machines à moudre.*)

James Jones and Charles T. Ballard, Louisville, Ky., U. S., 11th September, 1880; for 15 years.

Claim.—1st. The combination with the frame having U-shaped side pieces J, provided with ribs *t*, upon their inner faces, the boxes *c*1 having grooves *v* receiving the said ribs, a cylindrical running stone journalled in said boxes, and a concave bed stone, of the vertical threaded rods *e*, the lifting arch D, the nuts *i i*1 above and below the said arch, the hand wheels *f* on rods *e*, the arch brace C, the lifting screw S, and its hand wheel *h*. 2nd. The combination, with the running and bed stones G A, their casing H B1, and the main shaft G11 driving said running stone by means of an endless belt G1, of the eccentric *n* on said shaft, and the shoe L1 carrying the screen L, and having the arms *l*1 engaging the said eccentrics. 3rd. The combination with the running and bed stones G A, their casing, a main driving shaft G11 and a belt pulley connection between the running stone and said shaft, of the vertically rising and falling and reciprocating shoe L1, its screen L, and inclined bottom *k*, an exhaust fan on the end of the main shaft, its casing Q, the trunk O receiving the discharge from the shoe, and a pipe R leading from the fan case into the trunk.

No. 11,747. Improvements on Beer Pumps. (*Perfectionnements aux pompes à bière.*)

Jules A. Goudron, Montreal, Que., 11th September, 1880; for 5 years.

Résumé. 1o. En combinaison avec un appareil B quelconque, destiné à comprimer de l'air avec de l'eau, pour pomper automatiquement la bière, l'emploi d'un reservoir A quelconque. 2o. En combinaison avec un appareil B quelconque, destiné à comprimer de l'air avec de l'eau, pour pomper automatiquement la bière, l'application d'une valve V quelconque et à flotteur. 3o. En combinaison avec un appareil B quelconque, destiné à comprimer de l'air avec de l'eau, pour pomper automatiquement la bière, un bassin E quelconque. 4o. L'emploi d'un double appareil B B1.

No. 11,748. Improvement on Flower Pots. (*Perfectionnement aux pots à fleurs.*)

Jacob P. Wagner, Toronto, Ont., 11th September, 1880; for 5 years.

Claim.—1st. A post A and water reservoir B provided with a tube C and pipe D, in combination with the wicks G. 2nd. The wicks G arranged in the earth contained within a flower pot or casket, in combination with a water reservoir B.

No. 11,749. Improvements in Water Wheels. (*Perfectionnements aux roues hydrauliques.*)

James A. Davis, Henderson, Ala., U. S., 11th September, 1880; for 5 years.

Claim.—1st. The improved wheel composed of the hub *e*, curved arms *e*4 and wings *e*5 arranged to provide a vertical impinging face *e*6, and a spiral channel or discharge between the blades and between the wings *e*5, and hub *e*, and supported in a scroll or suitable casing. 2nd. The combination,

with the scroll *a* having opening *a6* provided with the ring *b*, the inner end of which projects into the chamber of the scroll, of the hub *e* provided with the curved arms *e4*, the under ends of which project through the ring *b* and having the wings *e5* secured to the outer ends of the arms *e4* and provided with the guide grooves F.

No. 11,750. Improvements on Stone Cutting Machines. (*Perfectionnements aux machines à tailler la pierre.*)

Samuel B. Frank, Charles B. Wheelock, Isaac Reese and John A. Ward, Nashville, Tenn., U. S., 11th September, 1880; for 15 years.

Claim—The revolving disc A, provided with a series of peripheral rotary cutters D, and with rotary cutters E interposed between the cutters D, and having a rotary cutting action at right angles to that of the cutters D, whereby with the cutting of the channel, its sides are simultaneously subjected to a cutting action completing its formation at one operation.

No. 11,751. Improvements on Telephones. (*Perfectionnements aux téléphones.*)

Michael D. Connelly, Philadelphia, Pa., Thomas A. Connelly, Washington, D. C., and Thomas J. McTighe, Pittsburg, Pa., U. S., 11th September, 1880; for 5 years.

Claim. 1st. An automatic telephone exchange or series of independent lines having means for electrical communication with each other, and combined with mechanism controlled from the different stations, and adapted to automatically establish communication between any disengaged pair, at any and all times, while securing individual privacy between each pair. 2nd. An automatic telephone exchange comprising a series of three or more converging independent lines, on a central connecting apparatus so constructed and arranged that any member of the exchange may, while others are engaged and upon his own individual station, place himself in direct communication with any disengaged member of the exchange. 3rd. A coupling or connecting instrument for converging telephone lines, operated automatically by currents controlled from distant stations, and provided with devices whereby any two independent lines may be directly coupled or connected to the exclusion of all others from the same circuit, while permitting the establishment of separate circuits between the lines so excluded. 4th. An electro-automatic central apparatus for telephone exchanges, provided with a step by step action or progressive movement for establishing the coincidence of selected lines, and a shifting conductor by which coinciding lines may be isolated or rendered independent of others in the exchange, and means for permitting the free intercommunication of the latter. 5th. A series of independent telephonic lines converging to a central office or intermediate station, in combination with connecting mechanism located at the point of convergence, and capable of being automatically so manipulated through such lines that any one of said lines may, at all times at will, be placed in electric circuit with any other disengaged circuit of the series. 6th. A series of independent telephonic lines converging to a central office or intermediate station, in combination with connecting mechanism located at the point of convergence, and capable of being automatically so manipulated through such lines that all, or any number of said lines may be placed in electrical circuit in pairs at the same time. 7th. A telephonic exchange system consisting of a number of circuits converging from distant stations to a central office, an instrument located in the central office and containing electro mechanical devices placed respectively in said converging circuits, and adapted to connect any or all of said circuits in mutual contact, in pairs, simultaneously, and suitable means at each of the stations for putting said electro-mechanical devices in operation. 8th. The method of perfecting inter-connection of independent lines in a system of telephonic circuits in which each line is dependent upon a single circuit by the operations of the normal and reversed currents from local batteries, the normal current being employed to bring the two lines into contact, and the reversed current to isolate the circuit so established from all others of the system. 9th. The method of restoring the normal relations of two connected lines, in a system of telephonic circuits, which have been electrically connected by reversing the current, consisting in restoring the current to its normal direction and thus causing the electro-mechanical connecting devices to resume their original position, whereby the connection is severed, and the two lines are brought to their normal condition. 10th. A system of independent telephonic circuits converging to a central office, a movable electro-magnetic switching device forming the terminal of a given line, in combination with a series of conductors respectively forming the terminals of the other lines of said system, a step-by-step action to effect coincidence of lines, a make and break mechanism at the distant station of the given line, and an electric generator, whereby the successive pulsations produced in the given line effect the progressive contact of said switching device with the other terminals. 11th. In a system of independent telephonic circuits converging to a central office, the method of securing privacy between any two communicating stations with reference to all other lines, consisting in removing or disconnecting, by means of an electrical current controlled at either of said stations, any or all of the devices through which any other station should communicate therewith. 12th. In a device for establishing inter-communication between separate and independent lines of a system of telephonic circuits, the combination with a travelling pointer whose movements are responsive to the intermissions, of a distantly controlled rheotome and which forms a medium of communication between a given line and a line selected from the others of the system, of a conductor or in constant contact with said pointer, the ground and an automatic switch which alternately shunts the current of the operative line directly to earth, and through said conductor to the line brought into connection therewith.

No. 11,752. Stove-Pipe Stone Mould. (*Moule de douille en pierre de tuyau de poêle.*)

Henry Wandby, Toronto, Ont., 14th September, 1880; (Extension of Patent No. 603.)

No. 11,753. Improvements on Vehicle Springs. (*Perfectionnements aux ressorts des voitures.*)

George B. Hamlin, Willimantic, Ct., U. S., 15th September, 1880; for 5 years.

Claim.—1st. The side-bar spring composed of two or more leaves A B, running parallel with each other their entire length and connected to shackles upon the side-bars of the vehicle. 2nd. The leaves A B and the yokes *b c d* between and upon each side of the leaves. 3rd. The leaves A B connected at their ends to shackles, and having yokes *b c d* between and upon each side of the leaves.

No. 11,754. Improvements on Electric Telephones. (*Perfectionnements aux téléphones électriques.*)

William F. Cook, Joy Mills, Pa., U. S., 15th September, 1880; for 5 years.

Claim.—1st. The case A with the mouthpiece B, diaphragm C, spring sustained bottom F and adjustable button H, with or without buttons D or I. 2nd. A telephonic instrument having a magnet and an insulated coil or volute, forming a disc or plate and capable of being vibrated toward and from said magnet. 3rd. The combination, in a telephone having a vibrating diaphragm, of a spring sustained button, an adjustable button and a button interposed between said spring sustained and adjustable buttons, said buttons being of carbon or equivalent material. 4th. In a telephonic instrument, a coil or volute of insulated wire rendered practically homogeneous by fastening the coils or convolutions together by an adhesive substance, or equivalent means, so as to form a diaphragm or plate capable of being vibrated in the neighbourhood of a magnet. 5th. The combination of a permanent magnet, a separate coil or volute of insulated wire, forming a disc or plate capable of being vibrated toward and from said magnet and independently thereof and a diaphragm P. 6th. The combination, in a telephonic instrument having a case N and magnet O, of a vibrating coil or volute P and diaphragms Q R on either side of said volute.

No. 11,755. Improvements on Combined Washers and Wringers. (*Perfectionnements aux laveuses-essoreuses.*)

Anthony W. Burke, Stayner, and Asa L. Burke, Orangeville, Ont., 15th September, 1880; for 5 years.

Claim.—1st. The provision to the suds box A having a corrugated or slatted bottom, of rollers B B journalled to the sides of the box. 2nd. The rubber D having side grooves E and held to oscillate by pins C projecting from the interior of the suds box A. 3rd. The provision to the rubber handle of pin G. 4th. The journal blocks I I sliding in grooves, in the wringer standards H H, and carrying the lower spring M and upper roller L, in combination with the lower roller J, spring-bar N and compression screw O. 5th. The combination of the tray Q with the washer and wringer.

No. 11,756. Improvements in Tailors' Measures. (*Perfectionnements aux mésures des tailleurs.*)

Robert G. McLellan, Guelph, Ont., 15th September, 1880; for 5 years.

Claim— The disc A with scale B or distance eyelets, plummet C, bar strap E and strap H with marking strip. 2nd. The rule B with scale marks or distance eyelets, and position of bar G corresponding to those on the disc A for laying off ascertained measurements.

No. 11,757. Improvements in Dyeing Process. (*Perfectionnements dans les procédés de teinture.*)

Ernest Posselt and Rudolf Peters, Bradford, Eng., (Assignees of Jules J. Leloir, Tourcoing, France.) 15th September, 1880; for 5 years.

Claim.—1st. The employment for dyeing the warps and wefts of woven textile fabrics (cotton and worsted) of the mordants. 2nd. The method of dyeing by the employment of a shower bath instead of plunge baths, or by admitting the dyeing materials or mixtures in such quantity that the fabrics will imbibe them, or nearly imbibe them, in passing through the cistern keeping the mixtures in an equal or nearly equal degree of concentration. 3rd. The employment of strong acid baths with zinc bases, bichromate of potash and sulphate of copper or iron, for fixing the wood colouring matter on mixed cotton and worsted textile fabrics.

No. 11,758. Improvements on Washing Machines. (*Perfectionnements aux machines à laver.*)

Sylvester T. Andress, Caintown, Ont., 15th September, 1880; for 5 years.

Claim.—The combination with the suds box A having an internal revolving drum D, of a cover H hinged to the end of the box A to form, when open, a horizontal tray, and when closed, confine the steam and odor within the suds box.

No. 11,759. Improvements on Nut and Bolt Locks. (*Perfectionnements aux arrête noix et boulons.*)

Moses H. Grubb, Vincent, Pa., U. S., 15th September, 1880; for 5 years.

Claim.—1st. The socketed plate *a* provided with ear *a1* and staple *c*, and socket plate *b* provided with slots *b1 d*, said plates being hinged together by means of the ear *a1* and slot *b1* and locked by the ring E. 2nd. The plate *b* provided with raised edges *f* about the nut socket. 3rd. The plate *b* cut away between the nut sockets *a2 a2*. 4th. The combination, with the nut lock E, of the bolt head lock H provided with sockets *n* and lugs *m*. 5th. The combination, with the nut lock, of a head lock L provided with sockets *o o* having raised edges and connecting bar *p*.

No. 11,760. Improvements on Washing Machines. (*Perfectionnements aux machines à laver.*)

William Church, West Haven, Ct., U.S., 15th September, 1880; for 5 years.

Claim.—The plates H, frame I with slots *b* and the roller G confined between the plates and frames, in combination with the rollers F forming the bed of the washing machine, and having their journals *a* resting upon the top of the friction rollers G.

No. 11,761. Improvements in Car-Couplings.

(*Perfectionnements aux attelages des chars.*)

Charles E. Larocque, St. Jérome, and Auguste Laberge, jr., Montreal, Que., 15th September, 1880; for 5 years.

Claim.—1st. The link rest C for supporting the coupling link B. 2nd. The arrangement and combination of the draw head A and link B with the link rest C and fixed rest D.

No. 11,762. Improvements on Sulky Cultivators. (*Perfectionnements aux cultivateurs a siège.*)

William Nunn, Nixon, Ont., 15th September, 1880; for 5 years.

Claim.—1st. The cultivator frame composed of bars F F G G carrying the side standards, with teeth, and the axial bar or roller P carrying the front standard, with tooth journalled to the bars G. 2nd. The cultivator frame composed of longitudinal bars F G, bar P and bars N, suspended by drop bars *c* from bars H crossing the tongue C, whereby said bars F G have horizontal and lateral adjustability. 3rd. The combination with the vehicle frame having a draft tongue carrying transverse bars H, of the lifting chains I I gripping segments J J, shaft K, bearings L L and lever M mounted on the axle A.

No. 11,763. Improvements in Spring Tooth Harrows. (*Perfectionnements aux herses à dents à ressort.*)

Henry A. Kiltz, Kalamazoo, Mich., U.S., 15th September, 1880; for 5 years.

Claim.—1st. A spring harrow tooth having a straight portion D extending from its point of attachment to the tooth bar or frame and curved portion B. 2nd. A spring harrow tooth having a straight portion D, curved portion B and curved shank F, in combination with a tooth bar having a concave mortise, in its upper side, to receive the shank of the tooth and clip *c*. 3rd. A sectional harrow frame bearing spring teeth extending above the tooth beams, in combination with a boltless and keyless hinge constructed with a perpendicular oblong eye, and an open link with its oblique angled free end.

No. 11,764. Improvements on Pumps. (*Perfectionnements aux pompes.*)

John Hoover and Isaac N. Van Sickle, Crawfordsville, Ind., U. S., 15th September, 1880; for 5 years.

Claim.—1st. A falling drop or weight operating by concussion upon the upper end of the piston. 2nd. The combination of the piston B, drop or weight C, having guides *h*, rod *b*, eye *d* and guide rods I.

No. 11,765. Improvements on Scythe Fastenings. (*Perfectionnements aux manches des faulx.*)

George W. Pressey, Hammontown, N.J., U.S., 15th September, 1880; for 5 years.

Claim.—1st. The blade A having a segment or segmental termination A^1, one or both curved edges thereof being notched as at *b*. 2nd. The blade A having a segmental termination A^1 bevelled at *a*. 3rd. The handle provided with engaging lugs D D^1, and a tightening bolt E adapted for operation with the segmental end A^1 of the blade. 4th. The blade A with notched segment, or segmental termination A^1, in combination with lugs D D^1 and tightening bolt E. 5th. The face plate C with lug E^1, and the bolt E with head *a*, in combination with the blade A. 6th. The blade in combination with the face plate C having a ring or band C^1.

No. 11,766. Improvements on Electric Lamps. (*Perfectionnements aux lampes électriques.*)

Antoine H. J. M. Durrieu, (Assignee of Jules C. Jamin), Paris, France, 15th September, 1880; for 10 years.

Claim.—1st. An electric lamp having its carbons in proximity to an electric directing circuit so arranged as to attract the voltaic arc to the points of the carbons, such directing circuit being also made to effect the separation of the carbon points after kindling. 2nd. The method of effecting separation of the carbon points, after kindling, by means of an armature attracted to an iron sheathing of the directing coil which is rendered magnetic by the passage of the current. 3rd. The method of effecting separation of the carbons, when they are nearly consumed, by pressing one of them against a stud near its root, so that when it is no longer supported by the stud, it is pushed away from the other carbon. 4th. The arrangement of several pairs of carbons in one lamp, so that they are successively kindled and consumed. 5th. The arrangement for maintaining the general circuit, when the circuit is interrupted through any one of the lamps connected to the general circuit.

No. 11,767. Improvements on Can Filling Apparatus. (*Perfectionnements aux appareils à emplir les bidons.*)

John West, Westport, Oregon, and Robert D. Hume, San Francisco, Cal., U.S., 15th September, 1880; for 5 years.

Claim—1st. In a mechanical apparatus for filling cans, the carrying belt A moving over drums A^1 and actuated intermittently by the crank arm B, lever C and ratchet *b* with its pawl, whereby the material is delivered into the vertical directing chute. 2nd The horizontal belt A with its drums A^1, ratchet wheel *b* and pawls, in combination with the crank arm B, rotating lever C, said crank and lever being slotted and united by the adjustable bolt b^1, whereby the rotation of the ratchet and the movement of the belt may be increased or diminished. 3rd. In combination with the vertical chute G, the combined gate and presser f^1 with its lever *f*, and outwardly moving slide F^1 actuating disk E, arms D d^1 and the pitman F, whereby the gate is opened and closed, and caused to reciprocate to force the material downward. 4th. The vertically moving slide F^1 and the horizontally moving gate and presser f^1, in combination with the triple arms lever *f* pivoted to the slide F^1 and provided with the actuating pitman F, whereby the vertical movement of the slide and horizontal movement of the gate are performed by one operation, so that the material to be forced downward is separated from that above by each movement of the slide and gate. 5th. The forming and compressing case consisting of the semi-cylindrical plate *h h* rotating about a longitudinal axis and provided with an operating mechanism, whereby their upper edges are separated to receive the material from the chute, and closed after the can is filled. 6th. The forming and impressing case consisting of the semi-cylindrical plates *h h* adapted to be rotated upon each other about a horizontal axis, each plate having a seam in the upper edge to receive the material from the chute, when separated, and to act as a cutting knife and shaper, while closing. 7th. The cylindrical shaping and cutting knives *h h* adapted to receive material from the vertical chute G, said knives acting as a former to cut and mould a quantity of material sufficient to fill the can, and as a gate to separate this amount from that remaining in the chute. 8th. The cylindrical former consisting of the two movable sides *h h* with their flat toothed disks J, in combination with the rack bars I adapted to rotate the disks and plates in opposite directions alternately. 9th. The forming case consisting of the semi-cylindrical cutting plates *h h* with their actuating disks J and rack bars I having slotted links *q*, in combination with the lever P with its lugs *p* and the crank arm or cam O O, whereby the rack bars and disks are moved, and the sides of the cylinder are alternately opened and closed. 10 h. The case formed of the semi-cylindrical rotating and cutting knives *h h* with their operating disks J, said disks turning on a sleeve, whereby the plunger M is allowed to reciprocate through the case. 11th. In combination with the receiving and forming case consisting of the semi-cylindrical rotating cutters *h h*, adapted to be opened to receive the charge, and closed when full, and the reciprocating plunger M, the stationary extension L fitted to receive the can *l* and act as a guide, so that the material is deposited in the can and the latter removed when full, all at one operation. 12th. In a can filling apparatus, the can holding tubular extension adapted to fit within the can, so that the material, when forced through the extension, will be first deposited in the bottom of the can, and the air expelled as the can is filled.

No. 11,768. Improvements on Tailors' Measures. (*Perfectionnements aux mésures des tailleurs.*)

Robert G. McLellan, Guelph, Ont., 15th September, 1880; for 5 years.

Claim.—The plumb A with wire B, tape measure E with ring D and cords C F.

No. 11,769. Improvemnts on Moulds and Processes for Casting Car Wheels. (*Perfectionnements aux moules et procédés de coulage des roues des chars.*)

Zadoc S. Washburn, Chelsea, and Lucius W. Washburn, Boston, Mass., U.S., 15th September, 1880; for 5 years.

Claim.—1st. The mould for casting the tires of car wheels consisting of the bottom *b*, outer ring *c* and top or cope *e*, in combination with the removable centre ring *d* adapted to be forced out after the operation of casting is completed. 2nd The process of making a car wheel, consisting in, first, casting a tire in a mould A constructed as described and provided with a removable centre ring *d*, to allow of the transfer of the tire to a second mould before having time to cool below a welding heat, and then casting the centre or body of the wheel within the tire while the latter is at a welding heat in a second mould.

No. 11,770. Improvements on Water Supply Systems. (*Perfectionnements aux systèmes d'approvisionnement d'eau.*)

Nelson W. Green, New York, U.S., 15th September, 1880; for 5 years.

Claim.—1st. The combination of one or more series of driven wells penetrating into the water bearing stratum of the earth, a common suction pipe connecting said wells, a force pump or pumps having its or their induction part or parts connected with said suction pipe, and one or more water-mains connected with the eduction of said pump or pumps, whereby said mains and their connections are supplied with a copious supply of water under regulated pressure. 2nd. The combination of one or more series of driven wells penetrating into the water bearings stratum of the earth, a common suction pipe connecting said wells, one or more force pumps connected with said suction pipe, and one or more water mains connected with the eduction of said pump or pumps, whereby the general subterranean water deposit of the earth is caused to flow to said wells, thereby rendering them a substitute for a reservoir and local impurities of the water are eradicated. 3rd. The combination of one or more series of driven wells penetrating into the water bearing stratum of the earth, a common suction pipe connecting said wells, a force pump or pumps having its or their induction port or ports connected with said suction pipe, and one or more water mains provided with an automatic waste valve and connected with the eduction of said pump or pumps, whereby said mains and their connections are supplied with a copious supply of water under regulated pressure.

No. 11,771. Improvements on Tool Ferrules. (*Perfectionnements aux viroles d'outils.*)

John McMurchy, Gananoque, Ont., 15th September, 1880; for 5 years.

Claim.—Two ears of an oval form as designated on the drawing, figure 1 A B C and on figure 2 A *b*, section through A *b*, and on figure 3 C D section through C *d* protruding on the wooden handle of the implement fixed by being pressed on the said handle without the use of rivets.

No. 11,772. Saw Mill Dog. (*Clameau de scierie.*)

John M. Stowell, (Assignee of Albert Cunningham,) Milwaukee, Wis., U. S., 17th September, 1880; (Extension of Patent No. 5,184.)

No. 11,773. Improvements in Padlocks. (*Perfectionnements aux cadenas.*)

William R. McDonald, Willis E. McAllister, Calais, and Prentiss, Loring, Portland, M., U. S., 17th September, 1880; for 5 years.

Claim.—1st. The combination with the separable ends of the arms of a sleeve encompassing and sliding upon one, and adapted to enclose the other,

and provided with a suitable lock to prevent movement of the sleeve when the lock is closed. 2nd. In combination with a padlock of the class named, a combination or permutation lock adapted to prevent endwise movement of the sleeve upon the arm. 3rd. The lock composed of the spring impelled lever or latch *c* pivoted within a chamber in the arm *l* and operating with a notch or groove in the sleeve, to prevent endwise movement of the latter. 4th. The combination or permutation lock composed of the sleeve B with its spline or spur, the rings C D, etc., with their peripheral notches and stops, and the stop *o* upon the arm, the sleeve being provided with its scale of divisions and a zero mark being added to the arm.

No. 11,774. Improvements on Carriage Spring Fastenings. (*Perfectionnements aux ajustages des ressorts de voitures.*)

Robert McLaughlin, Oshawa, Ont., 17th September, 1880; for 5 years.

Claim. The concave clip D, and the form of end of side spring A, both in combination with the rubber C C.

No. 11,775. Improvements in the Manufacture of Sewing Thread. (*Perfectionnements dans la fabrication du fil à coudre.*)

Lysander Flagg, Central Falls, R. I., U. S., 17th September, 1880; for 5 years.

Claim.—As a new article of manufacture, a thread for sewing purposes manufactured from asbestos or amianthus.

No. 11,776. Improvements on Machines for Upsetting Wheel Tires. (*Perfectionnements aux machines à refouler les bandages des roues.*)

Daniel Feindel, Middleton, N. S., 17th September, 1880; for 5 years.

Claim.—1st. The cast iron bed A, sides and slots C C, with steel keys B B, as per F figure 3. 2nd. The combination of the machine A, and the keys B B.

No. 11,777. Improvements on Boiler Washing Machines. (*Perfectionnements aux machines à laver avec chaudières.*)

Julia C. Smith, Ashton, Ill., U. S., 17th September, 1880; for 5 years.

Claim.—1st. The boiler A, reel C composed of the strips *d d*, pivoted strips *e e*, catches *i i*, discs *f f* and axles *h l* of the reel. 2nd. In combination with the pivoted slats or bars *e e* of the reel, the spring fingers attached thereto by clasps and adapted to be adjustable thereon.

No. 11,778. Improvements on Apparatus for Obtaining Cream from Milk. (*Perfectionnements aux garde-lait.*)

William E. Lincoln, Warren, Mass., U. S., 17th September, 1880; for 15 years.

Claim.—1st. An enclosing tank for the milk containing vessels, combined with an ice receptacle having an arched or inclined bottom, serving as a roof to cover the milk vessels. 2nd. A water tank to contain vessels of milk combined with a removable cover having an ice receptacle, the bottom of the cover being adapted to dip into the water in the tank, and thus form a closed air chamber. 3rd. A water containing tank and a connected ice receptacle extended below the level of the water in the said tank. 4th. A milk containing vessel and a surrounding auxiliary vessel to permit the circulation of air about the milk containing vessel, combined with a water-holding tank in which the auxiliary vessel is partially immersed and with an ice receptacle, and a roof to cover the milk vessel. 5th. In a creaming apparatus, a vessel to receive the milk to be cooled, provided with a channel *b* in its lower portion, to be placed in contact with cooling material, the said channel allowing the cooling material to circulate freely and act on the body of milk in the vessel and affording an increased cooling surface.

No. 11,779. Improvements on Nut Locks. (*Perfectionnements aux arrête-noix.*)

Almon B. Richmond, Meadville, Pa., U. S., 17th September, 1880; for 5 years.

Claim. 1st. An L-shaped lock provided with an opening in its side, for the passage of the link which connects the latch with a knob spindle arranged in the angle of the lock, whereby the roses may be secured upon the solid wood. 2nd. The combination with the latch bolt, of a link hinged to its inner end, for the purpose of connecting it with the knob spindle. 3rd. The combination with a lock, of the roses provided with cylindrical sockets which constitute bearings for the knob spindle.

No. 11,780. Improvements in Rock Drilling Apparatus. (*Perfectionnements aux appareils à forer le roc.*)

Henry Richmann and Uriah K. Arnold, San Francisco, Cal., U. S., 17th September, 1880; for 5 years.

Claim. 1st. A feed screw provided with two or more V-shaped flanges *c* fitting in corresponding grooves whereby more than one bearing to overcome longitudinal jar is obtained. 2nd. In combination with the feed screw C, provided with two or more V-shaped flanges *c*, the grooved box *a* fitting in the feed screw chamber A^1 against the shoulder a_1, said box being provided with a key *b*, whereby wear is taken up and jar of the screw is prevented. 3rd. In combination with the case or carriage A adapted to carry the cylinder D, and drill operating mechanism, the supplemental chamber or feed screw cover A^1 adapted to carry the screw C with its flanges *c*, and the box *a* with its regulating key *b* and set screw b_1, whereby said screw and its parts are protected from accident. 4th. The method of attaching the drill tool to the head consisting in forming a tapering recess in said head, and providing a tapering clamp, made in two or more pieces, for the drill, and interposing between said clamp and head, an oppositely threaded sleeve which connects the head and clamp, whereby a long grip or bearing is obtained on the drill tool. 5th. A clamp for holding the drill tool made in two or more sections, and with a tapering end to fit into a corresponding socket in the drill head, and adapted to be held in position by an internally threaded sleeve which shall draw said tapering clamp into the tapering drill head hole, whereby the tool will be gripped tight, but may readily be released. 6th. In combination with the externally threaded drill head I provided with a tapering recess *i*, and the threaded drill clamp J made in two or more parts, tapered as shown and having a slot *j* for securing the screw J_1, the sleeve K_2 with its internal threads formed half right and half left or of different pitch, said sleeve being interposed between the clamp and head, whereby the clamp is connected to the head without liability of jamming, and the sleeve acts as a jam nut as well. 7th In an engine for actuating rock drills in which the drill tool is connected direct to the piston rod, the method of obtaining an equally effective piston area at both ends, consisting in forming the piston of two diameters, the front end larger than the rear, whereby as much power may be exerted on the backward as on the forward stroke. 8th. A rock drill cylinder carrying a piston L formed of two diameters, the forward end L_1 larger than the rear to account for loss of piston area due to the presence of the piston rod, the port or orifice l_1 at the edge of the offset in said cylinder and behind the enlarged piston head, whereby the formation of a vacuum in the compression of air within the cylinder is prevented. 9th. The improvement in the rotating mechanism of rock drills consisting in forming the ratchets which engage with the ratcheted sleeve having the diagonal slots in which the lugs of the drill head move in two or more sections, so placed that only one of said sections of teeth will engage with those of the sleeve at the same time, whereby a very slight turn may be given to the drill tool, and at the same time the teeth may be large enough to take a firm hold. 10th. In combination with the drill head having lugs which move in the diagonal slots of the ratcheted sleeve, two or more ratchet sections V encircling the extension head S and held between the circle breaking pins S_1, said sections V being provided with the springs *s* to keep them in contact with the teeth of the sleeve. 11th. In combination with the ratchet teeth *v* of the rotary mechanism of a rock drill, the interposing deepened slots v^1 whereby the wear of the teeth is automatically taken up. 12th. A rock drill having the drill tool connected with the piston rod, the ring W encircling the channelled drill head and provided with a key w^1 and set screw W_1, whereby a free reciprocation is allowed, but any desired friction may be maintained to the rotary motion of the drill, to effect a sure action of the ratchets. 13th. An engine having a piston and valve adapted to be moved in the same direction by air, gas or vapour under pressure, the ports M N having the supplemental posts *m n* m_1 n_1 and plates *o* o_1, in combination with the main piston L L_1 and the valve *d* with its heads K K_1. 14th. In combination with the piston L and the valve *d* with its pistons K K_1 moving in an independent chamber, the ports *t* t_1 *r* r_1, whereby the valve is made to travel in the same direction as the piston and operated to admit or exhaust the air. 15th. The valve *d* with its double heads K K_1 operating in an independent chamber, having the inlet port H, double exhaust ports Q Q_1 and inlet and discharge passages M N, in combination with the piston L L_1, said valve having its heads so arranged as to allow a smaller opening for the admission than the emission of air or steam from the cylinder. 16th. The drill tool connected direct to the piston rod, the piston L provided with the groove *l* for automatically connecting the passage *r* t_1 r_1 *t*, whereby the valve is operated in the same direction as the piston. 17th. In combination with the valve *d* provided with the opening *p* p_1, the chamber head *f* having the recess f_1, whereby the valve is cushioned, and high speed may be attained without the valve striking the head of the chamber. 18th. The valve *d* having the head K_1 with the extension provided with the hole p_1 said valve moving in a chest having the chamber head *f* to receive the valve extensions and to cushion the valve at each end of the stroke, said chamber f_1 also serving to close the passage *p* p_1 so that the air admitted through the passage *h* h_1 may act upon the head K_1 to start the valve. 19th. The piston actuated by air or steam admitted and exhausted alternately at each end of the cylinder, the valves or plates *o* o_1 placed in passages provided with shoulders X at opposite ends of the cylinders, and so shaped as to allow the ingress, but not the egress of air or steam, whereby the starting and cushioning of the piston is accomplished. 20th. The piston L L_1 actuated by air or steam admitted alternately at each end of the cylinder by means of ports and valves, the valve *d* provided with double heads K K_1 and moving in the chamber having the open ports Q Q_1 situated between the heads, whereby said ports Q Q_1 always remain open for the exit of air, and exhaust valves are dispensed with.

No. 11,781. Improvements in Iron Upsetting Machines. (*Perfectionnement aux machines à refouler les fers.*)

François R. Dubuc and Moïse Patenaude, L'Ange Gardien, Que., 17th September, 1880; for 5 years.

Résumé.—1o. Les pièces T T avec les dents V V et les peignes O O. 2o. Les mains N N avec les dents U U et les peignes O O. 3o. Les piéces T T et N N en combinaison avec les plaques X X de rechange, dont une avec biseau A, la vis G, le levier E E et la roue K, formant avec les jambes A et B un etau à fouler les fers ou autres métaux.

No. 11,782. Improvements on Lubricating Bearings for Millstones. (*Perfectionnements aux coussinets graisseurs pour les meules.*)

Joseph W. Batty and Garland H. Davison, Baltimore, Md., U. S., 17th September, 1880; for 5 years.

Claim. 1st. In combination with the stone C and with the spindle E, the bushing D provided with a central opening *d* and with at its upper end with oil recesses d_1 and notches d_2 that extend between the latter and said opening, and the collar G fitting around said spindle and over said bushing. 2nd. In combination with the oil recesses d_1, the bushing D and with the spindle E, the wicks F extending from said recesses, through the notches d_2 to said spindle. 3rd. In combination with the stone C and the spindle E, the collar G provided with the grease cup g_1 and secured to said stone, and the cap H attached to and revolving with said spindle and fitting over said grease cup. 4th. In combination with the stone C and the spindle E, the bushing D provided with the oil recesses d_1, the wicks F, the collar G having the grease cup g_1, the gasket L and the cap H.

No. 11,783. Composition for Cleaning Steam Boilers and Preventing Incrustation of the same. (*Composé pour empêcher les incrustations dans les chandières à vapeur et les nettoyer.*)

Fulton Henderson, Toledo, Ohio. U. S., 17th September, 1880; for 5 years.

Claim.—The combination of linseed oil, coal-tar and red lead.

No. 11,784. Improvements on Flour Bolting Machines. (*Perfectionnements aux machines à bluter la farine.*)

Lewis Baxter, Brantford, Ont., 20th September, 1880; for 5 years.

Claim. 1st. The combination of bolting chest with a purifier under it and connected by shoe *c*, hung on spring *d* and *e*. 2nd. The combination of bolting chest, in two halves or lengths, and holding the framing together by bars B hinged at C, and screwed rod or chain D. 3rd. The application of reel shaft E in two halves or lengths supported and stiffened by braces, also conveyor G in two halves or pieces, and the cant boards under reel slipping on cleats. 4th. The application of pitch chain L passing over wheels H I K.

No. 11,785. Improvements on Sugar Washing Process and Apparatus. (*Perfectionnements aux procédés et appareils de lavage du sucre.*)

John V. Booraem, Brooklyn, N.Y., U.S., 20th September, 1880; for 5 years.

Claim.—1st. Rolls A and troughs C D D_1 provided with revolving screws E G G_1 respectively. 2nd. The combination with the rolls A A, of the sectional trough C provided with screw E, guide F and troughs D D_1 having outlets I I and provided with screws G G_1. 3rd. The trough C provided with an adjustable end section C_1. 4th. The combination with the mixing troughs D D_1, of the triangular guide F. 5th. The process of washing sugar by passing the sugar with water or other suitable liquid through rolls, thence into series of stirring, incorporating and delivering troughs. 6th. The process of washing sugar by passing the sugar with water or other suitable liquid through rolls thence into series of stirring, incorporating and delivering machines and thence into centrifugal machines.

No. 11,786. Improvements on Rotary Valves. (*Perfectionnement aux soupapes rotatoires.*)

Charles J. McCallum, Warren, Me., U. S., 20th September, 1880; for 5 years.

Claim.—In a rotary valve constructed to make one fourth revolution to each stroke, the combination of the shell, slotted with ports and interposed bars, to give successive instalments of steam during each stroke, and of the transverse partition *g* with the valve seat and ports therein.

No. 11,787. Improvements on Horse Rakes. (*Perfectionnements aux râteaux à cheval.*)

David Maxwell, Paris, Ont., 20th September, 1880; for 5 years.

Claim.—1st. The cone-shaped projection B cast upon the hub A, or otherwise fastened to the wheel of the machine in combination with a conically dished disk E operated by suitable mechanism and connected to the axle D. 2nd. The cone-shaped projection B cast upon the hub A, or otherwise fastened to the wheel of the machine, in combination with a conically dished disk E operated by a forked lever G pivoted to straps H, on the axle D, and provided with pins *g* for engaging with the disk E.

No. 11,788. Improvements on Car-Couplings. (*Perfectionnements aux attelages des chars.*)

Nathaniel F. Brent and Elias R. Bowen, Chicago, Ill, U. S., 20th September, 1880; for 15 years.

Claim—1st. The hook *b*, springs *f*, in each draw-head and coupling pins *d e*. 2nd. The novel combination of the hook *b* and bearing spring *f* with the reinforcing springs *g h*. 3rd. The novel combination of the hook *b*, springs *f f* and pins *d e* with the push plate *j* or its equivalent. 4th. The draw hook *b* having an extended head provided with a hook or notch and also having an extension or shank *c* arranged with the draw bolts *d e* in use to be acted on by springs, to hold it in place and to be acted on by plates *j* or equivalent devices for uncoupling.

No. 11,789. Improvements on Safety Valves. (*Perfectionnements aux soupapes de sûreté.*)

Henry G. Ashton, Somerville, Mass., U. S., 20th September, 1880; for 5 years.

Claim.—1st. The spring H supported between the two supports *h* h_1, the lower support *h* pivoted directly upon the centre of the valve and near the level of the ground joint or valve seat, and the upper h_1 pivoted directly upon the centre of the adjusting screw, both being free to tilt as the spring requires. 2nd. The combination of shell A, bushing B, cap C_1, screw F, spring H, supports *h* h_1 and valve G, the screw F passing directly through cap C, the spring on both pivots being above the level of the ground joint and each of the parts being made and combined together. 3rd. The combination of valve G made to extend beyond the ground joint, and the adjustable shell A having its inner diameter at a_1 smaller than at a_2, the overhanging part of the valve fitting the shell at a_1. 4th. The combination of adjustable shell A, valve C and ring *f*, each of the parts being constructed and arranged with the other, as described.

No. 11,790. Improvements on Tanning Hides and Skins. (*Perfectionnements dans le tannage des peaux.*)

Frederick G. Vedova, Smyrna, Asia Minor, 20th September, 1880; for 15 years.

Claim.—Alternately soaking hides and skins in tannin solutions and subjecting them to a squeezing operation, either by passing them between rollers or by acting upon them by other nipping or stamping mechanism.

No. 11,791. Improvements on Fruit Packages. (*Perfectionnements aux boites à fruits.*)

Richard J. Doyle, Owen Sound, Ont., 20th September, 1880; for 5 years.

Claim.—1st. A fruit package composed of parallel sided staves A of uniform length placed close together at one end and splayed apart at the top to form tapering insterstices, and nailed to exterior hoops B C D, the bottom heading D_1 inserted and fixed by hoop E, and the cover or top E_1 by hoop F, the cover having nicks G peripherally to pass catches H nailed to the staves to project and hold the cover when turned centrifugally. 2nd. The cover E_1 having peripheral nicks G, in combination with fixed projecting catches H nailed to the chain and a supporting hoop F nailed to the staves within the package.

No. 11,792. Improvements on Brushes. (*Perfectionnements aux pinceaux.*)

Charles Boeckh, Toronto, Ont., 20th September, 1880; for 5 years.

Claim.—As an improved article of manufacture, a brush provided with bridle holder C, soldered or otherwise secured to the band A and provided with a bent end *a* for holding a bridle holder.

No. 11,793. Improvements in Bit Stocks. (*Perfectionnements aux vilebrequins.*)

Obed Peck, Rowe, Mass., U.S., 20th September, 1880; for 5 years.

Claim—1st. The jaw piece B and nut C combined with the shell A having a socket to receive and hold bit-shanks, when said jaw piece has a chisel edge *b* of which the bevel on the side of said edge, in the direction toward which a bit shank moves in entering said socket, makes a greater angle with the line of motion of said shank in entering the same than the bevel on the other side of said edge. 2nd. The jaw piece B having one or more bearing in the shell A inclined, to guide it inward from the outer end of said shell.

No. 11,794. Improvements in Dyeing Cotton Warps and Cotton Aniline Black, and in Apparatus therefor. (*Perfectionnements dans la teinture de la chaîne de coton et du coton en noir d'aniline, et aux appareils pour cet objet.*)

Ernest Posselt and Rudolph Peters, Bradford, England, (Assignees of Jule J. Leloir, Tourcoing, France), 20th September, 1880; for 5 years.

Claim.—1st. The employment of the mordants for dyeing cotton warps and cotton fabrics. 2nd. The method of dyeing cotton warps or cotton fabrics aniline black, by the employment of shower baths or by admitting the dyeing mixtures in such quantities that the warps or cotton fabrics will imbibe, or nearly imbibe, the mixtures in passing through the cisterns and then keeping the mixture at an equal degree of concentration, by the use of apparatus.

No. 11,795. Improvements in Gas Carburetters. (*Perfectionnements aux carburateurs à gaz.*)

Walter M. Jackson, Providence, R. I., U. S., 20th September, 1880; for 5 years.

Claim 1st. The process of carburetting gas or air consisting in exposing constantly renewed thin filmes of volatile hydro-carbon, the supply of which is governed by the evaporating and a non-absorbing surface, to a passing current of gas or air. 2nd. The combination with the carburetter, of a reservoir communicating with the carburetter, and a floating valve constructed to regulate the supply of hydro-carbon to the carburetter. 3rd. The combination with the carburetter A and reservoir B connected by an aperture, of the valve *i*, float *k* and the tube *m* connecting the carburetter with the reservoir. 4th. The combination, with the carburetter A and reservoir B, of the union piece *g* provided with the flange to receive the reservoir, and with the tube *h*. 5th. The combination, with the pan *b*, of the cover *c* provided with the partition *d d*, and the frames *f f* constructed to secure the cover to the pan by means of bolts. 6th. The combination, with a carburetter and a reservoir constructed to supply the carburetter with liquid hydro-carbon automatically, of a tube connecting the two, and arranged to equalize the pressure. 7th. The combination, with the tube *h* having a valve seat at its upper end, of the valve *i* secured to the float K constructed to regulate the supply of hydro-carbon to the carburetter. 8th. The combination with a carburetter and a supply vessel, each provided with a cock or valve, of a union joint constructed to connect the supply vessel with the carburetter. 9th. The combination, with the reservoir B, of the pipe *n* provided with the cock n_1, the supply vessel C with the cocks *o p*, and a union piece constructed to connect the supply vessel with the reservoir whilst the carburetter is in operation. 10th. The combination, with the supply vessel constructed to be connected with the reservoir and provided with the cocks *o* n_1, of the pipe *n* extending downward into the reservoir.

No. 11,796. Improvements on Kitchen Implements. (*Perfectionnements aux outils de cuisine.*)

William H. Thayer, Ottawa, Ont., 22nd September, 1880; for 5 years.

Claim. 1st. A kitchen implement consisting of a continuous handle having from the lower portion projections or hooks, suitably arranged for lifting tilting hollow-ware, removing stove covers and for other purposes. 2nd. The circular handle A having holes *a a*, or suitable projections for the fingers of the operator, horn B, lower and upper hooks C D, and straight pointed hook E, relatively arranged with or without the pounder F. 3rd. A circular handle A having hooks and other projections, suitably arranged for the purposes set forth, the sides of the handle being parallel to lie on a flat surface for adaptation as a stand for flat irons and other similar uses.

No. 11,797. Oil Tank. (*Réservoir à huile.*)
Stephen Webster, St. Catharines, Ont., 22nd September, 1880; (Extension of Patent No. 5,195.)

No. 11,798. Heating Stove. (*Poêle de chauffage.*)
Alexander Bettes, Warrensburgh, Mo., U. S., 23rd September, 1880; (Extension of Patent No. 5,264.)

No. 11,799. Improvements on Cultivators.
(*Perfectionnements aux cultivateurs.*)
Edwin Appleton, Vienna, Ont., 23rd September, 1880; for 5 years.

Claim. 1st. The combination of the frame A, teeth E E provided with inches *d*, bent rod *a*, nuts *e e* and piece *b*. 2nd. The combination of the braces *f f*, joint braces *s s* and thumb screw bolt *h*. 3rd. The combination of braces *t t r u* and frame A.

No. 11,800. Improvements in Pumps. (*Perfectionnements dans les pompes.*)
William S. McLeod, Kingsville, Ont., 23rd September, 1880; for 5 years.

Claim. 1st. The combination of the pump cylinder divided into two chambers D D1 by a partition E, near its lower end, its piston and induction and eduction ports, with the induction pipes provided with side openings E having removable plugs I, and the lower ends of the pump cylinder, and the lower and upper ends of the induction pipes F, provided with interchangeable plugs and valved sections, whereby the pump may be adapted as a surface pump or a submerged pump, at will. 2nd. The combination with the pump cylinder and the induction pipes F connected thereto, of the eduction pipes N connected with the upper chamber D of the pump cylinder, by means of reversible valve sections G, and the interchangeable plugs and valved sections of the pump cylinder and induction pipes, whereby water may be lifted from two cisterns or reservoirs and discharged in single or separate streams. 3rd. In combination with the pump cylinder, its induction and eduction pipes F N, the reversible valve sections G, whereby the ports of the pump chamber may be changed at will, to adapt the pump to different uses. 4th. The combination of the closing box and flanged sup porting plate, with the pump cylinder, its induction and eduction tubes and valves, and the detachable and interchangeable plugs and valve sections, whereby the pump may be arranged to take water from the enclosing vessel or from a source outside of the same, to adapt the apparatus to use as a garden or other portable pump. 5th. The combination, in a pump, of the cylinder A divided into an upper and a lower chamber D D1, with the induction pipes F F, and the horizontal connecting sections, the upper sections G G, communicating with the chamber D, being valved, and the lower sections H H communicating with the chamber D being perpetually open.

List of Patents issued up to 6th November, 1880, but not yet Officially published in the Patent Office Record.

No. 11,865. The Rubber Cushioned Axle Company, (Assignee of John Brinkley,) Lammis, N.Y., "Elastic Hub," (Extension of Patent No. 7,619,) patented 10th July, 1877.

No. 11,866. David Groesbeck, of New York, N.Y., "Ventilating apparatus," patented Oct., 13th, 1880.

No. 11,867. La Fayette Wildermuth, Lexington, Ohio, "Spring Bed," patented Oct., 13th, 1880.

No. 11,868. Benjamin Wilt, of Petersburg, Penn., U.S.A., "Truck and Bag Holder," patented Oct., 13th, 1880.

No. 11,869. Fortanato Clemente Janette, of Bryan, Texas, U.S.A., "Vise," patented Oct., 13th, 1880.

No. 11,870. James Morrison, "Steam Cocks Handles," patented Oct., 13th, 1880.

No. 11,871. John Harry Harford, of Indianapolis, Indiana, U.S.A. "Free Clip," patented Oct., 13th, 1880.

No. 11,872. Max Tschirmer, of San Francisco, Cal., U.S.A., "Explosive Compound," patented Oct., 13th, 1880.

No. 11,873. David Newell Brown Coffin, the younger, of Boston, and Benjamin Woodward, of Cambridge, both of Mass., U.S.A., "Elastic Chain Stopper," patented Dec., 9th, 1875.

No. 11,874. Alexander Macdonald, of Worcester, Mass., U.S.A., "Finger Nail Cutter," patented Oct., 15th, 1880.

No. 11,875. John Sanford Bowen, of Spenceport, and Elisha Johnson Potter, of Knowlesville, both of N.Y., U.S.A., patented Oct., 15th, 1880.

No. 11,876. William McKenzie, of Morrisburg, Ont., "Fanning Mill Shake," patented Oct., 15th, 1880.

No. 11,877. Joseph William Kenna and Reuben A. Hitchock, of Chicago, Ill., U.S.A., "Child's Chair and Carriage," patented Oct., 15th, 1880.

No. 11,878. George Allan White, Halifax, Nova Scotia, "Knitting Machine," patented Oct., 15th, 1880.

No. 11,879. John Westgarth, of Warrington, England, "Barbe Wire Fence," patented Oct., 15th, 1880.

No. 11,880. Walson Playter Widdifield, Silvam, Ont., "Automatic Friction Brake," patented Oct., 23rd., 1875.

No. 11,881. Frederick Wicks, of Glasgow, Scotland, "Distributing and Composing Machine," patented Oct., 19th, 1880.

No. 11,882. James Edward Henry Gordon, of Holmwood Cottage, Dorking, England, "Electric Lighting," patented Oct., 19th, 1880.

No. 11,883. Robert Standing, of Boston Mills, Ont., "Gate Latch."

No. 11,884. Charles Weightman Harrison, of Kensington, England "Electric Lighting, patented Oct., 19th, 1880.

No. 11,885. Roswell Hinman Smith, of St. Catharines, Ont., (Assignee of George Frederick Simonds, of Fitchburg, Mass., U.S.A.,) "Apparatus and Process for Tempering and Straightening," (Extension of Patent No. 5,288,) patented Oct., 19th, 1880.

No. 11,886. William Briggs, of Montreal, Quebec, "Nail Plate Feeder," (Extension of Patent No. 10,741,) patented Oct., 20th, 1880.

No. 11,887. William Briggs, of Montreal, Que., "Nail Plate Feeder," (Extension of Patent No. 10,741,) patented Oct., 20th, 1880.

No. 11,888. Thomas Miller, of Portland, St. John, N.B., "Iron Box Piles," patented Oct., 20th, 1880.

No. 11,889. Quentin Leon Brin, of Sheperd's Bush, England, "Oxycarbon Light and Lamps." patented Oct., 20th, 1880.

No. 11,890. John Rae, of New York, U.S.A., "Crusher and Grinder," patented Oct., 20th, 1880.

No. 11,891. Henry Calcutt, of Ashburnham, Ont., "Churns," patented Oct., 20th, 1880.

No. 11,892. Théophile Gervais, of Hochelaga, Que., "Draining Well," patented Oct., 20th, 1880.

No. 11,893. George Wiard, of Batavia, U.S.A., "Mould for Casting Chilled Mould Boards," patented Oct., 20th, 1880.

No. 11,894. Andreas Olsen, of Ephriam, U.S.A., "Pontoon Steam Vessel," patented Oct. 20th, 1880.

No. 11,895. Herbert Enos Dennett, of Boston, Mass., U.S.A., "Dental Navoli," patented Oct., 20th, 1880.

No. 11,896. Charles Stanhope Watson and James Rose, of Montreal, Que., "Trap," (Extension of Patent No. 5,727,) patented Oct., 20th, 1880.

No. 11,897. Gilman Hill Ames, of Adrian, Lenawa, U.S.A., and Embree B. Lapham, of Rockford, U.S.A., "Car Coupling," (Extension of Patent No. 5,367,) patented Oct. 20th, 1880.

No. 11,898. Charles Stanhope Watson and James Rose, of Montreal, Que., "Plumbers' Trap," (Extension of Patent No. 5,727,) patented Oct., 21st., 1880.

No. 11,899. Gilman Hill Ames, of Adrian, and Embree B. Lapham, Rockford, Mich., U.S.A., (Extension of Patent No. 5,367,) patented Oct., 21st, 1880.

No. 11,900. Asher Holmes, of Hamilton, Ont., "Churn Dasher," (Extension of Patent No. 5,361,) patented Oct. 22nd, 1880.

No. 11,901. James Henry Connor, of Brockville, Ont., "Washing Machine," patented Oct. 22nd, 1880 (Extension of Patent No. 5,340).

No. 11,902. James Pliny Perkins, of Minneapolis, Minn., and Charles Carroll Jones, of Targo, Dakota, N. Y., U. S. A., "Railway Spike," patented Oct. 26th, 1880.

No. 11,903. Francis Green, of Oakville, Ont., "Hurdle," patented Oct., 26th, 1880.

No. 11,904. Thomas Anthony Covey, of Halifax, N. S., "Cabinet Bedstead," patented Oct. 26th, 1880.

No. 11,905. Patrick Fitzgibbons, of Oswego, New York, U. S., A., "Tube Expander," (Extension of Patent No. 5,334), patented October 30th, 1880.

No. 11,906. Hugh Baines, of Oakville, Ont., (Assignee of Jacob Benjamin Slickter, of Kalamazoo, Mich., U. S., A., "Elastic Paint," (Extension of Patent No. 5,297), patented October 30th, 1880.

No. 11,907. Watson Playter Widdifield, of Silvam, Ont., "Car Brake," (Extension of Patent No. 5,333), patented October 30th, 1880.

No. 11,908. Frederick John Clubb, of Guelph, Ont., "Coal and Coke Draw Lime Kiln," (Extension of Patent No. 5,341), patented October 30th, 1880.

No. 11,909. John Albert Chapman, of Whitewater, Wis., U.S., A., "Carriage Top," (Extension of Patent No 9,302), patented October 30th, 1880.

No. 11,910. Philander Gillett Finn, of Erie, Penn., U. S., A., "Lumber, Dryer," October 30th, 1880.

No. 11,911. Joseph Thomas Parlour, of London, Eng., "Steam Navvy," patented October 30th, 1880.

No. 11,912. George Washington Rosebough, of Jackson, Mich., U.S., A. "Saw Guide," patented October 30th, 1880.

No. 11,913. William Lambert Inlay, of Camden, N. J., U. S., A., "Ore Concentrator," patented October 30th, 1880.

No. 11,914. Benjamin Jewette Howe, of Sing Sing, N.Y., U.S., A., "Dish Washer," patented October 30th, 1880.

No. 11,915. Francis John Bolton and James Alfred Wanklyn, of Middlesex, Eng., "Azotic Manure," patented Oct. 30th, 1880.

No. 11,916. John Walker, of Indianapolis, Ind., U. S., A., "Shaft Couplings," patented October 30th, 1880.

No. 11,917. Frederick Crocker, of Olean, N. Y., U. S., A., "Combination Pump," patented October 30th, 1880.

No. 11,918. Hiram W. White, of Yankton, Dakota, U. S., A., "Churn Dasher," patented October 30th, 1880.

No. 11,919. William Lord Williams, of San Diego, California, U. S., A., "Bran Packing Machine," patented October 30th, 1880.

No. 11,920. Frank Atwood Huntington, of San Francisco, Cal., U. S., A.

No. 11,921. The Hamilton Industrial Works Company (Assignee of Matthew Wilson, of Hamilton, Ont., "Combined Stovepipe Shelf and Drier," (Extension of Patent No. 5,486), patented Nov. 2, 1880.

No. 11,922. Frederick William Bartlett, of Buffalo, N. Y., U. S., A., "Ozone Machine," (Extension of Patent No. 5,337), patented November 2nd, 1880.

No. 11,923. Charles Edwin Hill, of New York, N. Y., U. S., A., "Structure," (Extension of Patent No. 5,325), patented Nov. 2nd, 1880.

No. 11,924. Zephaniah Sanford Lawrence, of St. Cesaire, and Hiram Addison Lawrence, of East Farnham, Que., "Sap Spout," patented Nov. 2nd, 1880.

No. 11,925. James Reidy, of Kennington Road, Eng., "Hot Mangle and Ironing Machine," patented Nov. 2nd, 1880.

No. 11,926. Conrad Eimbeck, of New Haven, Miss., U. S., A., "Couplings for Vehicle Axles," patented Nov., 2nd, 1880.

No. 11,927. Joseph Vincent Renchard and John J. Renchard, of Detroit, Mich., U. S., A., "Lubricator," patented Nov. 2nd, 1880.

No. 11,928. Oliver Stephens Garretson, of Buffalo, N.Y., U. S., A., "Extension Table Slide."

No. 11,929. Seth Kimball Devereux, of Fredericton, N. B., "Koptography," patented Nov. 2nd, 1880.

No. 11,930. David Marks Richardson, of Detroit, Mich., U.S., A., "Grain Scourer and Polisher," patented Nov. 2nd, 1880.

No. 11,931. Alexander Gemmell and Alexander Boyd, of Toronto, Ont., "Boot and Shoe Ventilator," patented Nov. 2nd, 1880.

No. 11,932. John Findlay, of Montreal, Que., "Spring Wheel," patented Nov. 2nd, 1880.

No. 11,933. John Henry Laskey and Isaac Francis Dobson, of Boston, Mass., U. S., A., "Self-Levelling Dining Table for Vessels," November 2nd, 1880.

No. 11,934. Nathan Updegraff Walker, of Wellsville, Ohio, U. S., A., "Interlocking Pipe Section," patented Nov. 2nd, 1880.

No. 11,935. Thomas Buckingham, of Sainte Cunégonde, Que., "Sleighs," patented Nov. 6th, 1880.

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ILLUSTRATIONS.

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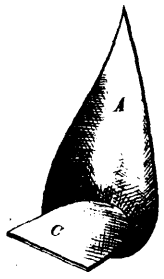

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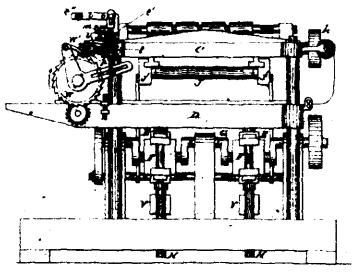

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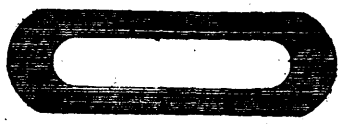

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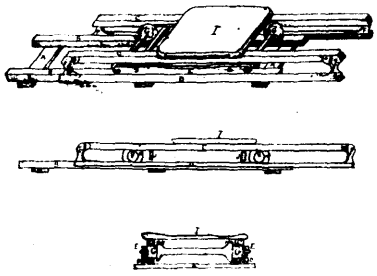
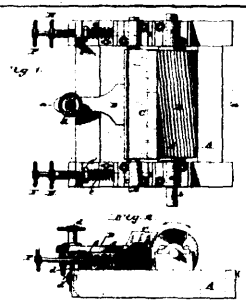
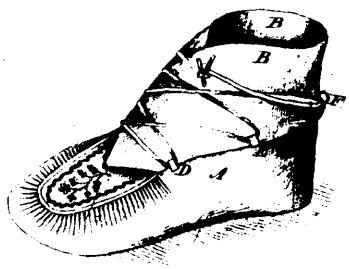


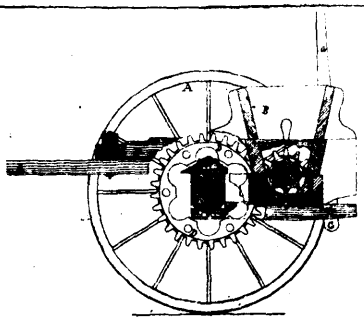
11666 Hicks's Improvements on Boat Sliding Seats.



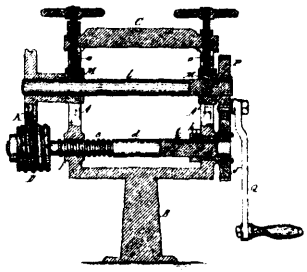
11668 Stevens's Improvements on Machines for Grinding and Reducing Grain and other Materials.



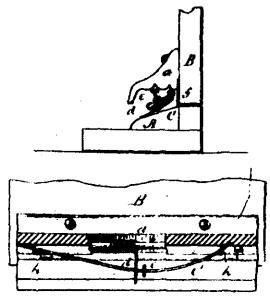
11670 Vincent's Improvements on Moccasin Ties.



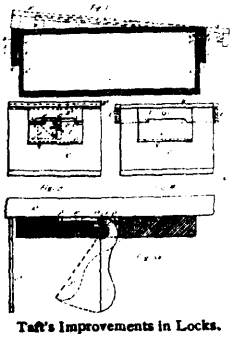
11671 Harrison's Improvements on Salt Sowers



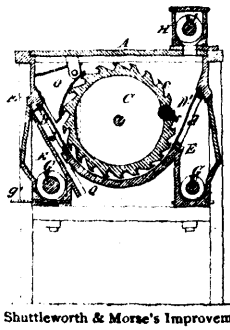
11672 Roseboom's Improvements in Machines for Grooving Pipes.



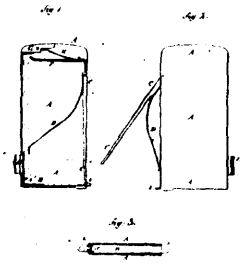
11673 Bell's Improvements on Weather Strips.



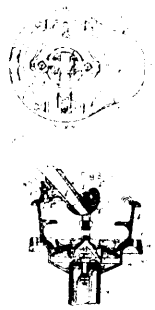
11674 Taft's Improvements in Locks.



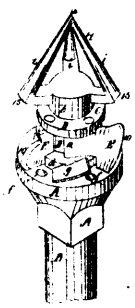
11676 Shuttleworth & Morse's Improvements in Bolting Machines.



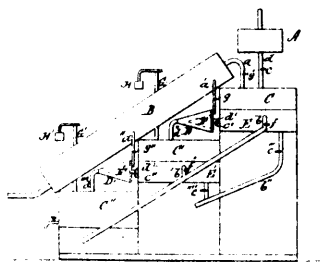
11677 Wood & Rice's Improvements in Pocket Match Boxes.



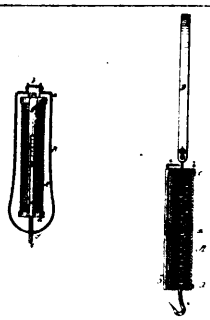
11678 Edson's Improvements on Diaphragm Pumps.



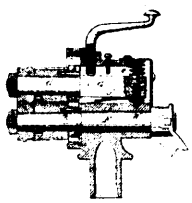
11679 Taft & Darling's Improvements on Steam Boiler Tube Cleaners.



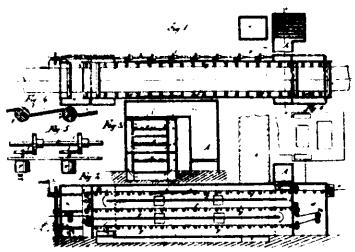
11680 Goewey & Godley's Improvements on Ageing and Purifying Whisky and other Liquors.



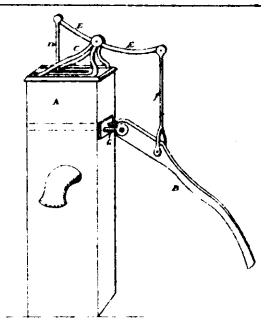
11681 Parker's Improvements in Spring Scales.



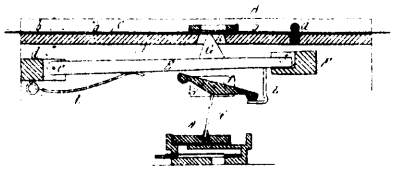
11682 Packham's Improvements on Pipe Crimping Machines.



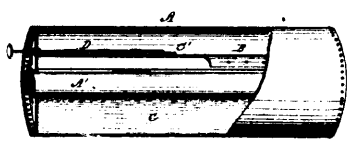
11683 Kaiser's Method of, and Apparatus for Drying Paper.



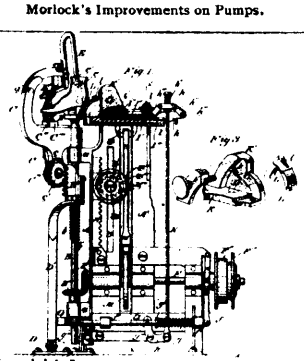
11684 Morlock's Improvements on Pumps.



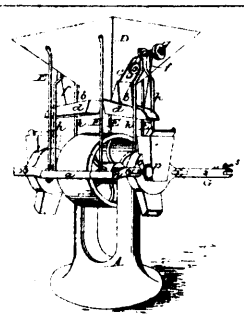
11685 Arno's Improvements on Mechanical Musical Instruments.



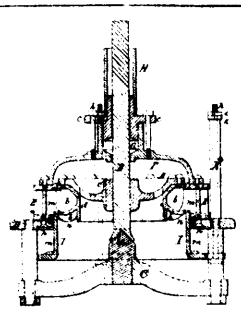
11687 Lawson's Means for Preventing Explosions of Steam Boilers.



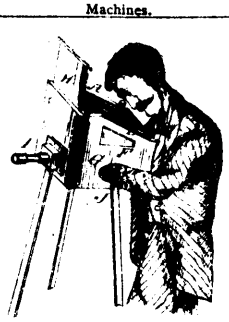
11690 Langlois's Improvements in Heel Trimming Machines.



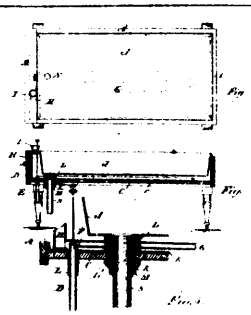
11691 Raymond's Improvements on Grinding Mills.



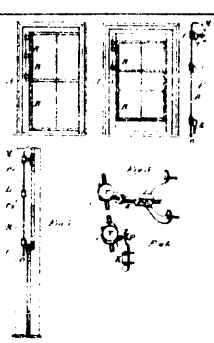
11692 Staples's Improvements in Turbines.



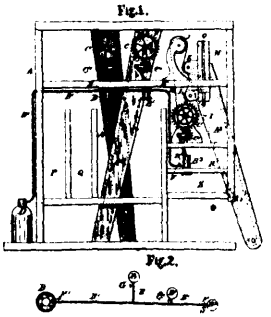
11693 Mote's Improvements on Photographic Apparatus.



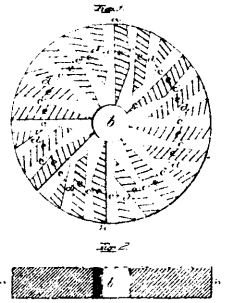
11694 Martin & Bean's Improvements in Milk Coolers.



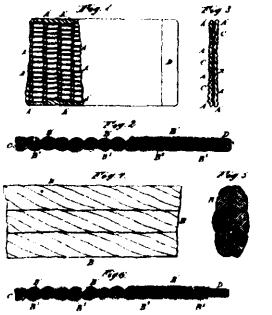
11696 Grant's Improvements in Window Fastenings.



11696 Dunbar's Improvements on Elevators.

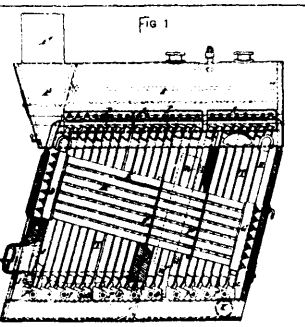


11697 Hale's Improvements on Millstone Dress.

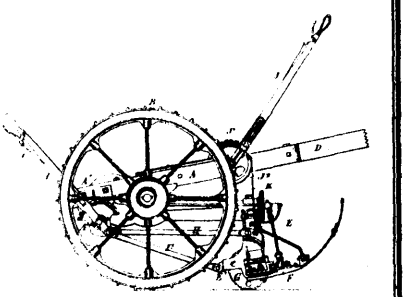


11703 Long's Improvements on Machine Belting.

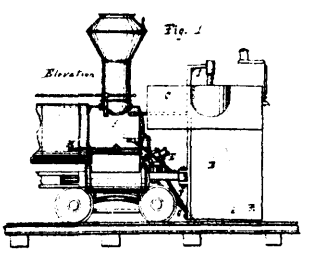
11704 Jackson's Improvements on Bake Pans.



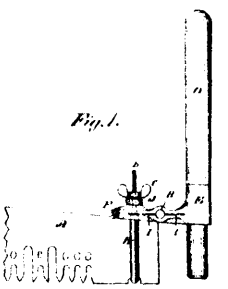
11705 Babcock & Wilcox's Improvements on Steam Boilers.



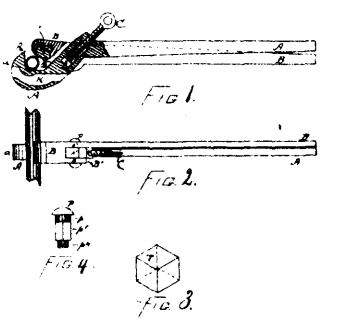
11706 Sweet & Watson's Improvements on Mowing Machines.



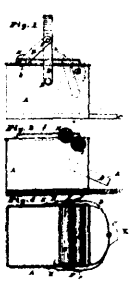
11707 Hawley's Improvements on Snow Ploughs.



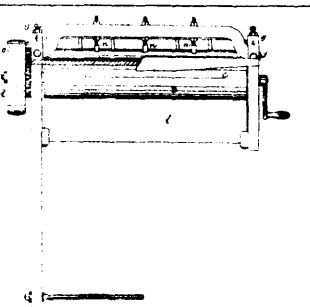
11708 Dietrich's Improvements on Cross Cut Saw Handles.



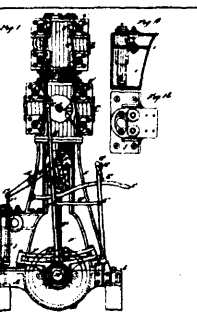
11709 Lovrien's Improvements on Pipe Tongs.



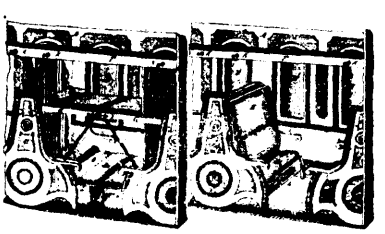
11710 Burtis's Improvements in Mop Wringers.



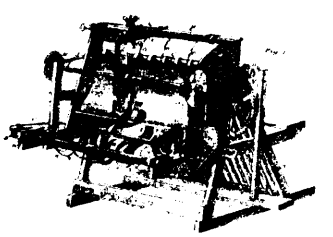
11711 Fairfield's Improvements on Machines for Assorting Leather.



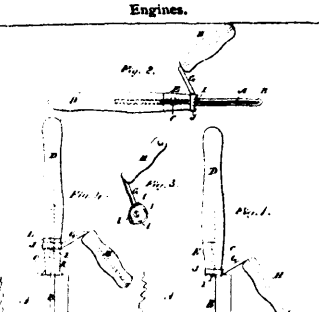
11712 Babcock & Wilcox's Improvements on Steam Engines.



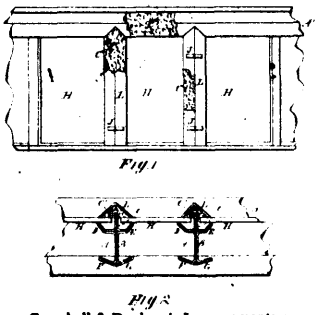
11713 Clarke's Improvements on Palace and Sleeping Cars.



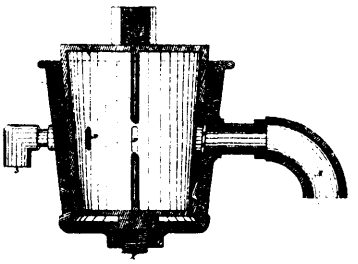
11714 Green's Improvements on Grain Binders.



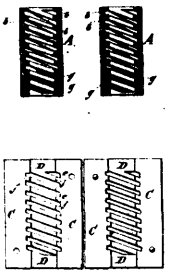
11715 Dietrich's Improvements on Cross Cut Saw Handles.



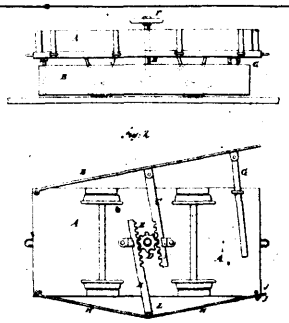
11716 Campbell & Dunlevy's Improvements on Skylights.



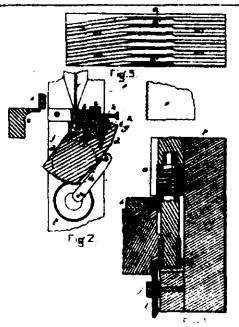
11717 Hough's Improvements on Water Cocks.



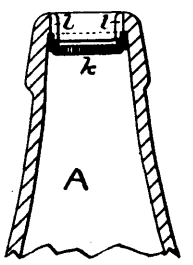
11720 Smalley's Improvements on Journal Bearings.



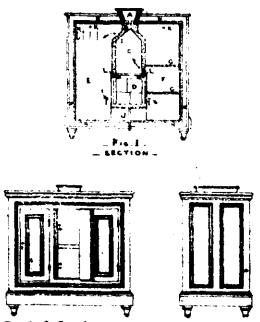
11721 Andrews's Improvements on Earth Cars.



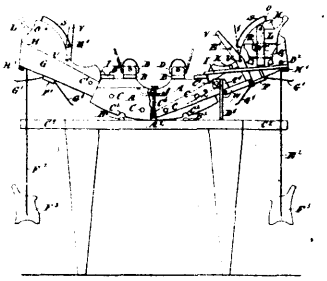
11722 Wickersham's Improvements on Nail Cutting Machines.



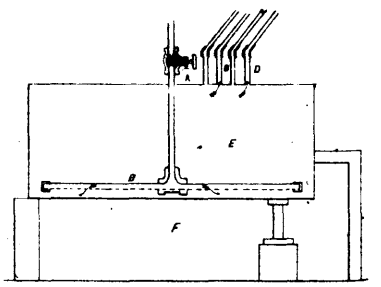
11723 Barrett's Improvements in Bottles and Stoppers.



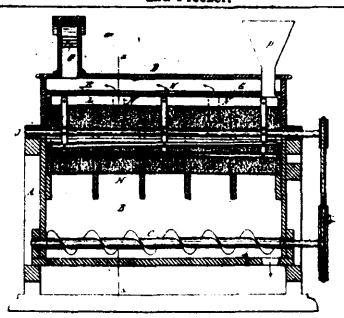
11724 Clark & Lockerby's Combined Refrigerator and Freezer.



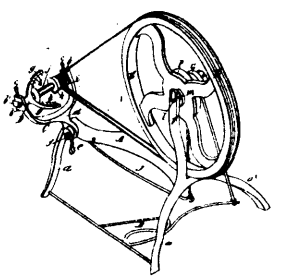
11725 Baker's Improvements on Swings and Rockers.



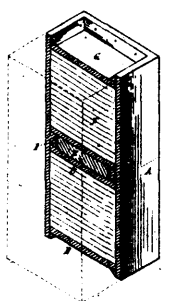
11726 Woodward's Process of Deodorizing Petroleum Tar and Crude Petroleum.



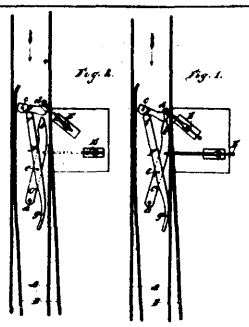
11727 Webster's Improvements on Flour Bolts.



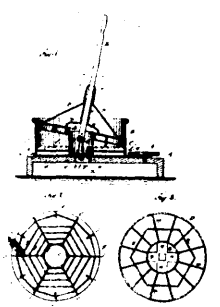
11728 Vigeaut & Desmarets's Improvements in Spinning Machines.



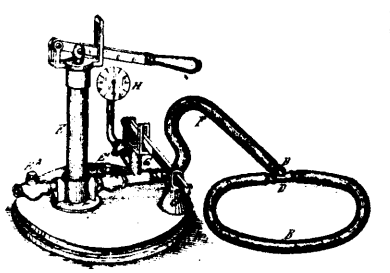
11729 Balmer's Improvements on Boxes for Packing Switches.



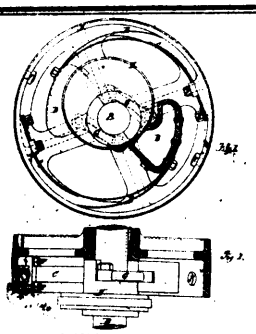
11730 Larocque's Improvements in Railway Switches.



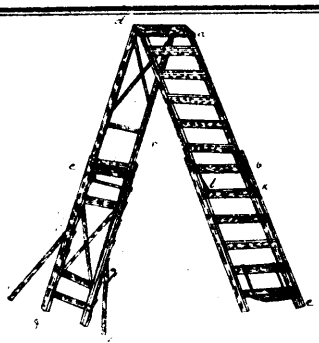
11731 Atkinson's Improvements on Combined Clothes Washers and Wringers.



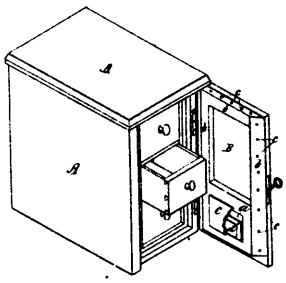
11733 Keith's Improvements in Elastic Cushions for Millstones.



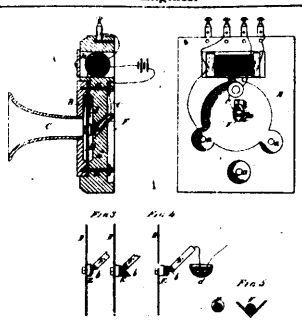
11734 Fairgrieve & Killey's Improvements in Steam Engines.



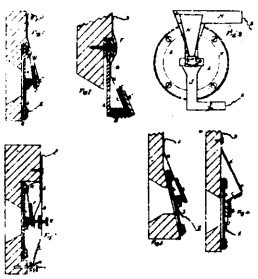
11735 Boyd's Improvements in Fruit Ladders.



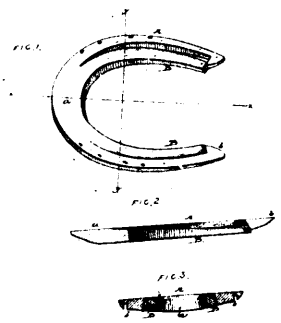
11736 Goyer's Improvements in Cabinet Wardrobes.



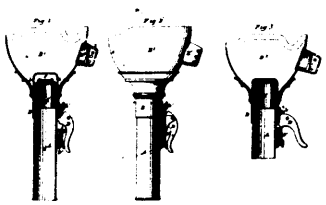
11737 Berliner's Improvements on Microphones.



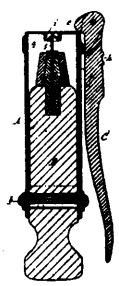
11738 Roseburgh's Improvements on Microphones and Telephones.



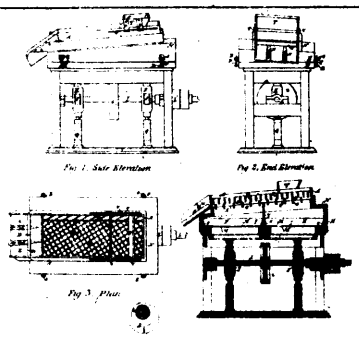
11739 Yates's Improvements on Horseshoes.



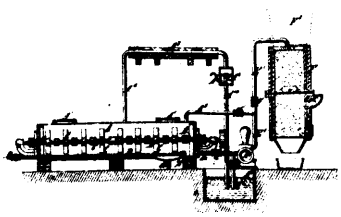
11740 Hurd's Improvements on Inhalers.



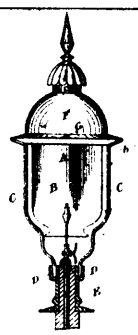
11741 Worden's Improvements on Devices for Capping Cartridges.



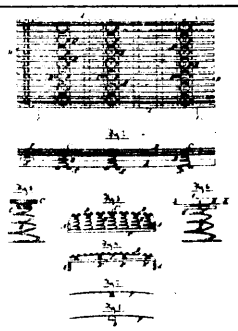
11742 Paddock's Improvements on Ore Separators.



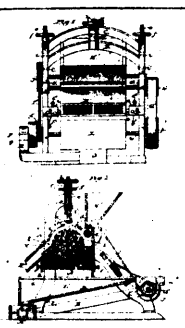
11743 Bell, Sloane & Potter's Process of Purifying, Cleaning and Refining Wax, Fatty Matters, Resins, and Gums.



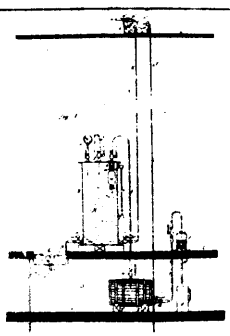
11744 Laxton's Improvements on Street Lamps.



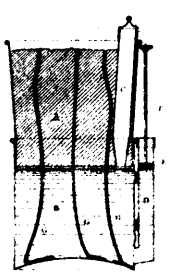
11745 Julien's Improvements on Spring Beds.



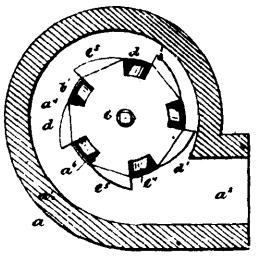
11746 Jones's Improvements on Grinding Machines.



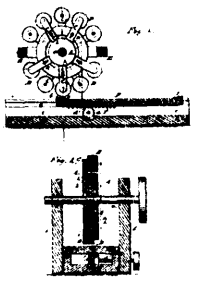
11747 Goudron's Improvements on Beer Pumps.



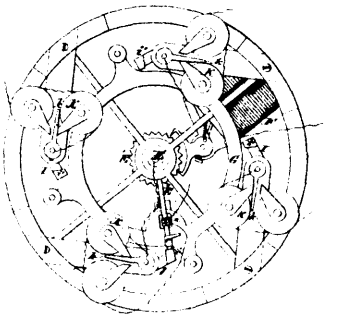
11748 Wagner's Improvements on Flower Pots.



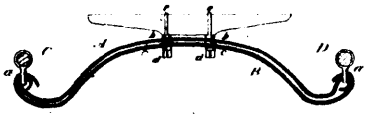
11749 Davis's Improvements in Water Wheels.



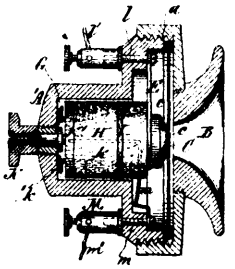
11750 Frank's Improvements on Stone-cutting Machines.



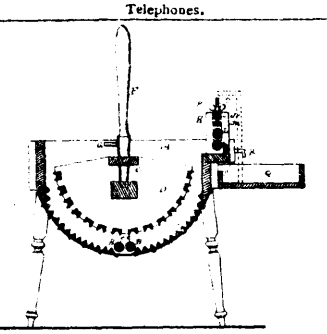
11751 Connolly & McTighe's Improvements on Telephones.



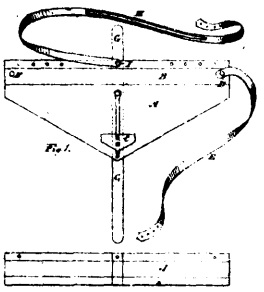
11753 Hamlin's Improvements on Vehicle Springs.



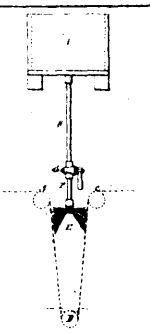
11754 Cook's Improvements on Electric Telephones.



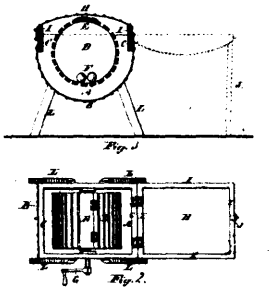
11755 Burke's Improvements on Combined Washers and Wringers.



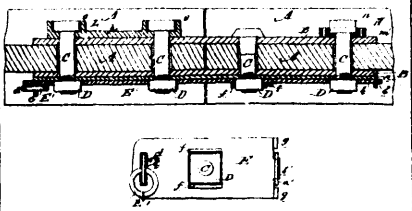
11756 McLellan's Improvements in Tailors' Measures.



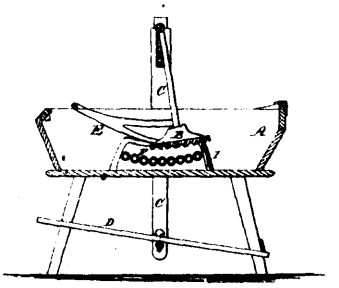
11757 Leloir's Improvements in Dyeing Process.



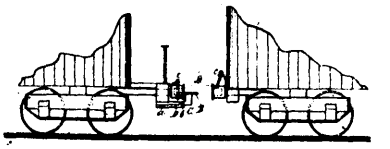
11758 Andreas's Improvements on Washing Machines.



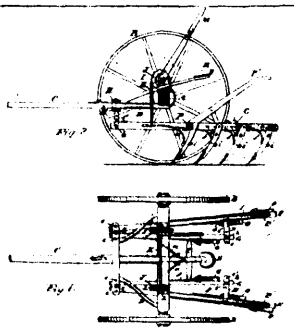
11759 Grubb's Improvements on Nut and Bolt Locks.



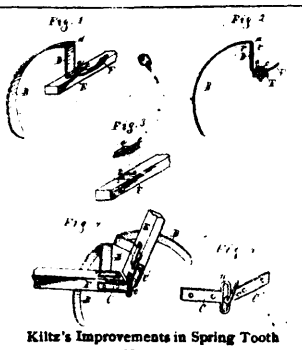
11760 Church's Improvements on Washing Machines.



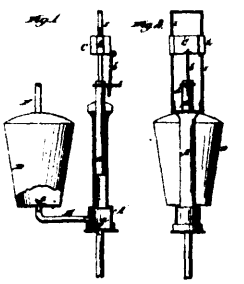
11761 Laroque's Improvements in Car-couplings.



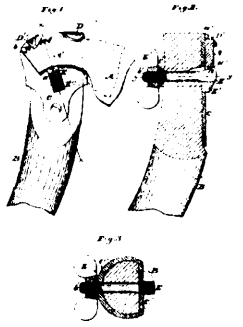
11762 Nunn's Improvements on Sulky Cultivators.



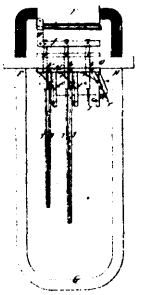
11763 Kiltz's Improvements in Spring Tooth Harrows.



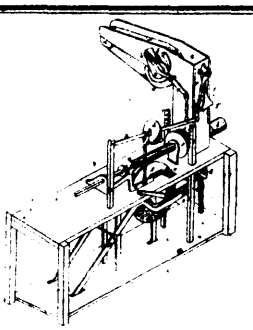
11764 Hoover & Van Sickle's Improvements on Pumps.



11765 Pressey's Improvements on Scythe Fastenings.

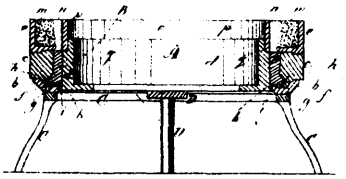


11766 Jamin's Improvements on Electric Lamps.

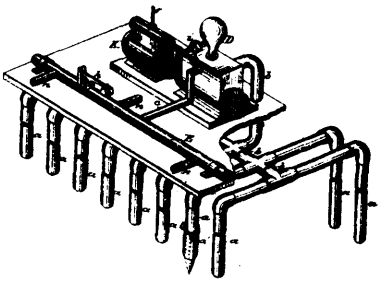


11767 West & Hume's Improvements on Can-filling Apparatus.

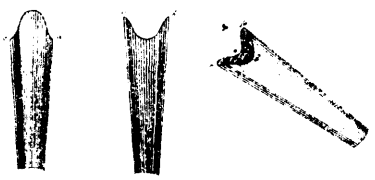
11768 McLellan's Improvements on Tailors' Measures.



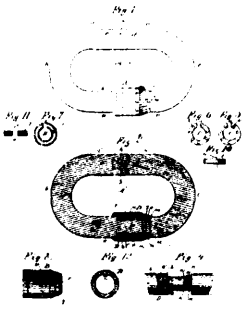
11769 Washburn's Improvements on Moulds and Processes for Casting Car Wheels.



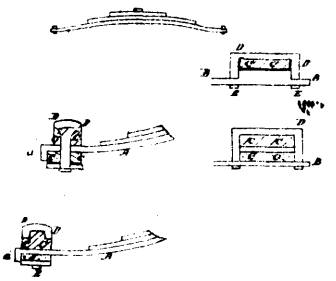
11770 Green's Improvements on Water Supply Systems.



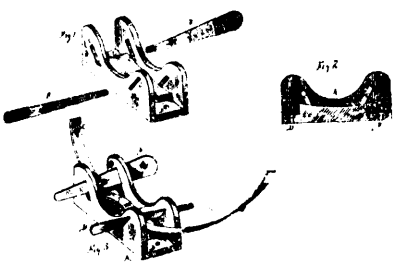
11771 McMurchy's Improvements on Tool Ferrules.



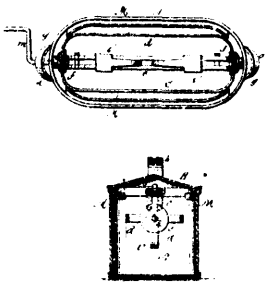
11773 McDonald, McAllister & Loring's Improvements in Padlocks.



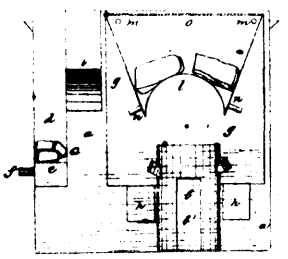
11774 McLaughlin's Improvements on Carriage Spring Fastenings.



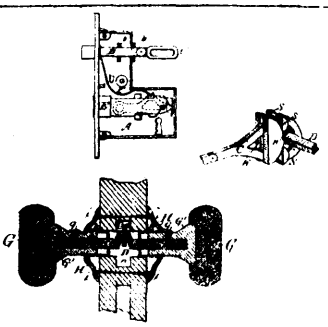
11776 Feindel's Improvements on Machines for Upsetting Wheel Tires.



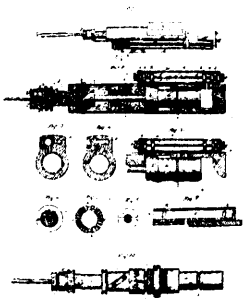
11777 Smith's Improvements on Boiler Washing Machines.



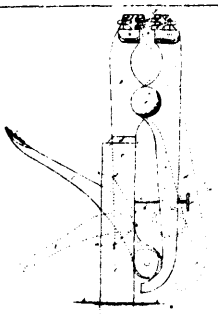
11778 Lincoln's Improvements on Apparatus for Obtaining Cream from Milk.



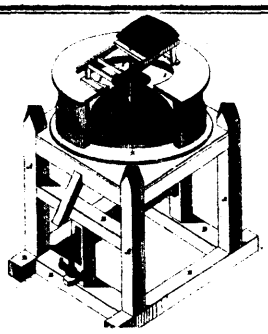
11779 Richmond's Improvements on Locks.



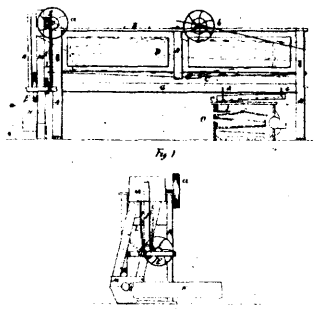
11780 Richmann & Arnold's Improvements in Rock Drilling Apparatus.



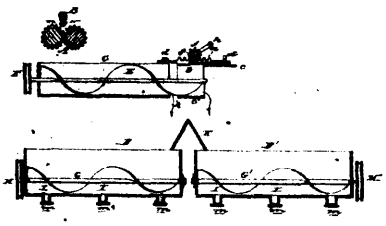
11781 Dubuc & Patenaude's Improvement in Iron Upsetting Machines.



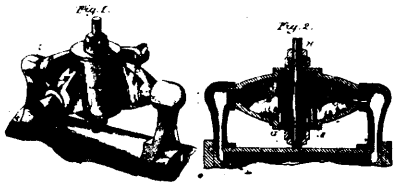
11782 Batty's Improvements on Lubricating Bearings for Millstones.



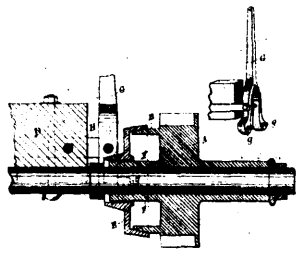
11784 Baxter's Improvements on Flour Bolting Machines.



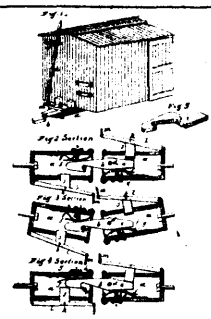
11785 Boorsem's Improvements on Sugar Washing Process and Apparatus.



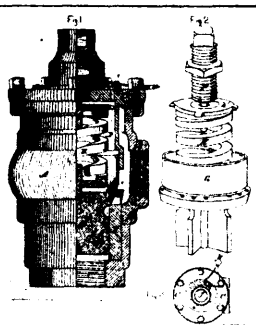
11786 McCallum's Improvements on Rotary Valves.



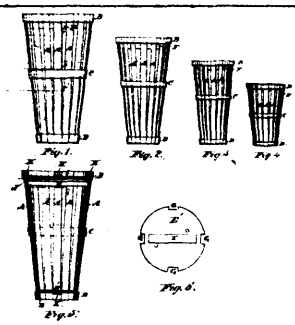
11787 Maxwell's Improvements on Horse Rakes.



11788 Brent's Improvements on Car-couplings.

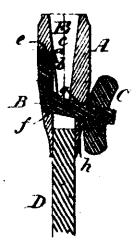


11789 Ashton's Improvements on Safety Valves.

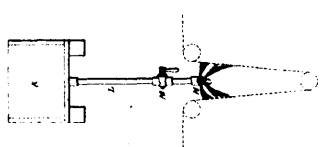


11791 Doyle's Improvements on Fruit Packages.

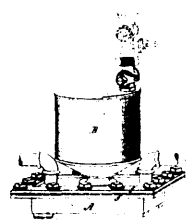
11792 Boeckh's Improvements on Brushes.



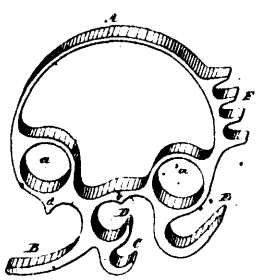
11793 Peck's Improvements in Bit Stocks.



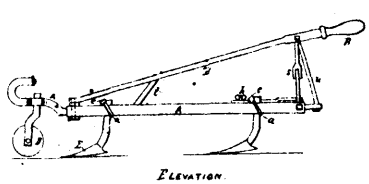
11794 Leloir's Improvements in Dyeing Cotton Warps and Cotton Aniline Black, and in Apparatus therefor.



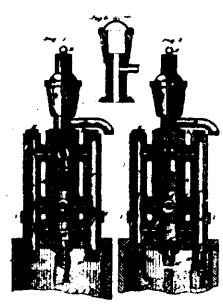
11795 Jackson's Improvements in Gas Carburettors.



11796 Thayer's Improvements on Kitchen Implements.



11799 Appleton's Improvements on Cultivators.



11800 McLeod's Improvements in Pumps.