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INVENTIONS PATENTED.

No. 16,603. Combined Cultivator and Potato-Digger. (*Cultivateur arrache-patates.*)

Alanson Ansley, Geneva, N. Y. U. S., 31st March, 1883; for 5 years.

Claim.—1st. The combination of the frame A, adjustable levers C and wheels at the lower end thereof, with the digger H secured by four diverging braces to the frame, opening shares E F, series of rods I, eyes r, rods R of different lengths, chains R1 and sprawl drags S. 2nd. The sprawl drags S consisting of four or more prongs s diverging from a common centre or hub, in combination with the lifting device of a potato-digger.

No. 16,604. Apparatus for Cutting Rock.

(*Appareil pour tailler le roc.*)

John D. Brunton, Kentish Town, Eng., 3rd April, 1888; (Extension of Patent No. 84357).

No. 16,605. Improvements on Horse Rakes.

(*Perfectionnements aux râteaux à cheval.*)

Elijah Glendillen, Owen Sound, Ont., 3rd April, 1883; for 10 years.

Claim.—1st. A horse rake having the frame, carrying the rake mechanism, detachably connected to the main or running gear frame of the machine. 2nd. In a horse rake in which the shafts are connected to, or form part of the main frame upon which the axle is journaled, the combination of a rake frame timber E bolted to the side timbers A of the main frame, and extending beyond the wheels N behind which it is situated. 3rd. In a horse rake in which one of the wheels revolves loosely on the main axle, while the other is fastened to the axle, a cog-wheel M fastened to the axle, in combination with the rack bar L arranged to gear with the said cog-wheel and connected to the staple bar. 4th. In a horse rake in which the rake is dumped by a cog-wheel acting on a rack bar, the combination of a hand lever to throw the rack bar in and out of gear, with the actuating cog-wheel. 5th. A rake head having V-shaped grooves cut in it, in combination with rake teeth having curled ends to fit into the V-shaped grooves. 6th. The combination of cleaner bars so situated and shaped that, while the rake teeth pass beyond their bottom edge, for the purpose of being cleared of the hay, the said teeth cannot extend above the top edge of the cleaner bars.

No. 16,606. Shingle Mill. (*Machine à bardeau.*)

Isaie Fréchette, St. Hyacinthe, Que., 3rd April, 1883; (Extension of Patent No. 2,239.)

No. 16,607. Improvements in Freight Cars.

(*Perfectionnements aux churs à marchandises.*)

Nathan H. Green, Montreal, Que., 4th April, 1882; for 5 years.

Claim.—1st. A box car arranged to dump having its sides formed with central openings, and on either side of these openings doors or gates extending up part of the height of the car so as to swing outwards. 2nd. A box-car arranged to dump and provided with central side-doors, chutes L from same gates E, and openings in roofs with covers K. 3rd. A car having its side frames composed of posts B C Cr and mid-sills D, all properly braced and secured together. 4th. In a car arranged to dump sideways, the combination of the convex bed H having projections h, with the rocker G and recesses g.

No. 16,608. Improvements in Reefing Gear.

(*Perfectionnements aux agrès pour arriser.*)

Ebenezer Bigelow, Jr., Medford, N. S., 4th April, 1883; for 5 years.

Claim.—1st. The combination of reef point C with thimble or bull's eye D. 2nd. The combination of reef point C D with sail B, and yard A and knot E.

No. 16,609. Compound for Mince Pies.

(*Composition pour des pâtés.*)

Henry J. Allen, Port Byron, N. Y., U. S., 4th April, 1883; for 5 years.

Claim.—A dry mince pie compound composed essentially of cooked meat, dried apples or other fruit, sugar and spices compounded dry, whereby the meat is desiccated and preserved without being carbonized, and a dry staple composition formed as described.

No. 16,610. Improvements on Draft Bolts.

(*Perfectionnements aux chevilles ouvrières.*)

Peter Filman, Barton, Ont., 4th April, 1883; for 5 years.

Claim.—1st. A draft bolt for sleighs and waggons consisting of the combination of the rod B and tubes E. 2nd. The combination of the rod B, tubes E, washers C, braces F.

No. 16,611. Improvements on Metallic Packing.

(*Perfectionnements aux garnitures métalliques.*)

Leopold Katzenstein, New York, N. Y., U. S., 4th April, 1883; for 5 years.

Claim.—1st. A packing composed of inner metallic tube, a metallic covering b applied directly to said tube, and outer fibrous covering e. 2nd. A packing composed of inner tube a having end flange or flanges d, and of the metallic covering b and fibrous covering e. 3rd. The hollow packing rings arranged one above another around the surface to be packed. 4th. The hollow packing rings having fibrous covering and opening or openings in the inner tube, to admit steam or water. 5th. In a packing ring, the inner tube a made with overlapping edges. 6th. The packing composed of inner tube a, soft wire b, outer tube f and fibrous or mineral covering e.

No. 16,612. Improvements in Spinning and Doubling Frames.

(*Perfectionnements aux machines à filer et retordre.*)

John Young and Edwin Furniss, Mellor, Eng., 4th April, 1883; for 5 years.

Claim.—1st. The combination, with the ordinary ring, of a split ring carried by a standard fixed to the ring rail, so as to embrace the spool or cop upon the same central line, as and above the ordinary ring.

No. 16,613. Improvements on Draining Cases for Barrels.

(*Perfectionnements aux égouttoirs pour les barils.*)

George M. Crapou, Wilmington, N. C., U. S., 4th April, 1883; for 5 years.

Claim.—1st. A draining case for barrels composed of a suitable case or cabinet having a hinged cover and downwardly inclined bottom provided, at its lowest point, with a downwardly extending drip tube terminating on a level with or above the lower edges of the sides of the case, which are extended below the bottom.

No. 16,614. Tonic Medicine for the Cure of Liver Complaint, Dyspepsia, Sick Headache, &c.

(*Médecine tonique pour guérir les maladies du foie, la dyspepsie, le mal de tête bilieux, etc.*)

John W. Barnes, Meaford, Ont., 4th April, 1883; for 5 years.

Claim.—A compound composed of gentian root, twenty-five grains,

columbia root, twenty-five grains, bitter orange peel, twenty-five grains, socotrine aloes, six grains, jalap, six grains, wahoo bark, four grains, golden seal, three grains, mandrake root, two grains, capsicum, one-fourth of a grain, the whole to be powdered and mixed together.

No. 16,615. Improvements in Tubular Wells.

(*Perfectionnements aux puits artésiens.*)

Ramson E. Strait, Galesburg, Mich., U.S., 4th April, 1883; for 5 years.

Claim.—1st. The tubular well packing lock consisting of the combination of the valve joint having the packing lock recess, with the said packing device composed of the metal collar with the upper rim integral therewith, the thick rubber band or the equivalent, the outer band with its integral rim under the lower edge of the rubber band, and the metallic washer movably located on the lower end of the metallic collar. 2nd. A leader or battering-ring to a tubular well pipe having a rib on its inner surface. 3rd. A packing for locking valve-joints with upper rim, the rubber band, the outer band with its integral rim under the lower edge of the rubber band, and the metal washer on the lower end of the metal collar, all in combination as described. 4th. A plunger cylinder and connections, which are designed for locating at given points in the main well-pipe, in combination with said well pipe provided at its lower end with a leader or battering ring, or joint, having the internal rib, whereby all danger of losing said cylinder and connections is obviated.

No. 16,616. Double-Clamping Brick.

(*Brique à double emboîtement.*)

Jean Darrigan, Cagnotte, France, 4th April, 1883; for 15 years.

Résumé.—1o L'établissement sur chacune des deux grandes faces de la brique d'un évidement de forme et de sections transversales trapézoïdales, dont les dimensions sont égales à celles des deux saillies latérales restantes. 2o L'inversion du sens de la conicité des évidements et des saillies des deux faces d'une même brique. 3o L'établissement des faces latérales de la brique en forme de parallélogramme, les faces extrêmes en forme de double T étant coupées en biseau, en vue de former un parement horizontal, alors que les briques sont employées dans une position oblique comme les claveaux d'une voûte plate. 4o L'établissement facultatif de briques de forme rectangulaire ou trapézoïdale, selon qu'elles doivent être employées pour murs verticaux ou pour vousses cintrées. 5o Le mode d'emboîtement de ces briques entre-elles par l'emboîtement des parties pleines de deux briques jointives d'une même rangée dans les évidements conjugués des rangées précédentes et suivantes. 6o La disposition facultative en forme courbe ou brisée des parois latérales des évidements d'emboîtement, les formes de ces évidements et des saillies latérales correspondantes pouvant également varier suivant qu'on le juge utile, aussi de faire varier les formes et dimensions des diverses parties constitutives de la brique suivant l'épaisseur des parois à établir.

No. 16,617. Improvements on Wire Fences.

(*Perfectionnements aux clôtures en fil de fer.*)

Adélard F. Martel, James McPherson, Montreal, Que., Alexander F. McIntyre and John T. Lewis, Ottawa, Ont., 4th April, 1883; for 5 years.

Claim.—The combination of a twisted metal fence wire A A' having twisted in its folds, a piece of sheet metal of the shape Y.

No. 16,618. Improvements on Vehicles.

(*Perfectionnements aux voitures.*)

Adna Wildern, Vienna, Ont., 4th April, 1882; for 5 years.

Claim.—1st. The combination of the collar C, collar C' provided with screw thread H, teeth G G and corrugations F F, flanges D D, axle-box B provided with flange J, grooves L L and screw thread K and spokes E E. 2nd. The combination of the disk N provided with flanges N₁ and straps N₂, disk N₃ provided with flanges N₄ and sleeve N₅, and bolt S. 3rd. The application of rubber packings Z placed between the outer end of the tenon E₁ on the end of the spoke E, and the inside face of the mortise V of the filly V.

No. 16,619. Improvement on Hernial Trusses.

(*Perfectionnement des bandages herniaires.*)

Edwin J. Nelson, (Executor of the Will of William Nelson,) Little Falls, N. Y., U.S., 7th April, 1883; for 5 years.

Claim.—A truss pad supported upon, or by means of a number of spiral springs which are placed beneath the same near the periphery.

No. 16,620. Improvements on Step Ladders.

(*Perfectionnements aux échelles à queue.*)

Lewis Francis, Kingston, Ont., 4th April, 1883; for 5 years.

Claim.—1st. The shaft section E having slots F and hung on rod G secured to the legs C C of the ladder, and engaging with the underside of a step, whereby the shelf will be maintained horizontally and fall to the vertical position. 2nd. The sectional stay-bars I I having a bent tongue J intersecting the adjoining section, pivoted thereto.

No. 16,621. Improvements on Secondary Batteries.

(*Perfectionnements aux batteries secondaires.*)

William Taylor and Frank King, London, Eng., 7th April, 1883; for 5 years.

Claim.—The manufacture of the improved plates by coiling strips, or tapes of lead when cut in the required shape with uneven surfaces.

No. 16,622. Improvements on Brick and Tile Kilns.

(*Perfectionnements aux fours à briques et à tuiles.*)

Robert A. Brown and John F. Brown, Washington, Ind., U.S. 9th April, 1883; for 5 years.

Claim.—1st. In a brick kiln, the back wall of which is provided with vertical concave recesses communicating with the floor flues. 2nd. The improved kiln provided with furnaces D, floor-flues F having openings H extending through the floor G, back wall B having vertical concave recesses I communicating with the flues F, arched roof J, flues K and front wall A, having openings L connecting the interior of the kiln with the lower ends of the exit flues K.

No. 16,623. Improvements on Tire Upsetting Machines.

(*Perfectionnements aux machines à refouler les bandages des roues.*)

Andrew B. Jardine, Hespeler, Ont., 9th April, 1883; for 5 years.

Claim.—The combination of the lever F, the link E and the connecting straps C C' with the eccentric dogs or catches B B'.

No. 16,624. Machine for Decortiating and Cleaning Wheat and other Grains.

(*Machine à décortiquer et à nettoyer le blé et autres grains.*)

Peter N. McChesney and John W. Craig, Port Elgin, Ont., 9th April, 1883; for 5 years.

Claim.—1st. The combination, in an apparatus for decortiating grain, of one or more longitudinal cylinders constructed of an upper and lower sections of woven and perforated material respectively of steel, wire and iron, and the decorticators consisting of a series of spaced disks secured upon shafts, and the feed, discharge and exhaust mechanism. 2nd. The combination, with the cylinders and decorticators, of the feed tubes and the feed hopper having a partition provided with openings through which the grain is fed to the tubes, and with wings whereby the feed of the grain is regulated. 3rd. In combination with the upper and lower pairs of decortiating cylinders, and the decorticators adapted to rotate therein, the upper and lower discharge tubes, the one discharging into the other. 4th. The combination of the enclosing casing having an aperture between the cylinders, the exhaust mechanism adapted to draw or suck the loose particles through said aperture, the feed hopper and tubes, a series of decortiating cylinders and disks, and the discharge tubes. 5th. The combination of a series of decortiating disks mounted and secured, at intervals, on a revolving shaft, with a decortiating cylinder consisting of an upper horizontal section constructed of woven steel wire, and a lower horizontal section of perforated sheet iron united together, whereby a more durable abrasive surface is obtained, where the excess of abrasion occurs.

No. 16,625. Improvements on Stoves.

(*Perfectionnements aux poêles.*)

Dominicus Brix, Geneseo, Ill., U.S., 9th April, 1883; for 5 years.

Claim.—1st. The combination of a stove or range of ordinary construction having a removable top plate with an ashfall A and pit A', partitions A₁ A₂ with dampers D D' for the regulation of the draft. 2nd. The combination of a stove or range having a removable top-plate, with a removable heater-box or dome E provided with fire-box to fit upon the top of the oven and fire-box B, pipe base and enclosed side lights, said dome covered with a removable top-plate T' provided with lugs, feeder G, cover G¹ and double branch pipe P.

No. 16,626. Improvements on Calks.

(*Perfectionnements aux crampons.*)

Ephraim Witham, Carritunk, Me., U.S., 9th April, 1883; for 5 years.

Claim.—1st. A lumberman's calk having a cylindrical stem, provided at its upper end, for about two-thirds of its length, with annular grooves, the lower sides of which are horizontal, while the upper sides are bevelled upwardly and inwardly. 2nd. A lumberman's calk having a cylindrical shank or stem, provided at its upper end, for a portion of its length, with annular grooves, a bevelled or gradually tapering point and an intermediate disk or enlargement having bevelled or concave shoulders on its upper and under sides.

No. 16,627. Improvements on Stop and Waste Cocks.

(*Perfectionnements aux robinets de retenu et de dégorgeement.*)

John Kelly, Chicago, Ill., U.S., 9th April, 1883; for 5 years.

Claim.—1st. The stop-cock consisting of casing A that forms a connection between the pipes B C D, in combination with crank E reciprocating the conical elastic valves F G. 2nd. The combination, with the casing A having base a, screw necks for coupling pipes B C D and stuffing box e, of crank E, valve-rods f and g and elastic conical rods F G. 3rd. The combination, with the casing A, valves F G and crank E, of lever J, weight P and cord R.

No. 16,628. Improvements on Carriages.

(*Perfectionnements aux voitures.*)

Francois X. Koy, Montreal, Que., 9th April, 1883; for 5 years.

Claim.—The carriage reach H pivoted at one end hingedly to the bottom of the carriage, and hingedly to the upper part of the fifth wheel at the other end.

No. 16,629. Improvements on Pan Cleaning Machines.

(*Perfectionnements aux machines à nettoyer les casseroles.*)

Walter S. Ovens, Buffalo, N. Y., U.S., 9th April, 1883; for 5 years.

Claim.—1st. The endless apron B provided with the pushing bars D, in combination with the cleaning and greasing brushes and their operating mechanism. 2nd. The combination of a cleaning roller brush F f with a greasing roller brush H g, an oil reservoir, and an endless apron B, and their operating greasing, as described.

No. 16,630. Improvements on Sewing Machines. (*Perfectionnements aux machines à coudre.*)

Miles W. Simkins, Newburgh, Ont., 9th April, 1883; for 5 years.

Claim.—1st. The combination of groove A and spring latch C or needle bar. 2nd. The combination of notch E and slant F on top of needle shank.

No. 16,631. Improvements on Hames. (*Perfectionnements aux attelles.*)

Lawrence Carr, Shakopee, Minn., U.S., 9th April, 1883; for 5 years.

Claim.—1st. The combination of a hame, a threaded stem attached to said hame, a clip, clevis or fitting encircling said stem, and a nut fitting upon the stem or long threaded bolt, and arranged to bear against the clip, clevis or fitting and to raise or lower the same. 2nd. The hame composed of the body A provided with the threaded stem B carrying loop or fitting a and nut D, and with threaded stem C carrying nut D, breast ring clevis and hame tug clevis or fitting b c. 3rd. The combination of the hame with the hame wood A, iron hame plate B, two arms or posts e, threaded stem or draft bar d, adjustable clevis E, twisted triangular breast ring clevis f and long shouldered journal nut D.

No. 16,632. Improvements in the Art of Weaving Cloth. (*Perfectionnements dans l'art de tisser.*)

Thomas Isherwood, Westerley, R.I., U.S., 9th April, 1883; (Extension of Patent No. 14,979.)

No. 16,633. Improvements in the Art of Weaving Cloth. (*Perfectionnements dans l'art de tisser.*)

Thomas Isherwood, Westerley, R.I., U.S., 10th April, 1883; (Extension of Patent No. 14,979.)

No. 16,634. Improvement on Skiving Machines. (*Perfectionnement des machines à biseauter les cuirs.*)

William S. Eaton and Henry G. Dorr, (assignees of Christopher Amazeen.) Boston, Mass., U.S., 10th April, 1883; for 5 years.

Claim.—1st. The combination, in a skiving or trimming machine, of feeding mechanism consisting of a revolving roll and a revolving disk having the relation to each other with a cutting, or trimming device. 2nd. The combination of the feeding mechanism and cutting or trimming device with an edge guide D. 3rd. The combination of the feeding, cutting or trimming mechanism with a presser E. 4th. The combination of the feeding mechanism, the cutter and an edge guide transversely adjustable in relation to the feeding mechanism. 5th. The combination of the feeding mechanism, a revolving cutter and means for moving it vertically in relation to the feeding mechanism. 6th. The combination of the feeding mechanism, the revolving cutter and means for varying its inclination in relation to the feeding mechanism. 7th. The combination of the feeding mechanism, the cutter and means for moving it to and from the feeding mechanism. 8th. The combination of the feed roll having the surfaces a a', the disk arranged in relation to the feed roll, the cutting disk and means for positively revolving the roll and disks in the same direction.

No. 16,635. Waterproof Blacking. (*Virage hydrofuge.*)

John A. Vankeuren and Louis N. Vankeuren, Bridgeport, Ct., U.S., 10th April, 1883; for 5 years.

Claim.—1st. A composition composed of linseed oil, palm oil, talow, gum asphaltum, bees wax, lamp black and gutta percha.

No. 16,636. Improvements on Packing Vessels. (*Perfectionnements aux vaisseaux d'emquetage.*)

Clark Robinson, Hornellsville, N.Y., U.S., 10th April, 1883; for 5 years.

Claim.—1st. The vessel composed of the outside sections a b and lining sections c d, the latter applied and united by strips D. 2nd. The combination of outside supporting sections b, inside lining sections c extending outward between the edges of the sections b, and binding strips D applied to, and uniting the edges of the lining sections. 3rd. The vessel consisting of outside sections b and bottom a, lining c d and strip D extending beneath the bottom a and secured thereto for the purpose explained. 4th. In combination with the vessel A and cover B, the strips D applied to the joints and extended above and below the vessel, whereby they are adapted to be bent upon, and to retain the bottom and cover in place. 5th. The vessel consisting of outer body a b, lining c d and binding strips D.

No. 16,637. Improvement on Fertilizer Distributors. (*Perfectionnement des distributeurs d'engrais.*)

Charles E. Patric, Rochester, N. Y., U.S., 11th April, 1883; for 5 years.

Claim.—1st. A hopper for a fertilizer distributor combined with an endless chain entirely within said hopper, and adapted to move

longitudinally along the bottom thereof, to undermine and carry away to the discharge opening the lower most particles of material, without disturbing the mass above the plane of motion. 2nd. In a hopper for a fertilizer distributor, an endless chain arranged to move along the margin of the hopper bottom within the hopper, two sprocket wheels to hold and propel the same combined with fingers attached to said chain, which project towards, the median line with a backward inclination as to the direction of motion, whereby the entire surface of the hopper bottom may be scraped and the matter thereon moved forward and inward toward said median line to be discharged there. 3rd. A fertilizer distributor composed of an endless chain D, the parts whereof are fingers E having thin edges in advance, and cavities i beneath, behind said advance edge, and two stud pins g g combined with the link pieces h provided at each end with a sleeve hub fitted to engage one of the pins g. 4th. A fertilizer distributor chain D, the links whereof are provided, on their outer edges, with the oblique scraping ribs m m.

No. 16,638. Improvements in Steam Boilers. (*Perfectionnements aux chaudières à vapeur.*)

Patrick Fitzgibbons, Oswego, N. Y., U.S., 11th April, 1883; (Extension of Patent No. 8,740.)

No. 16,639. Improvements in Door Hangers. (*Perfectionnements dans les pentures des portes.*)

Warren E. Warner, Syracuse, N. Y., U.S., 11th April, 1883; (Extension of Patent No. 8,663.)

No. 16,640. Improvements in Heating Apparatus. (*Perfectionnements aux appareils de chauffage.*)

Marie R. F. Desjardins, (Wife of Octave Desjardins,) Montreal, Que., 11th April, 1883; for 5 years.

Résumé.—Le tuyau A BC avec les balustrades F G H, et les chaînes L L L L en combinaison avec le ventilateur K, le trou d'homme J, les crochets J J J J et la calotte P.

No. 16,641. Improvements on Paper Box Machines. (*Perfectionnements aux machines à boîtes en papier.*)

William J. Keefe, Boston, Mass., U.S., 11th April, 1883; for 5 years.

Claim.—1st. In a machine for making hollow-articles from pulp, a vat valve to control the flow of pulp from the pulp-vat to the receiving-cylinder and means to operate it intermittently, combined with the pulp receiving cylinder, and the pulp controlling valve between them, to retain the pulp in the receiver and to permit its discharge therefrom intermittently into the forming cylinder. 2nd. In a machine for making boxes from pulp, the pulp receiving cylinder and forming cylinder, combined with an intermediate pulp controlling valve to permit the intermittent discharge of pulp from the receiving into the forming cylinder. 3rd. The pulp receiving and the forming cylinder, combined with the automatically operated pulp-controlling valve a, to permit the discharge of the pulp from the pulp receiving into the forming cylinder, and then to close the opening between the said parts. 4th. The vat-valve, in communication with a supply of pulp, means to move it intermittently, and the pulp-receiving cylinder combined with the forming cylinder, and pulp controlling valve therein, to permit the pulp in the receiving cylinder to be discharged intermittently into the forming cylinder. 5th. The pulp receiving cylinder, the forming cylinder, the pervious former adapted to be placed therein, and the pulp controlling valve between them combined with the valve and pipes to introduce compressed air into the forming cylinder, to quickly force the water of the pulp through the pervious former. 6th. The forming cylinder and pulp controlling valve to close it, and the pervious former, combined with the port o and inlet and outlet valve for the compressed air. 7th. In a machine for forming hollow articles from pulp, the vat valve and its connected adjustable slotted link and the pulp controlling valve, combined with the rocker shaft d and its arms h i, to operate the said valves at the proper time. 8th. The rocker shaft d and the adjustable pitman to operate the arms h i and e on the said shaft, and the link and lever g combined with the vat valve, the pulp controlling valve and the outlet and inlet valves for the compressed air. 9th. In a machine to produce hollow articles from pulp, the forming cylinder largest in diameter at its upper end and tapered to join with a cylindrical portion of smaller diameter combined with a pervious former of less diameter and length than the cylindrical portion of the forming cylinder from pulp, diameter. 10th. In a machine to produce hollow articles from pulp, a stationary or fixed forming cylinder with a table and means to rotate into the said cylinder of compressed air, and means to successively place the formers and lower portion of the said cylinder in proper contact and relation, to enable the formers to successively receive a deposit of pulp. 11th. The former provided with the hollow stem r, combined with the air pipe and valve to act as a stop for the same. 12th. The pervious former combined with the deflecting plate 76. 13th. The pervious former r having a hollow stem and outlet, combined with a hollow reciprocating plunger, to elevate the said former and make connection between its stem and the plunger, to enable water within the former to be delivered out through the plunger. 14th. The pervious former and means to elevate it within the space between the compressing dies, combined with the compressing dies and means to close them to express the water from, and compact the pulp at the sides of the former. 15th. In combination, the pervious former, reciprocating side compressing dies, and the box plunger and sleeve in which it moves. 16th. The box to contain the pressing dies, and the pressing dies combined with the adjustable gibs. 17th. The sleeve 23 extended upward above the box in which the pressing dies move, and the pressing dies and toggle levers combined with the collar and its arms, to simultaneously move the said dies. 18th. The radially movable series of pressing dies, recessed at one side, combined with the toggle-levers and headed connecting rods

43. 19th. In a machine to produce hollow articles from pulp, the combination, with the pervious former and its hollow stem, of a pipe connecting the interior of the former with an exhausting pump or vacuum-chamber, to remove the fluid from the inside of the former and box thereon. 20th. In a machine to produce hollow articles from pulp, a pervious former, a series of radially movable pressing dies, a die box to contain them, a plunger and sleeve in which it moves, and means to exhaust the water from the interior of the former as it is expressed from the fibre on the former. 21st. The pervious former and hood to cover it, combined with a pipe to lead water under pressure to and discharge it within, and cleanse the former. 22nd. The former, the receiving bed and the two concave jaws of the taking-off cap, combined with means to move the jaws into position above the former and then above the bed, and means to lower and raise the said jaws in each of their two positions and open and close them at the stated times to transfer the box from the former to the receiving-bed. 23rd. The two concave pivoted jaws of the taking-off cap and their oscillating carrying-shaft, the slide, and means to lower the jaws in position, to surround but not to touch the box on the former, combined with the slide and its forked part, to close the said jaws together while they surround the former and box. 24th. The two pivoted concave jaws of the taking-off cap, the oscillating shaft 43 to move the said jaws from a position above the former to a position above the receiving-bed and vice versa, and the bevel gear carried by the said shaft, combined with the shaft 46, its bevel gear 55, and cover 44. 25th. The oscillating shaft, the yoke 42 provided with finger 6 and the two pivoted concave jaws, actuated by the said shaft, combined with mechanism to oscillate the said shaft, and the slide and its projections 56 57 to check the oscillation of the said shaft and place the jaws in proper horizontal position, preparatory to the descent of the slide. 26th. In a machine for the manufacture of hollow articles from pulp, the former upon which the box is pressed into shape, its hollow stem, the taking-off cap composed of the two concave jaws, which, when closed together do not come into contact with the box, and the cover 41 combined with a valve and pipe to introduce compressed air into the former to expand the box, and to detach its inner face from the perforations of the former, and place the outside of the box in contact with the concave jaws. 27th. A taking-off cap to remove the box from the former, a receiving-bed for the hollow articles, and means to move the said bed forward intermittently. 28th. An intermittently rotating table and a series of sleeves thereon, and a series of formers having stems fitted to the said sleeves, combined with the plunger bed and a series of hollow plungers, and means to reciprocate the plungers at the proper time, as stated, to lift the formers into operative position. 29th. The combination of the following instrumentalities, *viz*: a pulp receiver, the forming cylinder, a valve located between them, a rotary table and a series of formers carried by it, means to place the formers successively within the said cylinder, a series of hollow reciprocating plungers and means to automatically place the plungers in connection with the stems of the formers, to exhaust the water from the formers, a set of dies to compress the fibre upon the formers, and a taking-off cap and means to operate it at the proper times, the combination being and operating to automatically form and deliver the said hollow articles. 30th. That improvement in the art or process of manufacturing articles from paper pulp wherein the water of the pulp is pressed through the pervious former by compressed air, which consists in heating the pulp before it is delivered into the forming cylinder, about the pervious former, whereby the water of the said pulp, as the compressed air is permitted to expand, is kept at the proper temperature to flow freely through the fibre of the pulp and the perforations of the former. 31st. The pervious former upon which the box is formed and pressed, combined with the separate taking-off cap to remove the hollow articles to be dried. 32nd. The perforated metallic seamless former shell. 33rd. A stationary forming cylinder, a pervious former adapted to be placed below the same to receive a coating of pulp, a rotating table and means to remove the former from the forming cylinder into position between the pressing dies and means to move them to compress the hollow article on the said former. 34th. The series of formers and their rotating carry-table notched at its edges, its supporting shaft, ratchet and pawl, combined with the reciprocating rack to move the table intermittently, and a stop to hold the table at rest at the proper time. 35th. The pulp vat, receiving cylinder and forming cylinder combined with a vat-valve located between the pulp-vat and receiving cylinder, and with a pulp controlling valve between the receiving and forming cylinders. 36th. The pervious former provided with a hollow stem, for the passage of air and water. 37th. A taking-off cap composed of two jaws and a cover 41. 38th. In combination, the hood 72 and means to hold it, the former *p*, the force pump 74 and a suitable pipe or passage for water from the said pump into the former in the said hood. 39th. A paper box making machine provided with a suction pump, for withdrawing water from the pulp on the former *p*, and with a force pump 74 for clearing the interior of the former. 40th. The combination of the sliding bolt 95 provided with a finger 98 and the teeth 94, upon the circular table *t* that carries the pervious formers *p*, and with the projection 99 on the rock-bar, that rotates the said circular table. 41st. The improvement in the art or method of manufacturing hollow articles from pulp which consists in forcing the water from the pulp through a pervious former surrounded by it, by means of compressed air and subsequently pressing the fibrous portion of the pulp so left on the pervious former between the said former and pressing dies.

No. 16,642. Improvements in Aerial Vessels.

(*Perfectionnements aux vaisseaux aériens.*)

Eugene F. Falconnet, Nashville, Tenn., U.S., 11th April, 1883; for 5 years.

Claim.—1st. A vessel for aerial navigation, terminating fore and aft in long cylindrical cones, the larger ends abutting against and secured to each other and propelled, steered and handled by internally arranged machinery through externally arranged screws. 2nd. A vessel for aerial navigation consisting of a central cylinder body terminating in long cylindrical cones, the whole secured together and within one cover, and steered, propelled and handled by internally arranged machinery through externally arranged screws. 3rd. A vessel for aerial navigation terminating fore and aft in long cy-

lindrical cones, the larger ends of which abut against each other, and the whole constructed on one general frame of metal thoroughly braced and secured at its several intersections, within one envelope of thin metal or other suitable material made impervious to air and gas, the gas field in which is divided into gas tight sections by vertical and horizontal partitions, as well as by transversely arranged bulkheads of metal or other material also impervious to gas. 4th. A vessel for aerial navigation terminating fore and aft in long conic cylindrical ends made sharp at the extremities, the whole constructed on one thoroughly and substantially braced and stayed general frame of metal within one envelope of thin metal or other suitable material made impervious to gas and air, the gas field divided into gas tight sections by vertical and horizontal partitions as well as by transversely arranged bulkheads of metal or other material also made impervious to gas and air. 5th. A vessel in a cylinder form having a body *a* terminating at the ends in two long cylindrical cones *a* *a*2 respectively, the whole constructed on one general frame of metal thoroughly braced and trussed, and secured at its several intersections within one envelope of thin metal, or other suitable material, made impervious to gas and air, the gas field divided into gas tight sections by transversely arranged bulkheads *c*3 of metal or other material impervious to air and gas and provided with a bracing cord *d*4, extending the lower line of the end cone and forming the bottom support of a cabin. 6th. Vessels for aerial navigation resembling two long cylindrical cones, the larger ends thereof abutting against, and the smaller ends antipode to each other, the whole constructed on one general frame of metal thoroughly braced and trussed and secured at its several intersections within one envelope of thin metal or other suitable material made impervious to gas and having tensile strength sufficient to retain the gas, the lower part of the hull thereof divided into floors and subdivided into engine, freight store and machinery rooms by fire and waterproof partitions, besides a chimney or outlet through the gas field, for the smoke stack and steam pipes, the latter having a fire and waterproof and heat repellant wall. 7th. Vessels for aerial navigation in cylindrical form terminating fore and aft in long cylindrical cones *a*1 *a*2, sharp at the antipode ends, the whole constructed on one general frame of metal and provided with internally arranged machinery for actuating reversible side and fore and aft propelling screws, journalled and operated in revolving cylinders for raising, lowering, propelling and steering such vessel. 8th. Vessels for aerial navigation terminating fore and aft in long cylindrical cones, the whole constructed on one general frame of metal and provided with a cabin *m* partly within and partly extending below the general hull of the vessel and secured by cords *d*4, stanchions *n*, and otherwise properly braced and stayed to make it safe and secure. 9th. Vessels for aerial navigation constructed on one general frame of metal thoroughly braced and secured at its several intersections within one envelope of thin metal or other suitable material made impervious to gas, air and water, a cabin *m* made sharp fore and aft and arranged partly within and protruding partly below the vessel hull where it is secured by cords, posts and braces to the underside of the hull. 10th. Vessels for aerial navigation constructed on one general metal frame thoroughly braced and secured at its several intersections, the whole within one envelope of thin metal or other suitable material, side raising, lowering and propelling screws adjusted on revolving cylinders and an after steering and propelling screw also adjusted on a revolving cylinder, for raising, lowering, steering and propelling such vessel. 11th. Vessels for aerial navigation, constructed on one general frame and within one envelope or skin, the hull divided into engine room, store and freight compartments, machinery room and cabin, the latter extending part of its depth below the keelson revolving cylinders *n* *n*1 *n*3 for securing the side and after, or stern propelling screws extending from within but through the shell, to without the vessel for receiving, holding and operating side and after screws for raising, lowering, steering and propelling such vessels. 12th. In combination, cabin *m* divided into compartments and provided with doors and outlooks windows, an elevator well *r*4 adjusted in, and protruding below the keelson or cord *d*4, truss *d*4, stanchions *n*, in aerial vessels in the form of two cylindrical cones *a*1 *a*2 supported by one general frame of metal thoroughly braced and secured at its several intersections, within one envelope of metal or other suitable material, made impervious to gas, air, fire and water, in which the gas field is divided into sections by gas tight bulkheads and the hull into engine, store, freight and machinery rooms, by fireproof partitions, also the fireproof chimney *S*3, internally arranged propulsive machinery, revolving shafts *n* *n*1 *n*3, propelling screws *n*2 *n*4, the whole constructed and arranged in the manner shown. 13th. Vessels for aerial navigation in cylinder form terminating fore and aft in cylindrical cones propelled, steered and handled by internally arranged machinery through side raising, lowering and propelling screws and an after propelling and steering screw, carrying a cabin sharp at the ends and protruding part of its depth below the hull of the vessel. 14th. Vessels for aerial navigation constructed in the form of a cylinder terminating fore and aft in elongated cylindrical cones, propelled, steered and handled by internally arranged machinery through side raising, lowering and propelling screws, and an after propelling screw and forward steering screw and carrying a cabin sharp fore and aft, provided with windows, doors, ventilators, outlooks and a well for an elevator protruding below the vessel hull. 15th. Vessels for aerial navigation in cylindrical form terminating fore and aft in long cylindrical cones made sharp at the extreme ends, the whole within one envelope or cover of metal, or other suitable material made impervious to air and gas, as well as water and fire proof, one general frame of metal thoroughly trussed, braced and stayed throughout, the whole secured at its several intersections and divided into a hull and gas field, the hull being divided into engine, freight and business rooms, and a cabin which latter extends part of its depth below the keelson proper, and a gas field divided by transverse bulkheads of metal, or other suitable material made impervious to gas, into small gas sections or cells. 16th. Vessels for aerial navigation in cylindrical form terminating fore and aft in long cylindrical cones made sharp at the extreme ends, the whole within one envelope of metal or other suitable material made impervious to air and gas, as well as water and fire proof, divided into engine, machinery, freight and business rooms and a cabin, the latter extending from within the hull part of its depth below the keelson proper, in combination with a gas field divided into sections or gas cells, by bulkheads of metal made

impervious to gas, the vessels overlaid with a substantial netting 17th. Vessels for aerial navigation terminating fore and aft in long cylindrical cones made sharp at the extreme ends, constructed on one general frame of metal thoroughly secured at its several intersections, and trussed, braced and stayed throughout with one envelope of metal or other suitable material, made air and gas tight, and fire and waterproof and internally divided into gas field and hull by partition wall made impervious to gas and fire proof, a gas field divided into sections or gas cells by fire proof bulkheads, and so arranged that the same may be exhausted or inflated separately. 18th. A cylindrically formed vessel for aerial navigation terminating fore and aft in cylindrical cones made sharp at the extreme ends, the whole constructed within one envelope of metal or other suitable material made gas and air tight, and fire and waterproof, on one general frame of metal thoroughly secured at its several intersections, braced, trussed and stayed throughout and divided into a hull and gas field, the gas field divided into sections or gas cells separated by gas-tight bulkheads, and the hull divided into engine, machinery, freight and store rooms and a cabin, the latter extending part of its depth below the keelson of the vessel and provided with doors, windows and means of ventilation and lighting, and the vessel provided with internally arranged actuating machinery for handling and propelling reversible side and fore and aft screws carried in revolving shafts protruding beyond the vessel from the inside for raising, lowering, steering and propelling such vessel. 19th. Vessels for aerial navigation in cylindrical form constructed on one general frame of metal, provided with internally arranged actuating machinery for steering, raising, lowering and propelling the vessel through propelling screws on the sides and stern. 20th. Vessels for aerial navigation constructed in cylindrical form terminating fore and aft in long cylindrical cones made sharp at the extreme ends, one general frame of metal braced, stayed and tied. 21st. Vessels for aerial navigation constructed in cylindrical form terminating fore and aft in long cylindrical cones made sharp at the extreme ends, the whole secured at the several intersections and strengthened amidships above and below by double braced trussing *ci di and k*. 22nd. Vessels for aerial navigation constructed in cylindrical form terminating fore and aft in long cylindrical cones made sharp at the extreme ends and enclosed in one envelope or cover of metal, or other suitable material made air and gas tight, and fire and waterproof, one general frame of metal thoroughly braced, stayed and tied, the whole secured at the several intersections and strengthened amidships above and below by double braced trussing *ci di and k*. 23rd. Vessels for aerial navigation constructed in cylindrical form, terminating fore and aft in long cylindrical cones made sharp at the extreme ends within one envelope or cover of metal, or other suitable material made air and gas tight, and fire and waterproof, one general frame of metal, the whole thoroughly braced, stayed and tied and all secured at their several intersections and strengthened amidships above and below by double braced trussings, and provided with a projecting, thoroughly braced frame for the lower portion of a cabin, the same being strengthened by a lighter double braced trussing. 24th. Vessels for aerial navigation constructed in cylindrical form, terminating in cylindrical cones made sharp fore and aft, within one envelope or cover of metal, or other suitable material rendered air and gas tight and fire and waterproof by paint or other compound, one general frame secured at its intersections and thoroughly braced, stayed and tied and strengthened by double braced trussing amidships, divided into hull and gas field, the hull divided by fire proof and gas tight bulkheads into store, freight, business and engine rooms, and a cabin extending from within the hull partly below the keelson *d* and the gas field transversely intersected by fire, gas and air proof bulkheads. 25th. Vessels for aerial navigation, constructed on one general frame of metal secured at the several intersections thereof, and strengthened amidships by double braced trussing in cylindrical form, terminating fore and aft in long conic ends sharp at the extreme ends, enclosed within one envelope of metal, or other suitable material made air and gas tight, and fire and waterproof, and divided into gas field and hull. The gas field subdivided into cells or sections by fire and gas proof bulkheads provided with manholes and traps, and educt and induct pipes for inflating or exhausting the vessel, and the hull divided into store, freight, engine and other business rooms as well as a cabin by fire proof and gas tight bulkheads, the cabin being partly within and partly protruding below the hull of the vessel and provided with doors, windows, ventilators, bow windows and a passenger elevator, for receiving and landing passengers when in mid-air, and internally arranged into saloons and state rooms. 26th. Vessels for aerial navigation in cylindrical form terminating fore and aft in long cylindrical cones, constructed on one general frame of metal, the gas field divided into gas tight cells or sections by bulkheads, and the hull divided into engine, freight, machinery and store rooms by fire proof decks and partitions having doors, windows and other means of exit, lighting and ventilating, and a cabin *m* partly within and extending partly below the general hull of the vessel secured by cords *d*, stanchions *e* and braces and also provided with internally arranged actuating machinery for steering, raising, lowering and propelling the vessel through propeller screws on the side, and a propeller screw aft. 27th. Vessels for aerial navigation constructed on one general metal frame, thoroughly braced and secured at its several intersections and under one envelope of thin metal, or other suitable material made impervious to gas, air and water, cabin *m*, arranged partly within and extending partly below the keelson cord of the vessel secured by cords, posts and braces to the underside of the hull, the said cabin being made sharp fore and aft to overcome head resistance and to present no position or rear surface to the wind. 28th. Vessels for aerial navigation constructed on one general metal frame thoroughly braced and secured at its several intersections and all within one envelope of thin metal, or other suitable material, provided with internally arranged propulsive machinery for steering, raising, lowering and propelling the same through side raising, lowering and propelling side screws adjusted on revolving cylinders, and an after steering and propelling screw also adjusted on a revolving cylinder *n3*, also with a cabin *m* secured within and protruding part of its depth below the hull of the vessel, stayed and supported by cord *d*, bracing cord *d4*, stanchions or posts *e* and other braces and supports, and divided into state and other living rooms provided with windows and doors as well as other means of ventilation, together with lookout protrusions *ttt*. 29th. Vessels

for aerial navigation constructed on one general metal frame thoroughly braced and stayed within one envelope or cover of metal or other suitable material, having a gas field divided into gas tight cells or sections by bulkheads, and a hull divided into engine rooms, store and freight compartments, machinery rooms and a cabin, the latter extending from within the vessel part of its depth below the keelson to be propelled, raised and lowered and steered by internally arranged machinery, by side and after or stern propelling screws, the hull of the vessel provided with dead eyes for the anchor cables, and a well closed by trap doors for the passage of an elevator, handled by internally arranged cables and winches. 30th. Vessels for aerial navigation in the form of elongated cylindrical cones abutting against each other, that is to say, a cylindrical body terminating in sharp cone like ends, propelled, steered and handled by internally arranged machinery through side raising, lowering and propelling screws, and an after steering and propelling screw and a forward steering screw, and carrying a cabin built sharp fore and aft provided with windows, doors, ventilators and lookouts, and a well for an elevator, the cabin protruding from within the vessel hull part of its depth below the keelson cord *d*. 31st. In vessels for aerial navigation, a chimney passing from the interior through the body and out at the top, and internally divided into a gas field and hull, the gas field divided into sections by gas and fire proof bulkheads having exhaust and supply pipes, and man holes and traps. 32nd. Vessels for aerial navigation constructed in cylindrical form within one envelope and on one general frame of metal comprising dome ridge *c*, keelson *d*, cords *d2 d f f2 f3 f4*, guides *ci*, post *e* and braces *fs*, tension braces *i*, forged braces *g*, binding rods *f*, trussings *ci di k* and lower cords *d4*, the whole secured at their several intersections, the whole divided internally into gas field and hull, internally arranged actuating machinery for handling and propelling externally arranged reversible side and forward and after screws journaled in revolving shafts, which pass from within the vessel, out beyond the vessel for raising, lowering, propelling and steering such vessels. 33rd. In combination, cord *d4*, trussing *k*, keelson *d*, trussing *d1*, stanchions *e* and the general bracing shown, the frame and supports of cabin *m*, which extends from within the hull to partly below the keelson of the vessel and is made sharp fore and aft, and incased in a suitable envelope provided with windows, doors, ventilators and bow windows for observation, as well as the supporting bases of the engine, store, freight and business rooms within the vessel. 34th. Vessels for aerial navigation constructed on one general frame of metal comprising longitudinal cords *c d d2 f f2 f4 d4*, etc., stanchions *e*, girders *ci*, etc., the whole thoroughly braced, stayed, tied and bound, and the several parts secured at their intersections and strengthened amidships by double braced trussing *ci di*, etc., and divided into hull and gas field, the gas field divided into cells or chambers by gas and fire proof bulkheads having manholes and traps therein, and the hull divided into store, freight, engine, machinery and other business rooms and a cabin by fire proof walls and decks. 35th. Vessels for aerial navigation in the form of a cylinder terminating fore and aft in long cylindrical cones made sharp at the ends within one cover or envelope of metal, or other suitable material made gas tight and fire proof, constructed on one general frame of metal thoroughly braced, stayed, tied and secured at the several intersections and strengthened amidships and at other necessary points, by double braced trussing provided with a chimney out through the top, externally adjusted side screws for raising, lowering and propelling purposes, and after steering and propelling screw adjusted in revolving cylinders *m m1 n3* and connected with internally arranged propulsive machinery, the body of the vessel divided into gas field and hull, the gas field divided into cells or sections by fire and gas proof, bulkheads provided with manholes and traps, and the hull divided by fire proof walls and decks into engine, store, machinery and freight rooms, and a cabin, the cabin extending from within parts of its depth below the vessel hull and provided with windows, doors and ventilators and bow windows. 36th. In combination, cabin *m* extending from within part of its depth below the hull of the vessel, the cord *d4*, keelson *d*, trussing *d1 k*, and store, engine and other rooms within the hull of vessels for aerial navigation constructed within one envelope and on one general frame of metal thoroughly braced, stayed and tied as well as strengthened amidships and at other points by double braced trusses.

No. 16,643. Improvement on Mattresses.

(Perfectionnement des matelas.)

Laban Heath, Boston, Mass., U.S., 11th April, 1883; for 15 years.

Claim.—1st. The air chamber or body A provided with holes or openings through the same, for receiving cords or twine, whereby it is adapted to be upholstered without injury, and the upholstery kept in proper position. 2nd. The air chamber or body A provided with the tubes *m*. 3rd. The improved mattress, the same consisting of the air chamber or body A, provided with openings for the tufting cords or twines X and upholstered. 4th. The air chamber or body A provided with the holes or openings *e*, the top and bottom C D being hermetically sealed or united around the holes. 5th. The body A provided with the straps *a*, rings *i* and line H. 6th. In a mattress, the body A, upholstery B and a line *l*. 7th. The cross lines J which encircle the mattress, these lines being also secured in the rings *i*.

No. 16,644. Improvements in Sub-marine Telegraph Cables. (*Perfectionnements aux cables télégraphiques sous-marins.*)

Samuel Trott and Frederic A. Hamilton, Halifax, N.S., 11th April, 1883; for 5 years.

Claim.—1st. A submarine electric cable consisting of an insulated conductor and a series of spiral servings of non-metallic cords or yarns, wound spirally about said core in alternate right and left hand spirals, the cords or yarns of each serving being twisted in a direction, the reverse of that in which the servings are wound about the conductor. 2nd. The cable composed of core *a*, insulating envelope *b* and servings *c d e f* of non-metallic yarns or cords, the yarns or cords of servings *c* being twisted in a right hand direction and laid in left hand spirals, and those of servings *d f* being twisted in a left hand direction and laid in right hand spirals, or vice versa.

No. 16,645. Improvements on Sewing Machines. (*Perfectionnements aux machines à coudre.*)

Reuben M. Rose, Brooklyn, N.Y., U.S., 11th April, 1883; (Extension of Patent No. 8643.)

No. 16,646. Machine for Sharpening Horse Shoes. (*Machine à aiguiser les fers à cheval.*)

Robert S. Bailey, West Concord, Vt., U.S., 12th April 1883; (Extension of patent No. 8808.)

No. 16,647. Improvements on Carriage Perches. (*Perfectionnements aux ronds d'avant-train des voitures.*)

Luther D. Haskell, Jr., Beverly, Mass., U.S., 12th April 1883; for 5 years.

Claim.—1st. The improved carriage perch having the bed *d* and body *a* rabbeted or dovetailed together. 2nd. The perch *A* having its upper and lower sections rabbeted or dovetailed together, in combination with the axle *D* and bolster *B*.

No. 16,648. Improvement on Fruit Dryers. (*Perfectionnement des séchoirs à fruits.*)

William DeK. Moody, Brantford, Ont., 12th April 1883; for 5 years.

Claim.—1st. The narrow flues *L* having valves *M N* to admit or shut off the heat to hot air chamber *F*. 2nd. The hot air chamber *F* having valves to distribute the heated air horizontally between the ways *E*. 3rd. The valves *H* at the bottom of stalk *B*, which are regulated as required to carry off the vapour.

No. 16,649. Improvements on Waggon. (*Perfectionnements aux wagons.*)

Thomas B. Mackey, Dallas, Texas, U.S., 12th April 1883; for 5 years.

Claim.—1st. In a running gear for carriages and waggon, the combination with the axle provided with collars *f*, of the stationary and rotary disks *DD'* and the interposed anti-friction rollers *e* mounted on arms projecting from disks *E*, which are mounted on bolts *a* constituting axles for the rotary disks *E D'*, and the horizontal wheels *I g* in the boxes *G*. 2nd. The combination, with the boxes of the front section of the running gear, of the bands secured to a *d* passing around the boxes of the front cross-bar.

No. 16,650. Journal Oil Box lid for Railway Cars. (*Couvercle de boîte à graisse pour les essieux des wagons de railroads.*)

The Hewitt Box Lid Company, (assignee of Francis C. L. G. Susemihl and Herbert H. Hewitt), Detroit, Mich., U. S., 12th April 1883; (Extension of patent No. 8,638.)

No. 16,651. Improvement on Switch Openers. (*Perfectionnement des mécanismes des aiguilles.*)

James H. Kennedy and Thomas P. Hall, Toronto, Ont., 12th April 1883; for 5 years.

Claim.—1st. The combination of slides *n*, levers *h*, shaft *a* and eccentric *c*, with the switch rails and shifting bar, said slides being arranged in the path of dogs on the train in command of the attendants. 2nd. The combination of slides *n*, bars *o*, levers *h*, gearing *i j*, shaft *a*, eccentric *c* and the switch bar *b*, said slides being in the path of dogs in command of the train men. 3rd. The levers *h* geared with the shaft *a* by the duplex and reversely arranged gears *i j*. 4th. The slide bars *o* having inclines at the ends for the escape of the slides from the dogs. 5th. The levers *h* having curved ends *c*, in combination with slides *n* on the bars *o* having inclines at the ends. 6th. The combination of dogs *q* on the trucks, with the slides *n* and shifting gear, said dogs being mounted on sliding stocks *t* having cushion springs *u*. 7th. The switch rails connected to their bed by rock arms *z*. 8th. The combination of dogs *q* on the trucks, with the slides *n*, bars *o* and shifting gear, said slides being grooved on the side *d* bearing on the bars *o*.

No. 16,652. Improvement on Log Feeders and Turners. (*Perfectionnement des alimentateurs et roule-billots des scieries.*)

Henry M. Loud, Oscoda, Mich., U. S., 12th April 1883; for 5 years.

Claim.—1st. The combination, with the saw carriage and a set of inclined skids or ways descending to the level of the saw carriage, and having stop projections at their lower ends, of a rotary shaft located beneath the level of the skids near the stop projections and having arms for lifting the logs over said stop projections one by one. 2nd. The combination, with the vertically moving canting bar and its intermediate driving gear and a rotary log delivering shaft with arms, and its immediate driving gear, of an adjustable driving gear in common to both, the foregoing devices and combined with them so as to operate the rotary shaft by one movement and to be disconnected therefrom, and operate the canting bar by the other movement.

No. 16,653. Improvement on Snow Ploughs. (*Perfectionnement des charrues à neige.*)

Robert Johnson, Rama, Ont., 12th April 1883; for 5 years.

Claim.—1st. The combination of a series of wings *B C D* arranged on a centre board *A*.

No. 16,954. Improvements on Fire-Escapes. (*Perfectionnements aux sauteurs d'incendie.*)

Joseph R. Winter, Chambersbury, Penn., U.S., 12th April 1883; for 5 years.

Claim.—1st. The inner rail *B* having flanges *C* and secured by means of bolts passing through said flanges. 2nd. The combination of the permanent rail *B*, the pivoted rungs *G* and the rail *E* having shield or casing *J*. 3rd. The combination, with the fire-escape ladder, of the shield or casing *J* secured to the outer rail *E* of said ladder and having edges *K* forming handles. 4th. The combination, with the rail *B* permanently secured to a wall *A*, of the rail *E* and pivoted rungs *G* arranged alternately on opposite sides of said rails. 5th. The combination of the folding ladder *B E G* having shield or casing *J*, the support *L* and the releasing wire *M* having branches *N*. 6th. The combination of the rail *B*, pivoted rungs *G*, rail *E*, horizontal rods *U V* secured respectively to the wall of the structure and to rail *E*, the diagonal braces *W* and the pivoted rungs *S* forming a folding platform. 7th. The improved fire-escape consisting of the folding ladder *B G E* having shield or casing *J*, jointed brace *I* and folding platform *R*, the support *L*, releasing wires *M N* and alarm mechanism *O P Q*. 8th. The combination, with the fire-escape ladder *B E G*, of the ladder *Z* having stops *a b* and bent lower rung *G*, and the swinging guard bar *Y* hinged to the roof.

No. 16,655. Improvements on Roller Skates. (*Perfectionnements aux patins à roulettes.*)

George D. Burton, Boston, Mass., U. S., 12th April 1883; for 5 years.

Claim.—1st. The skate body provided with bearing pedestals near its ends, combined with two rollers in line with one another and having their bearing boxes mounted in the said pedestals, and pivots for receiving the endwise pressure of the axles of the rollers. 2nd. The skate body and bearing pedestals connected therewith, in combination with two rollers in line with one another at the ends of the body, and bearing boxes for the axles of the rollers having an annular chamber surrounding the said axle, a chamber at the end of the axle and the balls in the said chamber to afford an anti-friction bearing for the axle. 3rd. The combination of the skate body, its bearing pedestals, bearing boxes in the latter, with the rollers in line with one another and comprising a central portion surrounded by an elastic band, and a rounded tire enclosing the said band.

No. 16,656. Improvement on Fire-Escapes. (*Perfectionnement des sauteurs d'incendie.*)

Joseph H. Ford, Toronto, Ont., 12th April, 1883; for 5 years.

Claim.—1st. An iron ladder having its top end adjustably connected to the side of a building, in combination with platforms hinged to the side of the building near the window sills. 2nd. As an improved fire-escape, the platforms *A* hinged near the window sills *B*, in combination with a ladder *C*, the upper end of which is provided with strong staples fitting onto the vertical guiding bars *D*, and the supporting bars *E* extending out from the side of the ladder for supporting the platforms.

No. 16,657. Improvements on Horse Collars. (*Perfectionnements aux colliers de cheval.*)

Christopher G. Calo, Albany, N. Y., U. S., 12th April, 1883; for 5 years.

Claim.—1st. The combination, with the hollow sections *A A'* made of papier-mâché or rather similar fibrous material, of the plugs *a a'* and *a* and the frame *F* secured in the ends of the sections by screws or bolts, whereby the ends of the said sections are reinforced and provision made for attaching the fastening devices. 2nd. The combination, with the sections *A A'* hinged together at their lower ends, and the plate *D* provided with the loops *d* and secured to the upper end of the section *A*, of the frame *F*, the plate *D* having slots *d'*, the arms *f f'*, the plate *g*, the arm *h*, the spring *i*, the stop *i'* and the catches *G* provided with the thumb-piece *g*.

No. 16,658. Improvements on Washing Machines. (*Perfectionnements aux machines à laver.*)

John Fox, Oskaloosa, Iowa, U.S., 12th April 1883; for 10 years.

Claim.—1st. The base plate *C* having upright *D* and provided with transverse ribs *E E*, between which a detachable upright *F* may be secured.

No. 16,659. Improvements in Fire-Escapes. (*Perfectionnements aux sauteurs d'incendie.*)

John Sintzel, Hamilton, Ont., 12th April, 1883; for 5 years.

Claim.—1st. The combination of the ropes *b c* and tube *D*. 2nd. The combination of the ropes *b c*, tube *D*, hooks *E* and fire-proof coating *F*.

No. 16,660. Process for Transferring the Grain Marks of Wood and other Configurations. (*Procédé d'imitation du grain du bois et autres objets.*)

John R. Cross, New York, N.Y., U.S., 12th April, 1883; (Extension of patent No. 2334.)

No. 16,661. Methods for the Manufacture of Hygienic Foods. (*Méthode de préparation des aliments hygiéniques.*)

James Fish and Francis C. Ireland, Lachute, Que., 12th April, 1883; for 5 years.

Claim.—1st. The process of preparing hygienic food by desiccating, hulling and crushing the grains of cereals. 2nd. A hygienic food prepared from cereal grains by torrefaction, hulling and crushing.

No. 16,662. Improvements in Screw Cutting Machines. (*Perfectionnements aux machines à fileter les vis.*)

Harrison H. Taylor, Detroit, Mich., U. S., 12th April 1883; for 5 years.

Claim.—1st. The combination, with the milling tool and the threading die of a screw cutting machine, of the longitudinally reciprocating bed, the transversely reciprocating carriage mounted in ways on said bed, the rotatable head mounted on, and moving with said carriage and provided with blank holding jaws and mechanism for rotating the head and holding the jaws closed, when they face the dies, and momentarily opening said jaws, when they are moved in a direction away from said dies. 2nd. The combination of the longitudinally reciprocating bed, the transversely adjustable carriage, the rotatable head carried by a shaft mounted in bearings on the carriage and provided with pairs of blank holding jaws normally held closed by springs, a lever connected with the said shaft for rotating it and the head, and devices for holding one pair of jaws in a closed position, when they face the dies, and momentarily opening such pair of jaws, when moved away from the die. 3rd. The combination of the rotatable head *C* having two or more pairs of jaws *L*, with springs *E E* having cam projections *r*. 4th. The combination of the rotatable head *C*, the pairs of jaws *L* pivoted to said head and each provided with a projection *b*, with the springs *E E* provided with the cam projection *r*. 5th. The combination of the following devices, to wit: a milling or shanking tool and a screw cutting die, both arranged in the same horizontal plane, a rotatable head provided with opening and closing jaws and journaled in a carriage which is capable of transverse reciprocations on a longitudinally reciprocating bed, said head moving in the same horizontal plane as the milling tool and screw cutting die. 6th. The rotatable head *C* having jaws *LL* with projections *b* thereon, and pivots *O* combined with springs *E E* having cam projections *x* and the set screws *c*. 7th. The combination of a longitudinal screw-threaded shaft *F*, sliding bed *K* and a shear nut *T*, with a connection rod *H*, transverse rock shaft *L*, connecting with rod *M*, sliding bed *x* and carriage *z* carrying a blank holding head. 8th. The combination of the screw shaft *F*, sliding bed *K* carrying a nut adapted to engage and disengage the shaft, connecting rod *H*, rock shaft *L*, connecting rod *M* and sliding bed *X*. 9th. The combination, with a rotating milling tool, a sliding bed *X* and a transversely moving carriage *z*, carrying devices for holding a blank and presenting it to the milling tool, of rod *M*, rock shaft *I* having the attached arm *v* pivoted to rod *M*, arm *n*, rod *H* and reciprocating bed *K*, all arranged in the relative positions and operating to move the sliding bed *X* towards the milling tool at a decreasing rate of speed.

No. 16,663. Improvements on Horse Rakes. (*Perfectionnements aux râteliers à cheval.*)

Hiram Myers, Springfield, Ohio, U. S., 12th April 1883; for 15 years.

Claim.—1st. The combination, with the rake head or axle *F*, of the teeth *L* formed with loops *N*, and the strip *o* passing through said loops and bolted to the rake head. 2nd. The combination of the rake heads or axle *F* with pawls *a* pivoted in the flanges *c*, the spiral springs *n n*, the oscillating rod *H* having on its ends the pawls or levers *e e*, the lever *g* and the spring pressing plate *j*.

No. 16,664. Improvements in Milking Pails. (*Perfectionnements aux seaux à lait.*)

Arza C. Tracy, Mitchellville, Iowa, U. S., 12th April 1883; for 5 years.

Claim.—A combination wire and cloth strainer arranged with the flanges *b c* of a milk pail cover.

No. 16,665. Improvements on Thrashing Machines. (*Perfectionnements aux machines à battre.*)

Nathaniel Burkholder, Cherrywood, Ont., 12th April, 1883; for 5 years.

Claim.—1st. In a thrashing machine in which the shoe has a longitudinal shaking movement imparted to it, the combination of a tailing spout situated in the usual position, at right angles to the shoe and arranged to vibrate longitudinally. 2nd. In a thrashing machine provided with a bottomless shoe having an ordinary screen or sieve, the combination of a stationary slanting board held in the body of the machine independent of the shoe, and extending from a point near the bottom of the screen over the tailing spout to the grain spout.

No. 16,666. Improvements on Shower Baths. (*Perfectionnements aux appareils à douches.*)

John H. Crocker, Brussels, Ont., 12th April, 1883; for 5 years.

Claim.—1st. The combination of the guards *B B*, guard supports *C C*, screws *D D* provided with enlarged heads, wire loops *E E* and bath pan *A* provided with flange *A*. 2nd. The combination, with a portable force pump *I*, of a curved outlet tube *G*, sprinkler *H* and stirrup *J*.

No. 16,667. Improvements on Life Boats. (*Perfectionnements aux bateaux de sauvetage.*)

Benjamin F. Chapman, Wiarton, Ont., 13th April, 1883; for 5 years.

Claim.—1st. A life-boat having flat forward deck *B*, rear deck *C* and an intermediate semi-tubular deck *E* with closed ends provided with doors *G*, lights *H* and ventilating tubes *I*. 2nd. A life-boat having a hold or cabin *D* covered by a semi-tubular deck *E* with entrance from the ends. 3rd. A life-boat having a cabin amidships covered by a semi-tubular deck *E*, with end doors *G* entered from flat decks *B*

and *C* fore and aft. 4th. A life-boat provided with a screw propelling hand-power in a cabin, covered by a semi-tubular deck *E* having doors, lights and ventilators at the ends.

No. 16,668. Improvement in Sleigh Shafts. (*Perfectionnement des limonnières de traîneaux.*)

Frank Jones and Warren Woolsey, Ypsilanti, Mich., U. S., 13th April, 1883; for 5 years.

Claim.—1st. The combination of the outer tube *A* with or without slitted ends and provided with the holes *a b* secured to a sleigh or in any suitable manner, with the tube *E* adapted to slide within the tube *A* and having a hole *d* near its outer end, and the thill-couplings *C F* adapted to be fastened in said holes *a b d*. 2nd. The combination, with the telescopic tubes *A E*, provided with the holes *a d* and secured to a sleigh in any suitable manner, the additional tube *H* secured to the tube *A* by the split pin *g* and having a hole *h* similar to hole *d*, at or near its outer end, and the pole couplings adapted to fit and fasten in said holes *h d*.

No. 16,669. Register for Wood Working Machines. (*Compteur des machines à travailler le bois.*)

Albert A. Palmer, Owosso, Mich., U. S., 13th April, 1883; for 5 years.

Claim.—1st. A registering attachment for wood working machines, consisting of a suitable box or casing having a hinged top provided with means for locking it, a transparent front and a series of rotating disks having numerical characters thereon, and traversing wheel connected with pawls, for operating the ratchet teeth upon the sides of the disks. 2nd. The box or casing *A* provided with a transparent front *a* and hinged lock engaging top *c*, said box or casings containing a series of rotating disks having numerical characters upon their periphery operated by a rubber-tired traversing wheel *D* and a pawl and ratchet mechanism, and adapted to be adjustably attached to the frame of a wood working machine by means of a clamp *C* having right angular extensions *d* hinged or pivoted to said box or casing. 3rd. The oscillating shaft *F* provided with ears *h* and depending extension *g* in which works a crank shaft *E* having connected thereto a traversing wheel *D*, in combination with the pawls *G* and disks *H I K L* having numerical characters upon their periphery and provided with ratchet wheels *i k*, all rotating upon shaft *L*, and inclosed within the adjustable box or casing *A*. 4th. The traversing wheel *D* keyed to a crank shaft *E* provided with a rubber-tire *e*, said wheel with its tire being of a particular circumference, in combination with the oscillating shaft *F*, pawls *G* and rotating disks *H I K L* provided with ratchet-wheels *i k* placed upon their respective sides, said disks and their operative mechanism being inclosed in a box or casing *A* capable of being adjustably connected to the frame of a wood working machine. 5th. The box or casing *A* having a hinged cover and transparent front, said front having set therein a plate *b* provided with a series of openings, in combination with the rubber-tired traversing wheel *D*, crank shaft *E* provided with a slotted extension *d* and ears *h*, the pawls *G*, rotating numerical disks *H I K L*, each having ratchet-wheels *i k* upon their respective sides, and the clamps having right angular extensions *d*.

No. 16,670. Improvements on Vehicle Springs. (*Perfectionnements aux ressorts des voitures.*)

Alpheus O. Wilbur, Davis, Mich., U. S., 13th April, 1883; for 5 years.

Claim.—1st. The bottom plate which forms the bed of the spring having flanges to embrace the bolster, and perforated ears to embrace the wagon stake and be secured thereto, combined with the top plate having flanges to embrace the said stake near its upper extremity, the springs and bolts. 2nd. In combination with a bolster, its stake and the body of a wagon, the bed plate *C* having luxs *c* and ears *a* perforated at *b*, the top plate *B* having ears *d*, the bolts *D* and the springs *A*.

No. 16,671. Method of Producing Photographic Images and Apparatus therefor. (*Méthode de produire des images photographiques et appareil pour cet objet.*)

William Kurtz, New York, N. Y., U. S., 13th April, 1883; for 5 years.

Claim.—1st. The improvement in the art of portrait photography by moving the camera and sitter, while practically fixed relatively to each other, through arcs of circles in a uniform horizontal plane during exposure, whereby a half light may be changed to a full light during exposure and a more artistic distribution of light and shade obtained. 2nd. A photographic apparatus composed of a main platform adapted to rotate on a centre pivot in a socket of the floor, a rotary platform mounted on one end of the main platform and a camera at the other end.

No. 16,672. Improvements in Memorandum Books. (*Perfectionnements aux agendas.*)

Alexander Gardner, Hamilton, Ont., 13th April, 1883; (Extension of Patent No. 10,804.)

No. 16,673. Improvements on Water Traps. (*Perfectionnements aux soupapes hydrauliques.*)

William J. English and William Wood, Cohoes, N. Y., U. S., 13th April, 1883; (Extension of Patent No. 15,777.)

No. 16,674. Improvements on Waters Traps. (*Perfectionnements aux soupapes hydrauliques.*)

William J. English and William Wood, Cohoes, N. Y., U. S., 14th April, 1883; (Extension of Patent No. 15,777.)

No. 16,675. Stove and Furnace Grate.*(Grille de poêle et de foyer.)*

William Buck, Brantford, Ont., (assignee of Samuel Smyth, East Bridgewater, Penn., U.S.) 16th April, 1883; (Extension of Patent No. 2,960.)

No. 16,676. Improvements on Ships' Pumps.*(Perfectionnements aux pompes des navires.)*

Albert Russell and Francis Curtis, Newburyport, Mass., U. S. 16th April, 1883; for 15 years.

Claim.—1st. The combination of a bucket and half beam for joint operation, the bail of the bucket having a V-shaped edge to bear in a V-shaped groove in the half-beam. 2nd. The combination of the bucket, the bail of which has a V-shaped edge and a curved surface at *r*, with the half-beam having V-shaped groove *S* and formed at *t* to extend over and bear against the upper side of the bucket bail. 3rd. The combination of a pump bucket, the bail of which has cast upon it half the articulation, or joint with a beam or half-beam casting bearing the other half articulation or joint, so that the connection may be completed in the casting without further finishing or intervention of another casting to complete the connection. 4th. A bucket having a bail cast as one piece with the body of the bucket, the upper part or cross-bar of the bail having a V-shaped edge, which is hardened or chilled in the casting. 5th. A bucket dome-shaped, that is, having the annular part *M* turned down outwardly so as to bring the outer edge face and packing at or near the bottom of the bucket. 6th. A pump bucket having one or more openings or posts *O*, to allow the escape of air from beneath the bucket to the central opening thereof. 7th. A pump bucket having a rectangular groove in its edge-face to receive, and in combination with a rectangular packing piece formed of a straight strip bent around. 8th. A ship's pump in which is a lining of sheet material united or fastened to the interior of the barrel by rolling, and without other means of fastening, whether of the edges of the lining to each other or of lining to the barrel of the pump. 9th. The combination of a pump body whose bore is shorter than its diameter, for the purpose of lining, with a bucket cast in one piece or of a shape capable of being so cast, and a socket lever or half-beam however connected and working together as the three working parts of a ship's pump.

No. 16,677. Improvements on Land Rollers.*(Perfectionnements aux rouleaux d'agriculture.)*

William Gates, Hopkins Station, Mich., U.S., 16th April, 1883; for 5 years.

Claim.—1st. In a land roller composed of one front and two rear rollers, the combination of a reach rigidly fastened to the main frame of the rear rollers and pivoted upon the top of a spring support carried over the front roller, and secured to the frame thereof. 2nd. In a land roller composed of one front and two rear rollers, the frames of which are connected by a reach rigidly fastened to the main frame of the rear rollers and pivoted so as to swivel laterally on a spring support attached to the front roller, the combination of an auxiliary frame provided for each rear roller and pivoted independently on the main frame.

No. 16,678. Improvements on Churns.*(Perfectionnements aux barattes.)*

William C. Burrows, Stockton, N. Y., U. S., 16th April, 1883; for 5 years.

Claim.—The rectangular body *A* provided with the removable heads *B* *B*₁, cover *D*, handle or lever *F* and wheel *C* carrying the dash, in combination with the frame *E*, upright *G*, pulleys *g* *g*₁ and belt *H*.

No. 16,679. Improvements on Paint Distributors.*(Perfectionnements aux distributeurs de peinture.)*

John P. Whipple, White Water, Wis., U. S., 16th April, 1883; for 5 years.

Claim.—1st. The combination, with the wind-wheel *H*, of the drive-wheel *L*, the same being connected together by detachable gear *K* and gear *J*. 2nd. The combination, with the distributing needle, of a supporting arm between the respective ends of which said needle is suspended and by which it is steadied in its movement and prevented from bending, said arm *B* being connected with one or both of the drive-wheels. 3rd. The needle *N* provided with the elongated eye *O*, in combination with the pitmans *M* of one or both of the operating wheels, said elongated eye being adapted to permit of the circular movement of said pitman without disturbing the reciprocating movement of the needle. 4th. The combination of the button *S* with the needle *N* and guide groove *W*, as adapted to retain said needle in said groove. 5th. The combination of the adjusting device *B* with the plate *A* and block *A*₁. 6th. The combination of the peculiarly curved or angularly-shaped plate *A* with the block *A*₁ and operative mechanism of the device, the shape of said plate being adapted to bring the operative mechanism below the plane of the block *A*₁. 7th. The needle *N* having a reduced upper portion, whereby it is rendered more flexible. 8th. The trough *R* so shaped as to retain the paint, when the device is operated vertically, in combination with one or both of the distributing needles *N*.

No. 16,680. Improvements on Axles.*(Perfectionnements aux essieux.)*

Adam Warnock, Galt, Ont., 16th April, 1882; for 5 years.

Claim.—An axle provided with a collar situated on the inside of the bearing, a groove cut around the periphery of the collar, in combination with a passage way cut through the inner wall of the groove on the bottom side of the axle bed.

No. 16,681. Machinery for Grooming Horses and other Mechanical Purposes.*(Machine à panser les chevaux et pour autres fins mécaniques.)*

John J. Greenough, Syracuse, N. Y., U.S. 16th April, 1883; for 5 years.

Claim.—1st. A pendent jointed and swivelling arm carrying a shaft for revolving the brush or other tool, the shaft sections being supported so that said shaft sections will sustain no part of the weight of the arm. 2nd. The combination of the upper section *C* of the arm, and the section *D*, with the spring *S* to assist in holding up the arm section *D*. 3rd. The boxes or bearings of each end of the tubes comprising the sections of the arms, in which the shafts turn and by which they are supported and held independent of the arm couplings. 4th. The bevel gear in combination with the couplings, forming a universal joint. 5th. The combination of the two pendent arms supported by hangers with a driving shaft by which the arm shafts are revolved, so as to cause the brushes or other tools to rotate in opposite directions.

No. 16,682. Improvements on Car-Couplings.*(Perfectionnements aux accouplages des chars.)*

James W. Oulton, Charlestown, Mass., U.S., 16th April, 1883; for 5 years.

Claim.—1st. The combination, with the draw-head provided with holes to receive the usual coupling pins, of the spring pressed link holding devices provided with studs entering the sides of the said draw-head midway in the height of its opening, and the pin holding projection connected with one of the said devices and automatically operated by the insertion of the link, to release the pin and permit it to drop. 2nd. The combination of the coupling pin, operating arm *h*, the rock shaft *i* supporting the same, the handled levers *j* of said rock shaft, gravitating holders *m* for such levers, operating rod *k* and catch therefor, whereby the actuating of the arm *h* by the levers serves to unlock or release the rod also, and vice versa. 3rd. The coupling pin, operating arm *h* and its rock shaft *i* provided with the levers *j* having handles combined with gravitating inclined fastening devices *m*. 4th. The combination of the draw-head *a* divided into a number of link-chambers *Y*, webs *a*₁, the plates *c* pivoted at *3* upon opposite sides of the draw-head, each having a number of studs *d* corresponding in number with the number of chambers, and entering each chamber from opposite sides, and the springs *e* pressing upon plates *c*.

No. 16,683. Improvements on Car-Couplings.*(Perfectionnements aux accouplages des chars.)*

John DuB. Kieck, Toronto, Ont., 16th April, 1883; for 15 years.

Claim.—1st. The combination, within a draw-head provided with means for coupling with the ordinary link and pin, of a two-arm bell crank, one arm of which is provided with a hook and the other with means for engaging with a spring detent. 2nd. A draw-head wherein the shell is provided with a depressed chamber below the devices employed for automatic coupling, for the purpose of receiving a link when it is desired to couple by means of such link and a proper pin in the usual manner. 3rd. In a draw-bar, a two-arm bell crank, one arm of which is provided with a hook and the other with a notch or recess to engage with a spring detent, in combination with the pin against which the rear side of the arm *G* impinges, such pin being adapted to engage with the link in ordinary use for coupling purposes. 4th. In a draw-head, the detent *H*, spring *M* and bell crank. 5th. In a draw-head, the detent *I* and spring *N* adapted in connection with the pin *R* to lock the bell crank in place, when concealed within the draw-head.

No. 16,684. Improvements on Harvesters.*(Perfectionnements aux moissonneuses.)*

Samuel D. Maddin, Saint Paul, Minn., U.S., 16th April, 1883; for 5 years.

Claim.—1st. The combination of a main frame *A* supported on wheels *e* *e*₁ and a frame *B*, a bar *b*₁ supporting the cutters, platform, belt and the connections with the driving wheel, and adjustably connected to the main frame. 2nd. The combination of the main frame supported by the driving and supporting wheels, the adjustable frame *B*, bar *b*₁ and the cutters connected to the bar *b*₁, whereby the angle to the ground and elevation of the points of the cutters may be changed by adjusting said frame *B* with the bar, or by turning the bar in its bearings in said frame *B*. 3rd. The combination of the supporting frame *A* and the bar *b*₁ supporting the cutters and adjustable in its bearings in the frame *A*. 5th. The combination, with the frame *A*, of the frame *B*, both hung to the bar *b*₁, the frame *B* being adjustable thereon and carrying the belts, elevators and platform for the grain binding appliances. 5th. The combination of the main frame *A*, adjustable frame *B* carrying the belts, shafts and connections, and the pinion *d*₁ on the bar *b*₁ geared to the driving wheel and to the operating devices on the frame *B*. 6th. The main frame and front bar *b*₁ combined with an adjustable frame consisting of back bars and connecting bars and arched frames *b*₂ *b*₃. 7th. The combination of the main and tilting frames and dividers attached to the tilting frame. 8th. The combination, with the carrying belt, of a sprocket chain *j* and means whereby the chain may be driven faster or slower than the belt. 9th. The combination of the shafts *f* *f*₁ carrying the belt *h*, the clutch pulleys *i* *i*₁ of different sizes carrying the sprocket chain *j*, and the clutch lever *sa*. 10th. The combination, with the bar *b*₁ and cutters, of a plate secured to the bar *b*₁ and bent to form the flanges *e* *e*₁. 11th. The combination, with the main frame, adjustable frame and the knife-bar, of a rock shaft having an arm and studs upon the cutter-bar receiving the arm between them. 12th. The combination of the cutter-bar carried by the adjustable frame and the rock shaft carried by the main frame and provided with an arm fitting between fingers on the cutter-bar. 13th. The main frame consisting of the bars *a* *a*₁ *a*₂ *a*₃ with sockets to receive the bar *b*₁, combined with the frame *B* hung to the bar *b*₁ and consisting of the bars *b* *b*₁ *b*₂ *b*₃ and arched bars *b*₅ *b*₆. 14th. The combination of the main supporting

frame A, bar *b*s supported at both ends in said frame and carrying the cutters and appliances, whereby to turn the bar in the frame from the driver's seat. 15th. The combination of the main frame, tilting frame B arranged within the main frame and hung to the front bar *b*s, and carrying the canvas *h*, and appliances for swinging the frame B on the front bar of the main frame from the driver's seat. 16th. The combination of the main frame, tilting frame B and grain divider C connected to the latter frame to move therewith.

No. 16,685. Improvements on Tubular Lanterns. (*Perfectionnements aux lanternes tubulaires.*)

George A. Kennedy, Coaticook, Que., 16th April, 1883; for 5 years.

Claim.—1st. The tilting plate F, in combination with the cap E. 2nd. The oblong air-chamber H combined with a disk I having a central perforation and tubes D entering the ends of the said chamber. 3rd. The horizontal wire K bent semi-circularly to conform to the globe, the ends secured to tubes D in position to bear on the bead of the globe. 4th. The vertically sliding wire M passing through the air chamber H, and concave disk I, whereby the wire when thrust downwardly will be moved into contact with the inside of the globe for its retention against an external wire K.

No. 16,866. Improvements on Steering Mechanism. (*Perfectionnements aux mécanismes des gouvernails.*)

Nathan Richardson, Gloucester, Mass., U.S., 16th April, 1883; for 5 years.

Claim.—The combination, with a rudder-head having arms carrying journals G, of a frame consisting of cross-heads K K and guides B B, a right and left screw C turning in the cross-heads, and L-shaped arms T slotted to receive the journals bearing with their long arms on, and sliding on the guides B B and formed into nuts receiving the screw at the ends of their inner arms.

No. 16,687. Improvements on Nut Locks.

(*Perfectionnements aux arrête-écrous.*)

Samuel M. Churchill, State Centre, Iowa, U.S., 18th April, 1883; for 5 years.

Claim.—1st. The combination of the fish-plate or separate washer-plate A having shank C, tongues B standing out from the said plate and providing spaces between them and the plate A, and the key-plate D having open gap *d* to permit its edges to fit or be inserted between the tongues B and the plate A. 2nd. An ordinary fish-plate provided with a set screw or rivet S, as a substitute of the shank C and tongue B.

No. 16,688. Secondary Regulator Battery.

(*Batterie secondaire régulateur.*)

Joseph S. Boeman, William Taylor and Frank King, London, Eng., 16th April, 1883; for 5 years.

Claim.—1st. The combination, with a secondary battery or batteries, of a gas chamber and plate or plates, elastic diaphragm or equivalent, or fluid joint, alone or in combination with contact breaking, or measuring, or recording devices, one or more. 2nd. The combination, with secondary batteries, of a gas-chamber and plate or plates and float device such as referred to, alone or in combination with contact breaking, measuring or recording devices, one or more. 3rd. The combination of parts consisting respectively of plate or plates, chamber and movable diaphragm or equivalent, when used in combination with contact breaking, or measuring or recording devices, one or more, combined in the various modifications. 4th. The use of a gas-chamber closed at the bottom with a liquid described joint, so that gas collecting in said chamber may cause the liquid to rise in any opening provided and arranged so as to actuate any contact breaking, measuring or recording device.

No. 16,689. Improvements on Overalls.

(*Perfectionnements aux pardessus.*)

William Carter, Toronto, Ont., 16th April, 1883; (Extension of Patent No. 16,020.)

No. 16,690. Improvements on Overalls.

(*Perfectionnements aux pardessus.*)

William Carter, Toronto, Ont., 17th April, 1883; (Extension of Patent No. 16,020.)

No. 16,691. Combined Hay Rake and Check-Rower. (*Râteau à foin et machine à sillon combinés.*)

Thomas Miltenberger, Bellefontaine, Ohio, U.S., 17th April 1883; for 15 years.

Claim.—1st. The combination, with the sulky having devices to operate a corn marker, of the revolving rake and its operating devices. 2nd. The combination, with the operating devices A B C D and O, of the row-marker and guide. 3rd. The combination, with a row-marker, of the pivoted arm and chain. 4th. The combination, with the revolving sulky hay rake, of the connecting arm A and lever O, having handle B and foot-rest C. 5th. The combination, with standard M and arm A having a pin on its end, of the trip lever I having a slot in its upper end and pivoted near its centre to the standard M. 6th. The combination, with the revolving rake, of the spring trips N, which yield laterally when lugs C₁ press against it during revolution, and assumes its position on top of the lugs when the lug has passed. 7th. The combination, with a revolving rake having lugs C₁, of the standard M carrying trip lever I and spring trips Q. 8th. The combination, with the revolving rake-head, of the collar made in two parts

adapted to be bolted on and having the teeth, and stops. 9th. The combination, with the rake-tooth, of the metallic sheath. 10th. The combination, with cogs X on the rake head, of the segment gear Y on lever Z. 11th. The combination, with foot and hand lever O, connecting arm A, standard M, trip lever I and spring trips N, of the revolving rake having lugs Q. 12th. The combination, with the revolving rake and spring trips N, of the shield M. 13th. The combination, with arm A having eccentric slot P and pivoted to standard Y, which encircles the rake-head, of the rod S, pin Q and poles P' P₂.

No. 16,692. Improvements on Churn Motors.

(*Perfectionnements aux moteurs des barattes.*)

Benjamin C. May, May, Texas, U. S., 17th April, 1883; for 5 years.

Claim.—1st. The combination, with a wheel or disk having a toothed periphery and provided with a friction flange, of a disc at right angles to the former, bearing against its friction flange and having studs engaging its teeth. 2nd. The combination, with the box or body of the churn, of a cover having the uprights C, shaft D having crank E, disk F having teeth G and flange H, and vertical shaft I having disk J provided with studs K.

No. 16,693. Improvements on Switch Stands

(*Perfectionnements aux bâtis des aiguilles.*)

Oliver J. True, Port Clinton, and Henry H. Houghton, Elyria, Ohio, U.S., 17th April, 1883; for 5 years.

Claim.—1st. The combination, with a vertical switch operating shaft, of a weight or block and adapted to be locked thereto. 2nd. The combination, with the vertical switch operating shaft, of a weighted sleeve surrounding the same, a roller on the said sleeve and a V-shaped fixed track or guide on which the said roller is adapted to run. 3rd. The combination, with the stand G, of the vertical shaft F, the weighted sleeve H I, the secured guide sleeve or track P, and devices for locking the sleeve H I on the shaft F. 4th. The combination, with the stand G, of the vertical shaft F, the weighted sleeve H I, the recessed guide sleeve P, the forked plate J keyed on the shaft F, and the lever K pivoted to the plate J and adapted to pass into notches in the upper edge of the sleeve H I. 5th. The combination, with the stand G, of the switch operating shaft F, the weighted sleeve H I, the roller M and the sleeve P provided with a series of V-shaped recesses.

No. 16,694. Improvement on Fire-Escapes.

(*Perfectionnement des sauveteurs d'incendie.*)

William S. Pugsley, London, Ont., 17th April 1883; for 5 years.

Claim.—The combination of the frame A provided with grooves I I, pin B, grooved pulley C provided with projections L L, and teeth J J, slide H and rope K.

No. 16,695. Improvements on Grain Binders.

(*Perfectionnements aux lieuses à grain.*)

Christopher W. Levalley, St. Paul, Minn., U.S., 17th April, 1883; for 5 years.

Claim.—1st. The method of supplying band cord to the binding mechanism of grain binders, by arranging a series of wound balls of cord within an enclosing case, which holds them from disarrangement, and connecting the outer end of the cord of one ball to the inner end of the cord of the adjacent ball, and unwinding them successively by the operation of the machine. 2nd. The cord box or holder having a diameter equal to that of the cord balls, and a length equal to, or exceeding twice the length of one of cord balls and having an aperture through its feed end, for the purpose of receiving and holding two or more balls and permitting the cord to feed from them through said apertures. 3rd. The method of supplying band-cord to the binding mechanism of grain binders, by arranging a series of wound balls of cord within an enclosing case which holds them from disarrangement and end to end, connecting the outer end of the cord of one ball to the inner end of the adjacent ball and unwinding them successively by the operation of the machine.

No. 16,696. Improvements on Alarms or Signals. (*Perfectionnements aux appareils d'alarmes ou signaux.*)

Hiram A. Eaton, Manchester, Me., U. S., 17th April 1883; for 5 years.

Claim.—1st. In an alarm signal, a series of barrels to contain ammunition, a series of hammers or projections co-operating therewith, and means to hold the said hammers or projections ready, when released, to fire the barrels, and an extended plate or guide and travelling block or releasing device therein to effect the release of the hammers, to fire the barrels, combined with a clock, a spindle actuated thereby and connected with the said block releasing device, whereby the first barrel of the series of barrels may be fired automatically at any desired hour after setting or cocking the hammers, and the remaining barrels be thereafter fired at predetermined intervals. 2nd. The series of barrels and series of hammers, means to hold them retracted, and a plate or guide of greater length than the length of the space occupied by the said hammers, combined with a travelling block or releasing device, and a clock mechanism to move the same, whereby a clock mechanism is enabled to automatically determine the hour of the day at which the first barrel of the series of barrels will be fired, and also the interval of time between the firing of each successive barrel of the series of barrels. 3rd. The hammer actuating springs, wires *g* and rods to hold the latter, combined with the plate or guide and travelling block or releasing device, adapted to move the said rods one after the other, to effect the release of the said springs. 4th. The combination, with the alarm mechanism, the wires and the pivoted rods *j*, and the bar *k* having slot *h* and the slide *b*. 5th. The combination, with the barrels, nipples and box having board C on its bottom, of a breech block B formed with right angled apertures and bolted to a bar hinged to said board C. 6th. The combination,

with the springs *i*, of the wires *g*, the arm *j* pivoted on cross bar *G* and the bar *K* having slot *h*, whereby the wires *g* may be placed over the ends of the spring and under the arms, while the arms are placed in slot *h* to hold the springs back. 7th. A series of barrels to contain ammunition, a clock mechanism and a spindle *b* moved in unison with and by the hour post of the clock, combined with a hammer releasing or controlling device, connected with, and actuated by the said spindle to control the intervals of time between firing the said barrels.

No. 16,697. Improvement in the Distillation of Coal. (*Perfectionnement dans la distillation du charbon.*)

William J. Cooper, Westminster, Eng., 17th April, 1883; for 5 years.

Claim.—The improvements on the distillation of coal in and for the manufacture and production of coal gas or of illuminating gas, by the admixture and use of lime (in any of the forms or compounds mentioned) with coal.

No. 16,698. Improvements on Gates. (*Perfectionnements aux barrières.*)

William R. White, Neoga, Ill., U. S., 17th April, 1883; for 5 years.

Claim.—1st. The combination, with a guided and sliding gate *D*, of a vertically guided rod *G*, levers *E E* connected thereto, and a pitman *I* joined to the lower end of the rod and to the gate centrally near the lower part. 2nd. The combination of sliding gate levers, rod and pitman, constructed to lock the gate in either position.

No. 16,699. Improvements on Car-Couplers. (*Perfectionnements aux accouplages des chars.*)

George Mitchell, Newcastle, N.B., 17th April, 1883; for 5 years.

Claim.—1st. The latch *L* pivoted at the forward end of the top of the draw-head and having a nose *l* sloping downward and backward, and terminating in a square shoulder projecting in the throat of the mouth of the draw-head, and fitting loosely between the shanks of the coupling link *c*. 2nd. The combination of the spring *S* having its ends socketed in a suitable recess at the top of the latch *L* and in a bridge *h₂*, and holding the latch down. 3rd. The combination of the angular lever *A* pivoted across the draw-head to a lug *h₃* and connected by means of the link *a* to the latch *L*. 4th. The combination of the draw-bar *B* and the draw-head *H* pivotally connected, by means of a hinge joint, with projected and recessed tongue *t*, and sloping shoulders *h* limiting the extent of the deflection and facilitating the adjustment of the head to different heights. 5th. The combination of the draw-bar *B* hinged to the draw-head *H*, latch *L* pivoted to the draw-head and projecting its nose *l* into the throat *h₁* of the flaring mouth spring *S*, acting against the latch and a bridge *h₂*, and angular lever *A* pivoted to lug *h₃* and connected to the latch *L* by means of a link *a*.

No. 16,700. Improvements on Harvesters. (*Perfectionnements aux moissonneuses.*)

Samuel D. Maddin, St. Paul, Minn., U. S., 17th April, 1883; for 5 years.

Claim.—1st. The combination of an axle supported by the wheels and a cutter-bar frame, one side bar of which rocks in bearings on a frame swinging on the axle, while the other side bar is attached to a link or yoke through which the axle extends. 2nd. The combination with the axle *A* of a rigid frame *E* having side front and back bars and connections, whereby said frame may be swung on said axle, or rocked in its bearings at one side while raised or lowered at the other upon the axle. 3rd. The combination of an axle *A* and frame *E* rocking at one side in bearings supported by the axle, and provided at the other with a link through which the axle extends, a platform supported by the axle and elevating appliances, whereby the frame *E* may be raised, lowered and tilted. 4th. The combination of the axle frame *E*, the frame *G* swinging on the axle and supporting the bearings of one side of the frame *E*, and the crank shaft *e* supported by said frame, pitman *h* parallel to the wheel, crank lever *j* pivoted adjacent to the cutter-bar, and cutter-bar. 5th. The combination of the axle, platform frame *G*, frame *E* provided with a link *a* and turning in bearings on the frame *G*, and shafts *H I* provided with levers *m m*.

No. 16,701. Apparatus for the Manufacture of Starch. (*Appareil pour la fabrication de l'empois.*)

Anthony Atkinson, New York, N. Y., U. S., 17th April, 1883; for 5 years.

Claim.—1st. The eccentric on the driving shaft *B* and the yoke *A*, which is on the head of the separator or sieve and goes over the eccentric.

No. 16,702. Improvements on Harvesting Machines. (*Perfectionnements aux moissonneuses.*)

Peter Patterson, (assignee of John C. McLachlan), Patterson, Ont., 17th April 1883; for 5 years.

Claim.—1st. A harvesting machine in which the main wheel revolves upon the axle supported in bearings on either side of the said wheel, the lifting lever rigidly secured to the axle, in combination with a sheaf also secured to the axle and connected by a chain to the inner side of grain table for the purpose of raising and lowering it. 2nd. In a harvesting machine in which the grain table and cutter-bar move independently of the main frame, the combination of a solid piece of metal bolted to the cutter-bar and forming a cross head arranged to connect and move vertically within the main frame, forming at the same time a double bearing for carrying the spindle of the rake driving pinion. 3rd. A harvesting machine in which the movement of the rake wheel is derived through a sprocket wheel and pinion, rigidly securing together or forming in one piece the said sprocket

wheel and pinion, for the purpose of preventing any twisting strain being exerted on the spindle supporting the same. 4th. A harvesting machine in which the grain table and cutter-bar move independently of the main frame and is provided with a casting bolted to the inside of the grain table, arranged to form a sliding cross-head connecting the table and main-frame, a lifting lever pivoted on the said casting, in combination with a chain or rod connected to the said lever and passing through a hole made longitudinally in the cross-head to the bottom of the grain table along which it passes over suitable friction rollers to the grain wheel for adjusting the same. 5th. In a harvesting machine in which the table and cutter bar move independently of the main frame, an arm rigidly fastened at one end to the cross-head, in combination with double tightening rollers pivoted to the outer end of the arm and extending one above and one below the sprocket chain, for the purpose of keeping the same taut during the adjustment of the grain table. 6th. In a harvesting machine in which the trip is operated by pins or projections arranged on the surface of the rake wheel, an arm extending over the surface of the wheel and supported in such a manner that its distance from the surface can be adjusted. 7th. A harvesting machine having a rolling rake head, a friction roller secured to the rake head by a bolt passing through an elongated hole or slot made through the internally projecting end of the rake head. 8th. A harvesting machine having a rear rake built on the grain delivery side of the table, the casting in one piece of the inclined guide forming one side of the throat, and the horizontal piece forming the other side.

No. 16,703. Machinery for Opening and Preparing Cotton. (*Machine pour éplucher et préparer le coton.*)

The Whitehead and Atherton Machine Company, (assignee of William E. Whitehead), Lowell, Mass., U. S., 17th April, 1883; for 5 years.

Claim.—The combination, with the drop lever, the exhaust fan and the dust flue or trunk, of an automatic damper placed in said trunk at, or near the discharge or delivery end of the exhaust pan and connected with, and operated by the drop lever.

No. 16,704. Improvements on Ink-Stands. (*Perfectionnements aux écritaires.*)

Isaac Brooke, Royersford, Pa., U. S., 17th April, 1883; for 5 years.

Claim.—1st. The binder *G* in combination with the removable side pieces, which said binder straddles, the cover journalled in said side pieces and the lever *C* which engages with the arms, the binder *G* serving as a stop to prevent the cover from being turned backward too far. 2nd. The inkstand and the base, in combination with curved lever *C* pivoted on lugs on said base and arranged below the top of said inkstand and the cover *D*, said lever and cover returning automatically to their normal positions by gravity. 3rd. The rising and falling cover having lateral motions and provided with means for locking it in elevated position. 4th. The inkstand and cover and operating lever of the latter, in combination with lugs overhanging said lever. 5th. The base and removable side pieces, in combination with a binder having an eye at bottom and a securing wedge or key. 6th. The rising and falling cover provided with a pad adapted to strike the binder which stops the rearward motion of the cover of the inkstand. 7th. In an inkstand consisting of a rising, falling and laterally moving cover and an operating lever therefor, a base and side pieces, said cover having a lug *F* and the side pieces, one or both, formed with a notch *F*.

No. 16,705. Machine for Operating Semaphore Signals. (*Mécanisme des signaux sémaphoriques.*)

William W. McLellan, Newcastle, N.B., 17th April, 1883; for 5 years.

Claim.—The combination of the several parts, quadrant *D*, levers *A* and *B*, rubber buffer *C*, foot pull *E*.

No. 16,706. Combined Spool and Thimble Holder and Thread-Cutter. (*Porte-bobine, porte-dé et coupe-fil combinés.*)

Antonio M. Barrett, Ione, Cal., U. S., 17th April, 1883; for 5 years.

Claim.—1st. A spool and thimble holder constructed of a piece of wire bent to form a vertical centre *A*, upon top of which the thimble is sustained, and an open base *C*, in one corner of which one end of the wire is formed into a hook *a* and receives the other end forming the spindle *c* upon which the spool is fitted, and a hook or pin *E* upon the back of the device to secure it to the top of said pin, being separated from the centre *A* to receive the rim or edge of the thimble. 2nd. A combined spool and thimble holder and thread cutter constructed of a piece of wire bent to form a vertical centre *A*, upon top of which the thimble is sustained, cross-arms *B* and wide open base *C*, in one corner of which one end of the wire is formed into a hook *a* and receives the other end forming the spindle *c* upon which the spool is fitted, the cutting blade *D* supported from the front of the device by a strip or piece *b*, and the pin or hook *E* secured to the back of the centre *A*, and having its upper portion free to receive, between it and the centre *A*, the rim or edge of the thimble. 3rd. In a combined spool and thimble holder and thread-cutter consisting of a central piece *A*, cross-arms *B*, open lower portion *C* having a hook *a* at one corner, and a spindle or base *c* adapted to rest in said hook or to be removed therefrom, a cutting blade *D* in front, and a pin or hook *E* behind.

No. 16,707. Improvements on Gate Hinges. (*Perfectionnements aux pentures des barrières.*)

Charles Jobson, (assignee of Miller B. Hudson), Canandaigua, N. Y., U. S., 17th April, 1883; for 5 years.

Claim.—1st. The combination of the case consisting of the U-shaped plates *A* fitting the corner of a post provided with the cross slots

b b extending into both plates, and with cross-bearings *d d* on the back side above and below the cross-slot, and the horizontal shaft *C* supporting the roller, provided with the vertical pintle *E*, the shaft projecting out through the cross slot, and the pintle resting between the cross bearings. 2nd. The U-shaped case *A* provided with the cross slots *b b* extending into the plates, and the cross bearings *d d* on the back side above and below the cross slot.

No. 16,708. Improvements in Decorating Buttons. (*Perfectionnements dans l'ornementation des boutons.*)

Charles G. Dobbs, New York, N. Y., U. S., 18th April, 1883; for 5 years.

Claim.—1st. The improvement in the art of decorating buttons and similar articles by forming holes (of suitable shape in cross-section) in the button or other article, sinking therein powdered or finely divided tinsel or glittering material, and then coating said material with a colorless transparent varnish. 2nd. A button with powdered or finely divided tinsel or glittering material sunken in holes in the face of the button so as to be below the surface of the same, and coated with colorless, transparent varnish.

No. 16,709. Improvements in Stove Pipes. (*Perfectionnements aux tuyaux des poêles.*)

Frederick A. Ring, Maplewood, Mass., U. S., 18th April, 1883; for 5 years.

Claim.—1st. The quadrantal elbow *C* provided with the flexible apron *d* fixed to it and arranged with its quadrantal sides. 2nd. The quadrantal elbow *C* having flanges *e* to extend inward from its quadrantal sides *b*, and also having a flexible apron *d* applied and to operate with such flanges. 3rd. The combination of the tube *A* and its partition *f* arranged therein, with the quadrantal adjustable elbow *C* pivoted to the tube, and with the flexible apron *d* applied to such elbow and arranged with the partition *f*. 4th. The combination of a separable stove duct connection with the quadrantal elbow *C* provided with the flexible apron *d* and pivoted to the pipe *A*; such duct connection and elbow having means of engaging them. 5th. The combination of the prismatic tube *A* with the shorter auxiliary prismatic tube *B*, and with a quadrantal elbow *G* and its flexible apron *d*, and the guide *H* therefor applied to such tube *B*. 6th. The quadrantal elbow *G* provided with the cylindrical mouth *r*, and the flexible apron *d* arranged with each other and the quadrantal sides of the said elbow. 7th. The combination of the tube *A*, with two quadrantal elbows, their aprons and guides therefor, adapted to such tube *A* at its opposite ends. 8th. The combination of the tubes *A* and *B* with the two quadrantal elbows *C* and *G* thereof, and with their flexible aprons and guides therefor. 9th. The improved stove pipe section or attachment composed of the prismatic portion *A* and a telescopic end section pivoted to the portion *A* and provided with a terminal adapted to fit a section of pipe. 10th. The improved stove pipe section or attachment composed of the prismatic portion *A*, and two telescopic end sections pivoted to opposite ends of the portion *A*, and each provided with a terminal adapted to fit a section of pipe. 11th. The combination of the prismatic pipe *A* and an elbow pivoted thereto, at one or each of the ends of such pipe, and provided with a mouth or terminal to receive and fit to a second pipe at one end thereof, such elbow being constructed so as to be adjustable relatively to the pipe *A* and constitute in any of the positions of it (the said elbow) a close conduit from the pipe *A* to the said second pipe. 12th. The improved elbow composed of the tube *A* provided at one end with a telescopic end section having a cylindrical terminal *m*, and at the other end with a cylindrical terminal *A* rigidly attached to said tube.

No. 16,710. Improvements on Land Rollers. (*Perfectionnements aux rouleaux d'agriculture.*)

William P. Jones, Arcade, N. Y., U. S., 18th April, 1883; for 5 years.

Claim.—1st. The combination, with the frame *B B* *Bz*, of the sectional rollers *A A A*, the round loose flexible shaft *a*, the bearing *d* and swinging buttons *b* fitting over the shaft ends. 2nd. The combination, with the sliding seat *c*, of the rod *b* secured to the rear of the roller frame, pivoted scraper *b* and movable handle *F*, capable of being moved along on the rod *b* so as to be reached by the driver as the seat *c* is moved either way.

No. 16,711. Improvements on Spud Fixtures. (*Perfectionnements aux poteaux des dragueurs.*)

Ralph R. Osgood, Troy, N. Y., U. S., 18th April, 1883; for 5 years.

Claim.—1st. In combination with the spud well, the bottom casting secured thereon and carrying the friction rollers for bearing against the sides of the spud post. 2nd. In combination with the spud well, the top casting or cap mounted thereon and carrying the friction rollers for bearing against the sides of the spud post. 3rd. In combination with the removable flanged cap, secured upon the spud well timbers carrying the friction rollers, the two part clutch mechanism mounted upon said cap and constructed and arranged to operate in connection with the spud. 4th. In combination with the spud well, the top and bottom castings, each carrying friction rollers for bearing against the spud post, the parts being mounted and arranged as described. 5th. The combination of the cap-piece carrying the friction roller, the spud well timbers and the inclined stay rods. 6th. The combination of the cap piece for the spud well flanged as explained, the friction rollers journaled thereon, the two part friction clutch mechanism, the links uniting the clutch with the cap piece and the eye bolts connecting two parts of the clutch. 7th. The spud well timbers projecting above the deck and secured at top by a cap having a depending flange, which cap carries the friction rollers, and the holding clutch mechanism. 8th. In combination with a spud post, an automatic hoisting clamp composed of two parts, one part carrying one or more pulleys for the application of the hoisting chain or cable, and both parts united by suitable links or side bars.

No. 16,712. Improvements on Egg Carriers.

(*Perfectionnements aux boîtes à œufs.*)

Asa B. Fiske, Lyndonville, N. Y., U. S., 18th April, 1883; for 5 years.

Claim.—1st. The egg carrier consisting of the box *A A*, the trays *B* having the partitions, the lifting cords *f* arranged as specified, the permanent bottom *c* and the cover *C* for removing the eggs therefrom. 2nd. The combination, with the box *A* or egg carrier and cover *A*, of the locking device composed of the bent hasps *g g*, the wooden cross pieces *d d* and strengthening piece *D* and the eccentrically pivoted locking piece *h* or lip *h*.

No. 16,713. Improvements on Road Carts.

(*Perfectionnements aux cahrouets.*)

John T. Barnes, Rushville, Ind., U. S., 18th April, 1883; for 5 years.

Claim.—The combination of the shafts *B B*, axle *C*, bent bar *D*, spring *E*, curved body and seat *E E*, spring *F* and bars *F* *F* *F*.

No. 16,714. Improvements on Air Pumps. (*Perfectionnements aux pompes atmosphériques.*)

Napoleon B. Blackmer, Portage, Wis., U. S., 18th April, 1883; for 5 years.

Claim.—1st. The combination, with the piston and its rod, of the cross head, guide rods, lever and link. 2nd. The combination, with the flexible packing ring, of the piston, rod, sleeve, plate, screw, cross head and nut. 3rd. Two sets of cut-off disks, each set being provided with holes adapted to register as described, in combination with an operating lever and a connecting rod, whereby the sets are alternately worked.

No. 16,715. Improvements on Spring Mattresses. (*Perfectionnements aux sommiers élastiques.*)

Joseph E. Townshend, Montreal, Que., 18th April, 1883; for 5 years.

Claim.—The combination of the side rails *A* and end rails *B*, with the bolts *F* and nuts *G* or their equivalents, and the draw rails *C* with coil springs attached thereto.

No. 16,716. Combined Pocket Case and Cigar Clipper. (*Etui de poche et coupe-cigare combinés.*)

Arthur P. Yates, Syracuse, N. Y., U. S., 18th April, 1883; for 5 years.

Claim.—1st. The improved match safe and cigar clipper combined, composed of a pocket match safe having projecting outward from its end, a fixed blade provided with an aperture for the reception of the end of the cigar to the clipper, and a cutting blade also connected to the end of said match safe and adapted to slide rectilinearly over the fixed blade, all constructed and arranged to operate on the end of the match safe and exclude from the interior thereof the cigar clippings. 2nd. The combination, with the pocket case *A*, of the blade *a* fixed to the end thereof and provided with the eye *e*, the combined guard and guide rods *c* having a cross bar or bow *r* over the end of the fixed blade, the blade *b* attached to the guide rods *c*, and the spring *s* applied to the end of the said rods.

No. 16,717. Improvements in Coat-Hangers. (*Perfectionnements aux accroche-habits.*)

Charles Krause, Hamilton, Ont., 18th April, 1883; for 5 years.

Claim.—In combination with a coat or other article of apparel, of a hanger consisting of the rivets *C C*, washers *B B* and chain *D* or its equivalent.

No. 16,718. Improvements on Horse Rakes. (*Perfectionnements aux râteliers à cheval.*)

Aaron J. Nellis, Pittsburgh, (assignee of Cornelius Bollinger, Harrisburgh,) Penn., U. S., 18th April 1883; for 15 years.

Claim.—1st. The combination of an ascending and descending rake-head, rake teeth, a rear tooth support arranged in supporting guideways in which it is adapted to rock and rise and fall, and means for operating the rake-head to cause the rear tooth-support to first rock in its bearings to throw the points of the teeth rearward and upward and then ascend to lift the teeth. 2nd. In combination with a rake head arranged in guideways to rise and fall, and provided with a rigid upwardly projecting arm, a rear tooth support journaled in guideways in which it is adapted to rock and then ascend a foot lever secured by a pivot to a part of the frame and secured, at its rear ends, to the upper end of the arm of the rake-head, and a locking device for engaging the forward end of the foot lever. 3rd. The combination of the axle, the plates or castings provided with guide ways, the rake-head and rear tooth support, and means for causing the rake-head and tooth support to ascend and descend in said guideways. 4th. The combination of the rear tooth support journaled in guideways in which it is adapted to first rock and then rise and fall, guides projecting upward from said tooth support for receiving the rake teeth, a cross bar rigidly connected with the upper end of the said tooth guides, a hand lever secured to the cross-bar, a rising and falling rake-head and a bar connecting the lower end of the hand lever to the rake-head. 5th. The combination, with the plates or castings having slots in which the rake-head and the journaled tooth support are adapted to rise and fall, of the transverse rod connecting and bracing said plates or castings and serving as a rest for the rear journaled tooth support. 6th. The combination, with the plates or castings having slots in which the rake-heads and the rear journaled tooth support are adapted to rise and fall, of the transverse rod connecting and bracing said plates or castings and carrying the rearward projecting clearers, said rod also serving as a rest for the rear journaled tooth support. 7th. The combination of the ascending and descending rake-head carrying rake

teeth and provided with an upward projecting rigid arm, the transverse clearer rod having its ends connected with the rake-head, and a foot lever connected with the said rigid arm above the rake-head, 8th. The combination of the wheel axle, the thills hinged directly to the axle and having a cross-bar provided with a depending bracket, a bar rigidly secured at its rear end to the axle between the thills and having its front end guided by the bracket on the cross-bar of the thills, and a locking device for securing the front end of the bar in its adjusted position within the depending guide bracket. 9th. The combination, with the rake-head carrying rake teeth, of the tooth supporting arm and a spring arm connected thereto and adapted to raise said tooth supporting arm on the descent of the rake-head.

No. 16,719. Improvements on Fire-Grates.

(*Perfectionnements aux grilles des foyers.*)

Philip Richards, George Schaller and William F. Egan, Wilkes Barré, Penn., U. S., 18th April 1883; for 15 years.

Claim.—1st. The combination of the grate-bars D mounted on rollers E F G and having flat heads H I and plate N on the belly flange M, and provided with V-shaped projections L of alternate height projecting over the sides of the belly flange M with the shaking device, 2nd. The combination of the shaking device consisting of a shaft S journaled in bearings T and provided, in each end, with a bell-crank U U', the bell crank U having an actuating handle V and both bell cranks having rods W W' provided with pitmans X fastened in their outer ends with the grate bars D. 3rd. The grate bar consisting of the heads H I, and belly flange M having upward V-shaped projections alternately in height and projecting over its sides.

No. 16,720. Improvements on Trusses.

(*Perfectionnements aux bandages herniaires.*)

Thomas Simmons, Hartford, Ct., U. S., 19th April 1883; for 5 years.

Claim.—1st. The pads D adjustably connected to the plate C, which in turn is adjustably connected to the ends of the belt B, in combination with the belt H, straps F and the support A. 2nd. The support A formed of a vertical piece *a* and right angle pieces *b, c*, in combination with the upper belt H and lower belt B. 3rd. The support A, belts B H and straps F, in combination with the plate C and pads D.

No. 16,721. Improvements on Knitting-Machines.

(*Perfectionnements aux métiers à tricoter.*)

Warren D. Huse, Laconia, N. H., U. S., 16th April 1883; for 5 years.

Claim.—1st. The rotating thread guide C, pinion P, rack bar, crank pinion *f* and gear *e*, combined with the tappet wheel or disk D and with suitable means to operate the said wheel or disk intermittently. 2nd. The two tappet rings E F provided with pins *i* and the cam cylinder, and rotating thread-guide, combined with the rack-bar N, and disk or wheel D, and pinions P *f* and gear *e*. 3rd. The combination of the rings E F, rod R adapted to ascend between the two rings, sprocket wheel S, Jacquard chain Q, tappet disk D and the needle cylinder. 4th. The tappet ring provided with teeth and gear to engage the same, and the rack-bar and connecting mechanism between the said gear and rack-bar combined with means to move the rack-bar. 5th. The thread-guide, rack-bar to move it, the disk D provided with tappet projections, and means between the disk and rack-bar to move the latter, and a tappet ring provided with teeth, the pins *i* on the tappet ring, a cam M, slide rod and rack combined with the gear to engage the teeth of the tappet ring, and with connecting means between the said gear and the rack-bar. 6th. The two tappet rings provided at their under side with rack teeth, and the pins *i* carried by the said rings and a thread-guide and disk D, and means between the disk and thread-guide to actuate the latter, combined with the pattern cam, means to move it, the sliding rack 14, gears 3 4 and intermediate gear between the said rack and gears 3 4.

No. 16,722. Improvements in Steam Engines.

(*Perfectionnements aux machines à vapeur.*)

Henry Monk and William Monk, Hadlow Cove, Que., 19th April 1883; for 5 years.

Claim.—1st. In a compound locomotive, the combination and arrangement of the cylinders A D, the valve chest B and valve C, together with the arrangement of operating check valve E. 2nd. In a marine or stationary engine, the combination and arrangement of the cylinders A D, valve chest B together with the arrangement of a double faced valve C, also the arrangement for operating check valve E by the ordinary reverse lever or levers.

No. 16,723. Improvements on Ventilators.

(*Perfectionnements aux ventilateurs.*)

Willis E. Moore, Thornstown, Ind., U. S., 19th April, 1883; for 5 years.

Claim.—1st. A ventilator having an inlet tube carried below the ground and returning up through the building, provided with openings for distributing the air. 2nd. A ventilator having an inlet tube distributing the fresh air, and an outlet tube adapted to be adjusted to carry off the air from near the ceiling or near the floor, in the several stories of the building. 3rd. A ventilator having an adjustable inlet tube adapted to be raised or lowered above the roof of the building carried below the ground and returning up through the building, distributing the air through suitable openings, and an outlet tube adapted to carry off the vitiated air from near the floor or the ceiling in the several stories of the building. 4th. The combination of the inlet tubes A C G L M provided with a cowl K, stop L and openings B N, and adapted to be extended by means of cords or chains D H by means of a windlass, with the outlet tube O having cowl P, and sliding tube Q having openings R and means for operating it.

No. 16,724. Improvements on Disintegrating Machines.

(*Perfectionnements aux machines à desagréger.*)

Silas Dodson, Evan B. Dodson, New York, Louis Walter, Clifton, (Staten Island), and Franz Krohn, Brooklyn, N. Y., U. S., 19th April 1883; for 5 years.

Claim.—1st. The combination of a rotary part and a fixed abutment composed of sections and serving to disintegrate between them the material to be treated, the said rotary part having V-shaped circumferential ribs or projections, and the said abutment having corresponding V-shaped grooves which, at the bottom, are closer to said ribs or projections than at the top and extend outside the sides of the rotary part, and devices for adjusting and securing said abutment. 2nd. The combination of a rotary part and a fixed abutment composed of sections having angular faces provided with teeth extending transversely to the width, said sections being in contact at the inner edges. 3rd. The combination of a rotary part and a fixed abutment composed of a number of separate sections bolted together, a slideway in which said abutment is fitted, a screw whereby they may be adjusted into different positions, and a screw whereby they may be clamped in position. 4th. The combination of an abutment and a rotary part composed of separate disks, fitted on a shaft against a collar and secured there by a nut screwed on the shaft. 5th. The combination of an abutment and a rotary part mounted on a shaft, whose journals are furnished with collars, which fit in grooves in their bearings.

No. 16,725. Improvements on Nut Locks.

(*Perfectionnements aux arrête-écrous.*)

Leonidas Triplott, jr., (assignee of Walter H. Farra), Mount Jackson, Va., U. S., 19th April 1883; for 5 years.

Claim.—1st. The locking plate C having opening D, re-enforce E and lugs or studs F. 2nd. The nut lock composed of a plate A having grooves G, bolt B, plate or washer C having re-enforce E, lugs or studs F and opening D and the nut H, the projecting corners of said plate C being turned up against the sides of said nut.

No. 16,726. Improvements on River and Fishway Registers.

(*Perfectionnements aux compteurs des rivières et des passes migratoires.*)

The Honorable David E. Price, Chicoutimi, Que., 20th April 1883; (Extension of Patent No. 8878.)

No. 16,727. Improvements on River and Fishway Registers.

(*Perfectionnements aux compteurs des rivières et des passes migratoires.*)

The Honorable David E. Price, Chicoutimi, Que., 21st April 1883 (Extension of Patent No. 8878.)

No. 16,728. Improvements on Grain Drills.

(*Perfectionnements aux semoirs en ligne.*)

George W. W. Billings, Oshawa, Ont., 21st April, 1883; for 5 years.

Claim.—1st. The horizontally revolving distributors consisting of two sections, one having a spiral flange F, slot E and flange D, and fixed to the bottom of the hopper, the other section, a horizontally rotating cog disk K having a circular flange O and a downward discharge orifice L into the drill tubes, and a regulating valve J in the seed passage. 2nd. The seed distributors constructed of a fixed section having a spiral central converging flange F and provided with a feed regulating valve J, and a horizontally rotating section K having a central discharge orifice L. 3rd. The seed distributors constructed of a section B fixed to the bottom of the hopper and having a converging spiral flange F, slot E and circular flange D, and a horizontal rotating section K having circular flange O, central discharge orifice L and a cog rim *n*, and an intermediate regulating valve J.

No. 16,729. Improvements on Car-Couplings.

(*Perfectionnements aux accouplages des chars.*)

Dudley W. Haines and Alwyn D. Hankerson, Readfield, Me., U. S., 12th April 1883; for 5 years.

Claim.—1st. The combination, with the draw-head A and pin C, of the inverted L-shaped bar or link D having its horizontal arm connected to the upper end of the pin, the bell crank lever E connected to the lower end of the vertical arm of the bar D and pivoted, at its angle, to the draw-head, and the operating chain F. 2nd. The combination, with the draw-head A, of the block N pressed into the throat of the draw-head by the spring O.

No. 16,730. Improvements on Nut Locks.

(*Perfectionnements aux arrête-écrous.*)

James Graham, Detroit, Mich., U. S., 21st April 1883; for 5 years.

Claim.—The slotted cylinder A with its accompanying ring B, in combination with the nut C and bolt D.

No. 16,731. Improvements in Velocipedes.

(*Perfectionnements aux vélocipèdes.*)

George N. Spencer, Three Rivers, Mich., U. S., 21st April, 1883; for 5 years.

Claim.—1st. The combination, with the rocking shaft, the foot levers and the vertically playing seat and seat levers, of wheel axle provided with the axle pulleys, and the straps connecting respectively with the axle pulleys and with the foot and seat levers. 2nd. The combination, with the rocking shaft and vertically playing seat, of the

axle pulleys adapted to automatically and alternately revolve in taking up the slack of the straps, the straps connecting with said pulleys at one end and levers connecting their opposite ends with the rocking shaft and seat in a manner to alternately pull down on said straps. 3rd. The combination of a vertically playing seat, a hand handle, axle pulleys adapted to automatically and alternately revolve in taking up the slack of the straps, the straps connecting with said pulleys at one end, and levers connecting their opposite ends with said handle and seat, in a manner to alternately pull down on said straps. 4th. The combination, with the hollow pulleys provided with springs secured to the thimble, of the revoluble axle and pawls. 5th. The combination, with the revoluble hand handle provided with the pulley, of the guide-wheel provided with the crank, the pulley at the corner of the frame and its crank, the rod pivotally connecting said cranks and the belt on the pulleys.

No. 16,732. Improvements on Sand Papering Machines. (*Perfectionnements aux machines à appliquer le papier-verre.*)

William A. Doane, Cincinnati, Ohio, U.S., 21st April, 1883; for 5 years.

Claim.—1st. A sand paper machine, the sand paper roll of which runs in a barrel, which has an open side and is unobstructed between the legs of the stand, so that the concave side of curved work may be sand-papered on the machine. 2nd. A sand-paper machine, the said paper roll of which runs in a barrel composed of two sections, hinged together and unobstructed between the legs of the stand, the top section of the barrel being provided with an opening. 3rd. The combination of the sand-paper roll, the barrel in which it runs having an open side and being unobstructed between the legs of the stand and the removable tables, whereby either straight work or the concave side of curved work may be sand-papered on the machine. 4th. The combination of the sand-paper roll, the barrel in which it runs having an open side, and the removable tables constructed with ribs to enter the opening in the barrel, near the edges thereof. 5th. The combination of the table constructed with rigid downwardly projecting arms, the barrel constructed with retaining lugs and angle seats, and the set screws for adjusting the table.

No. 16,733. Improvements on Band Saws. (*Perfectionnements aux scies à ruban.*)

William H. Doane and George W. Bugbee, Cincinnati, Ohio, U.S., 21st April, 1883; for 5 years.

Claim.—1st. The combination, with a wood working machine frame, of the single table supported thereon and the reversible duplex table carrying a feed mechanism on one of its faces. 2nd. The combination, with a wood working machine frame of the single table supported thereon, the reversible duplex table carrying a feed mechanism on one of its faces, and the shaft for supporting and adapted to reverse said duplex table. 3rd. The combination, with a wood working machine frame, of the single table supported thereon, and the duplex table which is both reversible and movable towards and away from the single table, and also carries a feed mechanism on one of its faces. 4th. The combination, with a wood working machine frame, of the single table supported thereon, the reversible duplex table carrying a feed mechanism on one of its faces, the shaft for supporting and reversing said duplex-table, and the screw for sliding the shaft. 5th. The combination of the reversible duplex-table, the feed rollers mounted on the face of one of the two plates of said table, and the feed shaft and train for driving said feed rollers arranged between the plates of the table. 6th. The combination of the reversible duplex-table and a power feed mechanism mounted thereon, the driven pinion (O) of which is located so that it is thrown out of gear and into position to be driven, according as one face or the other of said duplex-table is turned up. 7th. The combination of the reversible duplex-table, a power feed mechanism mounted thereon, a gearing or train for imparting motion to the feed shaft thereof, and a lever or hinged arm for supporting part of said train and pivoted at a point distant from the feed shaft, so that, by moving said lever or arm, the train may be disengaged from, or engaged with said feed shaft. 8th. The combination of the reversible duplex table carrying a feed mechanism on one of its faces, the shaft supporting it and the worm gearing for turning said shaft. 9th. The combination, with a wood working machine frame and the single table supported thereon, of the reversible duplex table carrying a feed mechanism on one of its faces, the endwise movable shaft I, the forked hanger thereon for supporting one end of the worm shaft, and the worm gear feathered to shaft I between the forks of said hanger. 10th. The combination, with a wood working machine frame and the single table supported thereon, of the reversible duplex table carrying a feed mechanism on one of its faces, the shaft I, the forked hanger thereon, for supporting one end of the worm shaft and confining the worm gear, the screw for moving shaft I endwise, and the fixed bracket supporting the screw and bearing against one side of the hanger. 11th. The combination, with a wood working machine frame and the single table supported thereon, of the reversible duplex table mounted and adjustable on an eccentric of the shaft, by which it is turned and carrying a feed mechanism on one of its faces.

No. 16,734. Improvements on Fences. (*Perfectionnements aux clôtures.*)

James Haldane, Strathroy, Ont., 21st April, 1883; for 5 years.

Claim.—The combination of the perpendicular posts A B with the base C D and braces E, F, when combined with the section of fence having three or more panels G H I, and upright braces R R adjusted to the posts A B by the movable pins P.

No. 16,735. Improvements in Fences. (*Perfectionnements aux clôtures.*)

Solomon Chambers, Norwich, Ont., 21st April, 1883; for 5 years.

Claim.—In a worm fence, the rail H or other rail used as a lever, to tighten wire I and keep the fence as set.

No. 16,736. Dental Plate and Plate Flask. (*Plaque et châssis de plaque dentaires.*)

David V. Beacock, Brockville, Ont., 21st April, 1883; for 5 years.

Claim.—1st. A dental plate of cast metal composed of an alloy of gold, silver and tin. 2nd. A moulding flask composed of the perforated parts A and B having coinciding semi-tubular channels D and E, and a clamping frame F provided with a binding screw G and handle H.

No. 16,737. Improvements in Sash Locks. (*Perfectionnements aux fermetures des châssis.*)

Gay's Sash Lock Company, (assignee of William A. Gay,) Buffalo, N.Y., U.S., 21st April, 1883; for 5 years.

Claim.—1st. The combination, with a sash A having a screw-stud or pin secured thereto, of a movable locking-plate C provided with inclined bearing surfaces *d d'*, an opening I arranged between said bearing surfaces and forming a rest for the plate when not in use, and a straight face E adapted to bear against a stationary frame B. 2nd. The combination, with a movable locking plate C provided with inclined bearing surfaces *d d'*, an opening I arranged between said bearing surfaces and a straight face E adapted to bear against a stationary frame B, of a pin-stud or screw F secured to a sash A, and a roller *g* arranged on the screw F to run in contact with said inclined bearing surfaces.

No. 16,738. Reverberatory Smelting Furnace. (*Fourneau de fusion à reverbère.*)

Ira C. Woodward, Charles H. Crofut and Leroy A. Andrews, (assignees of Riley P. Wilson,) Cleveland, Ohio, U.S., 21st April, 1883; for 5 years.

Claim.—1st. The combination of two or more reverberatory furnaces with the arrangement, whereby the last named furnace is adapted to receive fluid metal from the other furnaces, a common reverberatory furnace having a depressed hearth as a receiving furnace. 2nd. The combination of two or more reverberatory furnaces with inclined hearths of the feeding furnaces, with an additional reverberatory furnace having a depressed hearth, the arrangement being substantially set forth, whereby the last named furnace is adapted to receive fluid metal immediately from each of the other furnaces.

No. 16,739. Process for Making Pails from Pulp. (*Procédé de fabrication des seaux en pâte à papier.*)

Ezra B. Eddy, Hull, Que., (assignee of Eber Hubbard, Medina, N. Y., U.S.) 23rd April, 1883; (Extension of Patent No. 8,674.)

No. 16,740. Improvements in Sewing Machines. (*Perfectionnements aux machines à coudre.*)

Charles E. Tibbles, Burlington, Iowa, U.S., 23rd April, 1883; for 5 years.

Claim.—1st. The combination, with the feed-bar and driving shaft, of the feed-cams consisting of the cam G keyed to the shaft and provided with a semi-circular groove or depression H, and the cam F provided with the stud I entering in the groove H, whereby a lost motion between the cams of a half revolution is permitted. 2nd. The cams F G having an engaging groove and stud, the cam being provided with recesses, in combination with a movable locking pin *a* and a set screw *z*, for operating the same through the interior of the shaft. 3rd. In a sewing machine having a variable direction of feed, the feed-bar W and the yoke T, in combination with the adjusting bar V and the abutment X and Y. 4th. The main shaft B provided with the eccentrics K₁ K₁, in combination with the cross-head reciprocating in a horizontal plane connected to, and in combination with the shuttle lever C. 5th. The actuating cross-head consisting of the vertical pieces L₁ L₁, in combination with the horizontal screws *m* and eccentrics K₁ K₁. 6th. The vertical piece L₁ having ears to which is keyed link N₁, in combination with link N₁ having a bifurcated end and projecting through an opening in piece L₁ laterally larger than the link N₁, whereby said link has a lateral play entirely independent of the cross-head. 7th. The cross-head L₁ L₁ and the link N₁ having a bifurcated end, and screw P₁ projecting through N₁, in combination with the shuttle lever having a split end. 8th. The bed plate A provided with recesses to contain oil, and ducts 31 32 to conduct the oil to the surfaces to be lubricated. 9th. The bed-plate provided with chambers, in combination with the inclosed fibrous or other non-resonant material, for the purpose of deadening the sound. 10th. The compressible tapering bushing 4 provided with a spiral slit passing once, or more than once around said bushing. 11th. In a sewing machine shuttle, the pins 47 47 in line, in combination with the pin 48 out of lines with pins 47. 12th. In a sewing machine shuttle, the latch 49 provided with a slight upward bend at its hinge, in combination with the flat projection 52 to prevent the latch binding the thread. 13th. An open faced shuttle having the upper edge of the face made convex. 14th. In an open faced shuttle having its heel and point dressed to coincide with, and bear against the curvature of the race, and the intermediate face cut so as not to come in contact with the race, in combination with a curved race. 15th. The shuttle-lever provided with two projecting arms R₁ R₁ having their interior faces curved as shown, in combination with the crank having cylindrical wrist T and two independent gibs S; S having convex surfaces to conform to the curvature of the interior of arms R₁ R₁, and concave surfaces to conform to the curvature of the cylindrical wrist. 16th. The compensating pivot consisting of the double cones U₁ U₁ provided with screws X₁, bolt V₁ provided with groove E, and jam nuts W₁. 17th. In combination with feed-bar adapted to be moved positively both forward and backward, a cam for horizontally moving the said feed-bar by a positive motion in either direction in time, said cam having one working face *l g* with all its points cut nearer in direct lines to the vertical central line *f g* than the points of the other working face *o o*. 18th. The combination of

the main shaft B, a feed-cam, a feed-bar W, eccentric B1 provided with sleeve E1, pin D, spring F1 and stop pin I1 adapted to enter holes H1 in the eccentric. 19th. The feed-dog provided with feed-points or teeth 46 having one side vertical and the other side inclined, and arranged in a series of pairs, so that the same shaped sides of each pair are adjacent. 20th. The compressible bushing provided with a groove around its base, in combination with the bearing provided with screw *a*. 21st. The bed-plate A provided with the cross-shaped raised portion having removable slides 28 28 28. 22nd. In a tension device for a sewing machine, two rigid friction surfaces in combination with two movable friction plates *a* *a* supported on rigid bar *c*, spring 3 and set screw 7. 23rd. The balance wheel 13 and plate 14 provided with central radial corrugations, in combination with the hollow end shaft B having slots 11 11, bolt 7 provided with a cylindrical stem, cross-pin 8, and wheel 10 provided with a threaded sleeve, which enters the hollow end of the shaft. 24th. An arm attached to the needle-bar rock shaft and provided with head 22 carrying stops 19 20, in combination with a take-up arm 23 pivoted independently within the head. 25th. The take-up bar having a hollow hub, in combination with an inserted coil defent spring 26. 26th. The take-up bar 23 in combination with an operating lever and a spring device 20 31, for starting the take-up arm downward with a yielding spring pressure. 27th. The lever-head 22 having projections 17 18, adjustable stop 19 and spring device 20 21, in combination with the take-up arm 23 having a projecting end 22, defent spring 26 and stops 25 25. 28th. The needle-bar having the cylindrical needle-hole 40, in combination with a removable cap or guide 43 provided with a face which partially covers the entrance to needle-hole 40. 29th. The needle-bar provided at its lower end with a cylindrical opening, and the semi-circular slot 41, in combination with the removable cap 43 provided with a set screw 44 entering slot 41. 30th. The sewing machine treadle cast with the bevelled slots C11 and the half round bearings B111, in combination with the tapering blocks *c* 111 and screws *c* 11. 31st. The sewing machine crank shaft having conical ends and adapted to be operated by treadle C11, in combination with the sleeves M11 provided with holes N11 and threaded interiorly, and bushings K11 having partially cylindrical bearing grooves O11 and holes P11. 32nd. The oil pan L11 bolted to rod B11 through abutment *a* 111, its outer end turned up at *m* 11 and screwed to the frame provided with the enlargement L11 and standing so as to have a general pitch to a lowest point *q* 11. 33rd. The solid imperforate guard G11.

No. 16,741. Machine for Cleaning Fruit.

(Machine pour nettoyer les fruits.)

Samuel A. Rice and Walter S. Owens, Buffalo, N.Y., U.S., 23rd April, 1883; for 5 years.

Claim.—1st. A machine for cleaning fruit having cylindrical netting A secured to a suitable frame, as specified, and provided with a hopper C2 and an outlet spout D, in combination with a revolving brush G. 2nd. The reticulated cylinder A provided with a hopper C2, outlet spout D and nozzle H, in combination with the shaft E and brushes G.

No. 16,742. Improvements on Car Trucks.

(Perfectionnements aux châssis des chars.)

Charles T. Emerson, Lawrence, Mass., U. S., 23rd April, 1883; for 5 years.

Claim.—1st. The combination of the railway truck with a fender H arranged aside of one side wheel of such truck, and with a bell-shaped deflector I adapted to such fender at each end thereof and arranged with the truck wheel, and provided with a bearing wheel to run on the railway rail. 2nd. The combination of the bell-shaped deflector with its supporting cylinder and spring, and with the fender extending from such cylinder. 3rd. The combination of the bell-shaped deflector and its sustaining wheel, with the supporting cylinder and spring arranged within such deflector, and with a fender extending from the said cylinder.

No. 16,743. Perforator for Automatic Printing Telegraphs.

(Perforateur pour les télégraphes automatiques imprimants.)

Albert F. Johnson and Frank B. Johnson, Brooklyn, N. Y., U.S., 23rd April, 1883; for 5 years.

Claim.—1st. In combination with the levers *a*, each provided with and operated by a knob *f* representing a particular letter or character and the lever *a* provided with, and operated by a knob *f* 1, the punching rods *h* 1, feed-roller *r*, ratchet wheels *s*, pawls *a* 1, bent levers *e* 2 and bars *t* 1. 2nd. In combination with the ratchet wheels *s* and feed-roller *r*, the bent levers *e* 2 provided, at their upper ends, with pawls *a* 1 and, at their lower ends, with transverse bars *t* 1, and levers *a* 1 having their ends fitted between said bars *t* 1 in the relative positions.

No. 16,744. Receiving Instrument for Automatic Printing Telegraphs.

(Recepteur des télégraphes automatiques imprimants.)

Albert F. Johnson and Frank B. Johnson, Brooklyn, N.Y., U.S., 23rd April, 1883; for 5 years.

Claim.—1st. In a receiving instrument for automatic printing telegraphs having a separate magnet for each letter or character employed in sending messages, the combination of the series of U-magnets F, each connected by a separate line wire *f* with the sending station, and each having a hinged armature provided with a printing lever L, the separate U-magnet F, connected with the sending station by a separate line wire *f* 5, the feed mechanism consisting of the rollers *u* *n* 2, ratchet L and rod K2 operated by the armature of said magnet F1, the ring J1 connecting each of said magnets with a local battery, and the strips G1 and G2 to receive and conceal the printing. 2nd. The combination of the strips G2, message strips G1, feed roller N and friction roller *n* 2, cup *n* 5, lever *n* 4 and switch R1 provided with the plug R2. 3rd. In combination with the strips G1 G2 and the printing levers L,

the rollers N N2 and reels Q and Q', the inking ribbon S, inking roller S3, roller S1 S2 and pulley K3.

No. 16,745. Improvements on Friction Clutches.

(Perfectionnements aux embrayages à friction.)

James H. Blessing, Albany, and Ralph R. Osgood, Troy, N. Y., U. S., 33rd April, 1883; for 5 years.

Claim.—1st. A pressure cylinder mounted upon and turning with the driving shaft, said cylinder carrying a piston driven by fluid pressure and connected with the friction band. 2nd. The conduit for the fluid under pressure, the same entering the axis of the shaft, passing out at an angle with the same and leading to the bottom of the pressure cylinder, said cylinder being made to turn with the shaft. 3rd. The pressure cylinder made to turn with the shaft, the piston thereof connected with the arm which regulates tension on the friction band, and the fluid pipe containing a constant supply of fluid and connecting the pump and cylinder, the several parts combined as described. 4th. The combination of the pressure cylinder, the piston therein connected with the arm which moves the clutch band and the retracting spring applied to said arm, these several parts being mounted and arranged to turn with the shaft. 5th. In combination with the fluid conduit connecting the pressure pump and the pressure cylinder mounted upon and turning with the axle, the air cocks arranged so as to relieve the pipe or conduit. 6th. The combination of the arm or lever connected with the friction band, the pressure cylinder and its piston, the coupling rod, the retracting spring, the supply pipe or conduit leading through the shaft of the drum to the bottom of the pressure cylinder and the pressure pump.

No. 16,746. Improvements in Ventilating and Apparatus therefor.

(Perfectionnements dans l'aérage et appareil pour cet objet.)

Thomas Rowan, London, Eng., 23rd April, 1883; for 5 years.

Claim.—1st. The use of apparatus for ventilating sewers, drains, water-closets or the like, by the employment of a stove or heating apparatus in communication with the sewer, drain, or water-closet pipe, and with an upshaft or chimney. 2nd. The use, for ventilating buildings, rooms and the like, of a stove or heating apparatus.

No. 16,747. Improvements on Bedsteads.

(Perfectionnements aux bois des lits.)

James Goodwin, Boston, Mass., U.S., 23rd April, 1883; for 5 years.

Claim.—1st. The combination of the standard B, the adjustable bracket D J attached to a bedstead, the socket E, swinging arm E1, 2nd. The combination of the standard B, socket E, swinging arm E1, the separable shaft F H, the worm gears *h* *h*, worm pinions *g* *g* carrying the shaft that bears the spools I I for winding the belts *o* *o*. 3rd. The combination of the standard B, socket E, arms E1, with the shafts G L, the spools I I and belts *o* *o* 1, for operating the head and foot portions of the frame *r* *r* 1. 4th. The adjustable bracket B J, in combination with the standard B and bedstead frame A. 5th. The combination of the vertical rods J J, the slides *n* *n* and adjustable frames *k* *k*, eyes *s* in frame *r*, and the frame *m*. 6th. The combination of the adjustable bracket J D, the standard B, bedstead frame A and the rear supporting rod *b* *d*.

No. 16,748. Improvements in Cooking Stoves.

(Perfectionnements aux poêles de cuisine.)

James M. Spencer, Colchester, N. S., 24th April, 1883; (Extension of Patent No. 8,680.)

No. 16,749. Improvements on Sewing Machines.

(Perfectionnements aux machines à coudre.)

The National Machine Company, (assignee of Joseph P. Hallenbeck,) New York, N. Y., U. S., 24th April, 1883; for 15 years.

Claim.—1st. The combination, with a sewing machine having an eye pointed needle, and means for moving the needle to and fro endwise and for producing therewith stitches from a continuous thread or continuous threads, of a button-hole work-holder and mechanism for imparting to the work-holder a progressive lengthwise movement, next a progressive semi-circular movement, next a progressive lengthwise movement, short gradual lateral movements in one direction during the last part of said first lengthwise movement, and in the opposite direction during the first part of said last lengthwise movement, and intermittent momentary to and fro movements, transverse to said lengthwise movements, and throughout said lengthwise and semi-circular movements, and in one direction at one ascent of the sewing machine needle, and in the opposite direction at the next ascent thereof. 2nd. The combination, with a button-hole work-holder and mechanism for imparting to the work-holder a step by step semi-circular movement, progressive lengthwise movements prior and subsequent to said semi-circular movement, and short gradual transverse movements of means for altering the length of said gradual transverse movements just before and after said semi-circular movement of the work-holder. 3rd. The combination, with a button-hole work-holder and means for imparting to said work-holder a semi-circular movement, lengthwise movements prior and subsequent to said semi-circular movement, and gradual transverse movements just before and after said semi-circular movement and for altering the length of said gradual transverse movements, of means for imparting to said work-holder intermittent momentary to and fro movements transverse to the direction of said lengthwise movements and during said lengthwise semi-circular and variable transverse movements. 4th. The combination, with a button-hole work-holder and a bar or lever adapted to be moved to and fro, by a sewing machine, of mechanism for imparting from said bar or lever to the work-holder a step by step lengthwise movement, next

a step by step semi-circular movement, next a step by step lengthwise movement and momentary to and fro movements and throughout said lengthwise and semi-circular movements, transverse to the direction of said lengthwise movements, and means for altering the lengths of said momentary to and fro movements of the work-holder. 5th. The combination, with a button-hole work-holder and a bar or lever adapted to be moved to and fro by a sewing machine, of mechanism for imparting from said bar or lever to the work-holder, first, a step by step lengthwise movement, next a step by step semi-circular movement, next a step by step lengthwise movement, a step by step short lateral movement in the last part of said first lengthwise movement, and momentary to and fro movements transverse to the direction of said lengthwise movements and throughout said lengthwise semi-circular and short lateral movement. 6th. The combination, with a button-hole work-holder and a bar or lever adapted to be moved to and fro by a sewing machine, of means for imparting from said bar or lever to the work-holder, first, a step by step lengthwise movement, next a step by step semi-circular movement, next a step by step lengthwise movement, a step by step short lateral movement in the first part of said last lengthwise movement, and momentary to and fro movements transverse to the direction of said lengthwise movements and throughout said lengthwise semi-circular and short lateral movements. 7th. The combination, with a button-hole work-holder and a bar or lever adapted to be moved to and fro by a sewing machine, of mechanism for imparting from said bar or lever to the work-holder first, a step by step lengthwise movement, next a step by step semi-circular movement, next a step by step lengthwise movement, step by step short lateral movements in one direction, in the last part of said first lengthwise movement, and, in the opposite direction, in the first part of said last lengthwise movement, and momentary to and fro movements transverse to the direction of said lengthwise movements and throughout said lengthwise semi-circular and short lateral movements. 8th. The combination, with a button-hole work-holder and a movable support F for the work-holder, of mechanism for imparting to the work-holder upon and separately from its said support, first, a progressive lengthwise movement, next a progressive semi-circular movement, and next a progressive lengthwise movement and means for imparting to said support, and thereby to the work-holder, a short gradual movement transverse to, and during the latter part of said first lengthwise movement of the work-holder. 9th. The combination, with a button-hole work-holder and a movable support for the work-holder, of mechanism for imparting to the work-holder upon and separately from its said support, first, a lengthwise movement, next a semi-circular movement and next a lengthwise movement and means for imparting to said support, and thereby to the work-holder, a short gradual movement transverse to, and during the first part of said latter lengthwise movement of the work-holder. 10th. The combination, with a button-hole work-holder and a movable support for the work-holder, of mechanism for imparting to the work-holder upon and separately from its said support a semi-circular movement, and prior and subsequent lengthwise movements, of means for imparting to said support, and thereby to the work-holder, short gradual movements transverse to said lengthwise movements of the work-holder, and in opposite directions just before and after its said semi-circular movement. 11th. The combination, with a button-hole work-holder and a movable support for the work-holder, of mechanism for imparting to the work-holder a semi-circular movement and a prior and a subsequent lengthwise movement upon and separately from its said support, and means for imparting to said support, and thereby to the work-holder, short gradual movements, transverse to said lengthwise movements of the work-holder and in opposite directions just before and after its said semi-circular movement, and momentary to and fro movements transverse to said lengthwise movements of the work-holder and during its said lengthwise and semi-circular movements. 12th. The combination, with a button-hole work-holder, a movable support F for the work-holder, and a lever adapted to be moved to and fro, of mechanism for imparting from said lever to the work-holder a step by step semi-circular movement, and prior and subsequent lengthwise movements upon and separately from its said support, and to said support, and thereby to the work-holder, step by step movements transverse to said lengthwise movements of the work-holder and in opposite directions just before and after its said semi-circular movement. 13th. The combination, with a button-hole work-holder, a movable support for the work-holder and a lever adapted to be moved to and fro, of mechanism for imparting from said lever to the work-holder a step by step semi-circular movement, and prior and subsequent step by step lengthwise movements upon and separately from its said support, and to said support, and thereby to the work-holder, momentary to and fro movements transverse to said lengthwise movements of the work-holder, and throughout its said semi-circular and lengthwise movements. 14th. The combination, with a button-hole work-holder, a movable support for the work-holder, and a lever adapted to be moved to and fro, of mechanism for imparting from said lever to the work-holder, a semi-circular movement and prior and subsequent lengthwise movements upon and separately from said support, and to said support, and thereby to the work-holder, short gradual movements transverse to said lengthwise movements and just before and after said semi-circular movement of the work-holder, and momentary to and fro movement transverse to said lengthwise movements, and during said semi-circular and lengthwise movements. 15th. The combination, with a button-hole work-holder, its support and means for imparting to the work-holder a step by step semi-circular movement, and prior and subsequent lengthwise movements upon and separately from said support, and for imparting to said support, and thereby to the work-holder, gradual movements transverse to said lengthwise movements, of means for altering the lengths of the steps of the work-holder in its said semi-circular movement. 16th. The combination, with a button-hole work-holder, its support, and means for imparting to the work-holder, a semi-circular movement, and prior and subsequent step by step lengthwise movements upon and separately from its said support, and for imparting to said support, and thereby to the work-holder, gradual movements transverse to said lengthwise movements, of means for altering the lengths of the steps of the work-holder in its said lengthwise movements. 17th. The combination, with a button-hole work-holder, its support and mechanism for imparting to the work-holder semi-circular and lengthwise movements upon and separately from said support, and for imparting to said support, and

thereby to the work-holder, gradual movements transverse to said lengthwise movements, and momentary to and fro movements transverse to said lengthwise movements, and during said semi-circular and lengthwise movements of the work-holder, of means for altering the lengths of said momentary to and fro movements of said support and work-holder. 18th. The combination, with a button-hole work-holder and the plate G, of mechanism for automatically imparting a semi-circular movement to both the work-holder and said plate together, mechanism for moving the work-holder lengthwise upon and separately from said plate before and after said semi-circular movement, and mechanism for imparting to said plate and work-holder together gradual movements transverse to said lengthwise movements of the work-holder, and in reverse directions just before and after said semi-circular movements. 19th. The combination, with a button-hole work-holder, plate G and a lever D, of mechanism for imparting from said lever a semi-circular movement to both the work-holder and said plate, a lengthwise movement to the work-holder upon and separately from said plate before and after said semi-circular movement, and momentary to and fro movements to said plate and work-holder during said semi-circular and lengthwise movements. 20th. The combination, with a button-hole work-holder and a plate G, of mechanism for imparting a semi-circular movement to said plate and work-holder together, mechanism for moving the work-holder lengthwise upon and separately from said plate before and after said semi-circular movement, and mechanism for imparting to both the work-holder and said plate gradual movements transverse to said lengthwise movements just before and after said semi-circular movement, and momentary to and fro movements throughout said lengthwise, semi-circular, and gradual transverse movements. 21st. The combination, with plate F, plate G carried by plate F, and a button-hole work-holder on plate G, of mechanism for imparting a semi-circular movement to the work-holder and plate G together, mechanism for moving the work-holder lengthwise upon and separately from said plates before and after said semi-circular movement, and mechanism for imparting to plate F, and thereby to plate G and the work-holder, short gradual movements transverse to said lengthwise movements of the work-holder, and in opposite directions just before and after said semi-circular movement. 22nd. The combination, with plate F, plate G carried by plate F, a button-hole work-holder on plate G and a lever adapted to be vibrated, of mechanism for imparting from said lever a semi-circular movement to the work-holder and plate G together, lengthwise movements to the work-holder before and after said semi-circular movement, and momentary to and fro movements to plate F throughout said semi-circular and lengthwise movements. 23rd. The combination, with plate F, plate G carried by plate F, and a button-hole work-holder mounted on plate G, of mechanism for imparting a semi-circular movement to the work-holder and plate G together, for moving the work-holder lengthwise on plate G before and after said semi-circular movement, and for imparting to plate F short gradual movements transverse to said lengthwise movements just before and after said semi-circular movement, and momentary to and fro movements throughout said semi-circular and lengthwise movements. 24th. The combination, with plate F and the work-holder carrier C having the U-shaped feed gear c3, and mounted and movable upon and carried by said plate, of means for imparting to said work-holder carrier straight movements and intermediate semi-circular movement upon plate F, and to the latter short gradual movements transverse to said straight movements of the work-holder carrier and in opposite directions, before and after the said semi-circular movement. 25th. The combination, with plate F, work-holder carrier C having the feed gear c3, and mounted and movable upon and carried by said plate, and a lever adapted to be moved to and fro, of means for imparting from said lever to said work-holder carrier straight step-by-step movements, and an intermediate semi-circular step-by-step movement on said plate, and to the latter momentary to and fro movements transverse to the direction of said straight movements and during said straight and semi-circular movements. 26th. The combination, with plate F and work-holder carrier C having the feed gear c3, and mounted and movable upon and carried by said plate, of means for automatically imparting to the work-holder carrier straight movements, and an intermediate semi-circular movement upon said plate, and to plate F short gradual movements, transverse to said straight movements, and in opposite directions just before and after said semi-circular movement, and momentary to and fro movements throughout said semi-circular and lengthwise movements. 27th. The combination, with a plate F adapted to be moved to and fro, of a plate G carried by and movable to and fro in a semi-circle on plate F, a work-holder carrier C having the U-shaped feed gear c3, and mounted on and movable to and fro in a semi-circle with plate G, and adapted to be moved to and fro in a straight course on the latter plate, and a gear wheel H mounted on plate F and engaging with said feed gear. 28th. The combination, with plate F, of plate G mounted and movable in a semi-circle on plate F, work-holder carrier C having the U-shaped feed gear c3 and mounted on and movable in a semi-circle with plate G, and movable to and fro in a straight course on the latter plate, gear wheel H mounted on plate F and engaging with said feed gear, and means for turning said gear wheel and imparting to plate F short gradual movements in opposite directions, just before and after the engagement of said gear wheel, with the semi-circular part of the said feed gear. 29th. The combination, with plate F, of plate G mounted on and movable in a semi-circle on plate F, work-holder carrier C having the feed gear c3 and mounted on and movable in a semi-circle with plate G, and adapted to be moved to and fro in a straight course on the latter plate, gear wheel H mounted on plate F and engaging with said feed gear, and means for turning said gear wheel and simultaneously imparting momentary to and fro movements to plate F. 30th. The combination, with plate F, of plate G mounted on and movable in a semi-circle on plate F, work-holder carrier C having the feed gear c3 and mounted on and movable in a semi-circle with plate G, and adapted to be moved to and fro in a straight course on the latter plate, gear wheel H mounted on plate F and engaging with said feed gear, and means for turning said gear wheel and for imparting to plate F momentary to and fro movements, and short progressive movements in opposite directions just before and after the engagement of said gear wheel with the semi-circular part of said feed gear. 31st. The combination, with a button-hole work-holder, and a throat piece N having an oblong needle-hole n, of means for automatically imparting to the work-holder lengthwise and semi-circular movements

upon said throat piece, and to said throat piece and work-holder together progressive movements transverse to the direction of said lengthwise movements, and just before and after said semi-circular movement. 32nd. The combination, with a button-hole work-holder and throat piece N having an oblong needle-hole *n*, of means for automatically imparting to the work-holder lengthwise and semi-circular movements upon said throat piece, and to said throat piece and work-holder together progressive movements transverse to the direction of said lengthwise movements and before and after said semi-circular movement, and momentary to and fro movements in the same transverse direction and during said semi-circular and lengthwise movements. 33rd. The combination, with plate F and a circular throat piece N fast on said plate, of the plate G fitting closely around said throat piece, a button-hole work-holder mounted on plate G, and means for automatically imparting a semi-circular movement to plate G and the work-holder together, lengthwise movements to the work-holder upon plate G before and after said semi-circular movement, and short progressive movements to plate F in opposite directions just before and after said semi-circular movement. 34th. The combination, with plate F and a circular throat piece N fast on said plate, of the plate G fitting closely around said throat piece, a button-hole work-holder mounted on plate G, and means for automatically imparting a semi-circular movement to plate G and the work-holder together, lengthwise movements to the work-holder upon plate G before and after said semi-circular movement, and momentary to and fro movements to plate F, throughout said semi-circular and lengthwise movements. 35th. The combination, with plate F and circular throat piece N, fast on said plate, of the plate G fitting around said throat piece, a button-hole work-holder on plate G and means for automatically imparting a semi-circular movement to plate G and the work-holder together, lengthwise movements to the work-holder upon plate G before and after said semi-circular movement, and to plate F short progressive movement and momentary to and fro movements throughout said semi-circular and lengthwise movements. 36th. The combination, with plate F adapted to be moved to and fro, and circular throat piece N fast on that plate, and having an oblong needle hole *n*, of a plate G fitting around movable to and fro in a semi-circle about said throat piece, work-holder carrier C having the feed gear *c3* and adapted to be moved to and fro in a semi-circle with plate G, and to and fro in a straight course upon the latter plate, and a driving gear H mounted on plate F and engaging with said feed gear. 37th. The plate F furnished with the circular throat piece N and having the straight guides *f1* diametrically opposite to the throat piece, and formed to fit a guide *c2* on the work-holder carrier C, and curved guide *f2* extending between the straight guides and concentric with the throat piece, and a recess extending between the throat piece and curved guide, and formed to receive and support the plate G flush with the throat piece and permit plate G to be turned to and fro in a semi-circle concentric with the throat piece and curved guide. 38th. The plate G formed with the circular opening *g3* and to fit in a recess in plate F, and to be turned therein to and fro in a semi-circle closely around and flush with a circular throat piece N, on the latter plate, and having the radial guide *g* like the guides *f1* in cross section, and the guides *g1* *g2* parallel to guide *g* and formed to fit the guides *e1* *e2* of the work-holder carrier C. 39th. The work-holder carrier C provided with a button-hole work-holder B and having the opening C, U-shaped feed gear *c3*, guides *e1* *e2* formed to fit the guides *g1* *g2* of plate G, and the guide *e3* formed to fit the guide *g* of plate G, and the guides *f1* of plate F. 40th. The combination, with plate F having the straight guides *f1*, intervening curved guide *f2* and circular throat piece N, of the plate G having the opening *g3* and radial guide *g*, and mounted to be turned to and fro in a semi-circle on plate F along and between said throat piece and curved guide, and the work-holder carrier C adapted to be moved to and fro in a semi-circle with, and in a straight course upon plate G, and having the guide *e2* formed and arranged to engage with the guides *f1* *f2* in succession. 41st. The combination, with plate F, plate G adapted to be moved to and fro in a semi-circle on plate F, and work-holder carrier C fitted to be moved to and fro in a semi-circle with, and in a straight course upon plate G, of the stop V arranged on and adjustably secured to plate F. 42nd. The combination, with the base plate E, of the plate F mounted to slide to and fro along ways or guides on said base plate, plate G mounted to move to and fro in a semi-circle on plate F, and work-holder carrier C mounted on plate G and fitted to be moved to and fro in a semi-circle with, and in a straight course upon the latter plate. 43rd. The combination, with the plate F, work-holder carrier C having the feed gear *c3* and mounted on said plate, and movable thereon in semi-circular and straight courses, and gear wheel H mounted on said plate and engaging with said feed gear, of means for imparting from said gear wheel to plate F short progressive movements in opposite directions, before and after the engagement, of said gear wheel with the semi-circular part of said feed gear. 44th. The combination, with the plate F adapted to be moved to and fro, work-holder carrier C having the feed gear *c3* and mounted on said plate and movable thereon in straight and semi-circular courses, and the driving gear wheel H mounted on said plate and engaging with the said feed gear, of the cam I on said gear wheel, abutment K and lever J connecting said cam plate and abutment. 45th. The combination, with the plate F movable to and fro, work-holder carrier C having the feed gear *c3* and mounted on said plate and movable thereon in semi-circular and straight courses, and the gear wheel H mounted on said plate and engaging with said feed gear, of the cam I on said gear wheel, abutment K, lever J connecting said cam plate and abutment, and means for altering the lengths of the movements imparted from said gear wheel to said plate by said cam lever and abutment. 46th. The combination, with the plate F movable to and fro, work-holder carrier C having the feed gear *c3* and mounted on said plate, and movable thereon in straight and semi-circular courses, and the gear wheel H mounted on said plate and engaging with said feed gear of the cam I on said gear wheel, abutment K, lever J connecting said cam plate and abutment, and means for automatically turning said gear wheel and for imparting momentary to and fro movements to said abutment K. 47th. The combination, with the base plate E, of the slide K, slide F connected with and adapted to be moved to and fro by, and also separately from slide K, and the work-holder carrier C carried by slide F and adapted to be moved thereon to and fro in straight and semi-circular courses. 48th. The combination, with the work-holder carrier C, slide F carrying the

work-holder carrier, and slide K connected with slide F, of means for automatically imparting straight and semi-circular movements to the work-holder carrier on slide F short progressive to and fro movements to slide F separately from slide K and momentary reciprocating movements to slide K. 49th. The combination, with the work-holder carrier C, slide F carrying the work-holder carrier, and slide K connected with slide F, of the lever D and means for imparting from that lever straight and semi-circular movements to the work-holder carrier upon slide E, short progressive to and fro movements to F separately from slide K, and momentary reciprocating movements to the latter slide. 50th. The combination, with the base plate E, slide F and work-holder carrier C having the feed gear *c3* and carried by said slide, and movable thereon in straight and semi-circular courses, of the gear wheel H carried by said slide and engaging with said feed gear, cam I on said gear wheel, slide K, lever J connecting said cam and slides, lever D and means for imparting from said lever momentary reciprocating movements to slide K, and step by step rotary motion to said gear wheel. 51st. The combination, with the base plate E, slide F and work-holder carrier C having the feed gear *c3* and carried by said slide, and movable thereon in straight and semi-circle courses, of the gear wheel H carried by said slide and engaging with said feed gear, cam I on said gear wheel, slide K, lever J connecting said cam and two slides, lever L, link D2, lever D and means for imparting step by step rotary motion to said gear wheel from the latter lever. 52nd. The combination, with the work-holder carrier C having the feed gear *c3* and adapted to be moved in straight and semi-circular courses, of the gear wheel H engaging with said feed gear, pinion O engaging with said gear wheel, and means for imparting slow rotary motion to said pinion, and independently of said pinion, faster rotary motion to said gear wheel while the latter engages with the semi-circular part only of said feed gear. 53rd. The combination, with the work-holder carrier C having the feed gear *c3* and adapted to be moved in straight and semi-circular courses, of the gear wheel H having the ratchet R furnished with pawl S, pinion O having the ratchet wheel P of greater diameter than the pinion and furnished with pawl Q, and means for operating said pawls. 54th. The combination, with the work-holder carrier C having the feed gear *c3* and adapted to be moved in straight and semi-circular courses, of the gear wheel H furnished with the ratchet R and pawl S, pinion O furnished with the ratchet wheel P and pawl Q, lever D and means for imparting to and fro movements to said pawls from said lever. 55th. The combination, with the work-holder carrier C having the feed gear *c3* and adapted to be moved in straight and semi-circular courses, of the gear wheel H, pinion O, ratchet wheel P, pawl Q, pawl carrying lever Q1, driving lever L and rod L1 connecting said levers. 56th. The combination, with the work-holder carrier having the feed gear *c3* and adapted to be moved in straight and semi-circular courses, gear wheel H and pinion I, of means for imparting slow rotary motion to said pinion and faster step by step rotary motion to said gear wheel independently of said pinion, and means for altering the length of the steps imparted to said gear wheel independently of said pinion. 57th. The combination, with the work-holder carrier C having the feed gear *c3* and adapted to be moved in straight and semi-circular courses, of the gear wheel H, pinion O, ratchet P, pawl Q, pawl carrying lever Q1, link L, lever L, link D2, driving lever D, slide S1, pawl S and ratchet R on said gear wheel. 58th. The combination, with the base plate E, slide F, work-holder carrier C carried by said slide, driving lever D, and means for imparting from said lever straight and semi-circular movements to the work-holder carrier upon said slide, of the link D2, lever L and means for imparting momentary to and fro movements to slide F from lever L. 59th. The combination, with the base plate E, slide F and work-holder carrier C having the feed gear *c3* and carried by said slide, and movable thereon in straight and semi-circular courses, of the gear wheel H, cam I, abutment K, lever J connecting said cam, slide and abutment, lever D and means for imparting from the latter lever step by step rotary motion to said gear wheel. 60th. The combination, with base plate E, slide F and work-holder carrier C having the feed gear *c3* and carried by said slides, and movable thereon in straight and semi-circular courses, of the gear wheel H, cam I, abutment K, lever J connecting said slide, cam and abutment, ratchet R, pawl S, pinion O, ratchet P, pawl Q and means for operating said pawls. 61st. The combination, with the work-holder carrier C having the feed gear *c3* and adapted to be moved in straight and semi-circular courses, of the gear wheel H, ratchet R, pawl S, shields *r* carried by, and adjustable about said ratchet, and means for operating said pawl and for turning said gear wheel independently of said pawl and ratchet. 62nd. The combination, with plate F and work-holder carrier C having the feed gear *c3* and adapted to be moved in straight and semi-circular courses upon said plate, of the gear wheel H and ratchet R mounted on said plate, pawl S, means for operating said pawl, and the guard T secured to, and adjustable upon said plate in respect to said pawl and ratchet. 63rd. The combination, with the work-holder carrier having the feed gear *c3* and adapted to be moved to and fro lengthwise and in a semi-circle, of the gear wheel H furnished with the ratchet R and pawl S, pinion O furnished with the ratchet P, pawl Q and hand piece *p*, and means for operating said pawls and for throwing them into and out of place for moving said ratchets. 64th. The combination, with the work-holder carrier C having the feed gear *c3* and adapted to be moved to and fro in straight and semi-circular courses, of the gear wheel H, ratchet R, pawl S, pinion O, ratchet P, pawl Q, means for operating said pawls, and the pawl shifter V by which said pawls can be thrown out of and into place for moving said ratchets. 65th. The combination, with the slide F, work-holder carrier C carried by said slide, and means for imparting to the work-holder carrier straight and semi-circular movements upon said slide, of the cam M mounted and connected with said slide and adapted to be turned to and fro, so that said slide shall receive to and fro movements by the to and fro turning of said cam. 66th. The combination, with the slide F, part L, work-holder carrier C carried by said slide, and means for imparting straight and semi-circular movements to the work-holder on said slide, and to and fro movements to the part L, of the cam M mounted and adapted to be turned to and fro, and connected with part L and with said slide, so that the slide F shall receive to and fro movements by the to and fro movements of the part L, and further to and fro movements by the to and fro turning of said cam. 67th. The combination, with slide F, work-holder carrier C carried by said slide, and means for imparting to the work-holder carrier straight and semi-circular movements upon said slide, of the cam M having arm M1 and connected with said slide, and the

stops W X for limiting the to and fro turning movements of said cam.

No. 16,750. Improvements on Carding Machines. (*Perfectionnements aux machines à carder.*)

The Whitehead and Atherton Machine Company, (Assignees of William F. Whitehead,) Lowell, Mass., U. S., 24th April, 1883; for 5 years.

Claim.—A moulded fibrous pulp top flat for carding machines.

No. 16,751. Improvement on Automatic Tongs. (*Perfectionnements aux pincettes automatiques.*)

Alonso S. Adams, Boston, Mass., U. S., 24th April, 1883; for 5 years.

Claim.—1st. The combination of a pair of tongs D₁ D₁ intersectingly joined by pivot pin d₁ to a hollow handle A, and to rod B by links d₁ d₁, and a spring acting on rod B having a cap b² screwed thereon to enclose the spring. 2nd. In self-closing tongs, the actuating rod having a spring surrounding its free end, in combination with a loose washer supporting one end of the spring, and a cap or receptacle screwed on to the rod to enclose the spring, and receptacle being adapted to be removed.

No. 16,752. Improvements on Self-Oiling Pulleys. (*Perfectionnements aux poulies à graissage continu.*)

Charles H. Cowdrey, Fitchburg, Mass., U.S., 24th April, 1883; for 5 years.

Claim.—1st. The rim having communicating annular chambers d₁ d₂ d₃ combined with the hub provided with oil passages a₁ leading from the chamber d₂ to the shaft on which the pulley runs, and with other passages to convey the oil from the ends of the hub into the chambers d₁ d₃. 2nd. The hub provided with oil passages a₁ c₁ c₁, the latter being located nearer the end of the hub than the chambers d₁ d₃ of the rim, and with passages a₂ a₃ a₃ combined with the rim d₁ d₃ having communicating chambers d₁ d₂ d₃. 3rd. The metal rim provided with the chambers d₂, and the prongs and fingers e located therein, combined with the hub a provided with oil passages. 4th. A cast metal pulley composed of a chambered rim and a hub provided with oil passages to permit the circulation of oil introduced into a chamber of the rim, through the hub along the shaft and back into the chambers of the rim, the said chambered rim being driven or shrunk upon the said hub to form an oil tight joint between them.

No. 16,753. Improvements on Percolators. (*Perfectionnements aux caféières.*)

Nathan Rosenwasser, Cleveland, Ohio, U. S., 24th April, 1883; for 5 years.

Claim.—1st. The combination, with a vessel and adjustable tube, of a percolator having a large filling and discharge orifice at its lower end, and a restricted opening at its upper end, with which connects the lower end of the adjustable tube or pipe. 2nd. In combination with a vessel and adjustable tube, or percolator having a large filling and discharge orifice at its lower end, and a restricted opening at its upper end, with which connects the lower end of the adjustable tube or pipe, and within which percolator is fitted at its lower end a movable and adjustable diaphragm to be placed against, and adjusted to any variable quantity of drug or other filtering medium, previously placed within said percolator.

No. 16,754. Improvements on Lifting Jacks. (*Perfectionnements aux crics.*)

Joseph L. Ellis, Millington, Mich., U.S., 20th April, 1883; for 5 years.

Claim.—The combination of the notched standards B B having guide strips H H and connected on top by cross-piece C having aperture c, hinged pawl D, rack-bar E, yoke F, and bifurcated lever G having cross-head g adapted to work in the notched standards.

No. 16,755. Improvements on Surcingles. (*Perfectionnements aux surfaix.*)

Edward Barnard, Rome, N.Y., U.S., 24th April, 1883; for 5 years.

Claim.—1st. The billet frame C having toothed cross-bars D E and outward projecting frame, consisting of sides G G, raised ruds or loops J J and cross-bar H having stud I. 2nd. The buckle frame B having toothed cross-bars D E, outward projecting loop or bail Q, and tongue R hinged centrally upon the outer frame bar. 3rd. The girth or band A, in combination with the buckle frame B, billet frame C and; billet K.

No. 16,756. Improvements on Railway Switches. (*Perfectionnements aux aiguilles des railroutes.*)

Charles L. Cooke, Syracuse, N. Y., U.S., 24th April, 1883; for 5 years

Claim.—1st. The combination, with the switch rails C, of the wing rails D arranged on the same level with the switch rails, and the packing rails E secured between the switch rails and wing rails, with their treads arranged on a level with said switch rails and wing rails, and with their bases resting upon the bases of said rails. 2nd. The combination, with the switch rails C, of the wing rails D arranged on the same level with the switch rails, and the packing rails E secured between the switch rails and the wing rails, with their treads arranged on a level with said switch rails and wing rails, and having inclined front ends depressed below the treads of the switch rails and wing rails. 3rd. The combination, with the switch rails C, of the wing rails D and filling rails E having their treads arranged on a level with the

treads of the switch rails, and their rear ends depressed below the level of the switch rails. 4th. The combination, with the switch rails C, wing rails D, filling rails E and guard rails G, of the pointed rails F having their inner front corners rounded or chamfered.

No. 16,757. Improvements on Cake Machines. (*Perfectionnements aux machines à gâteaux.*)

Walter S. Ovens, Buffalo, N.Y., U.S., 24th April, 1883; for 5 years.

Claim.—1st. An intermittingly moving endless apron for carrying the tray along as the cakes are deposited thereon, in combination with a vertically movable dough-box provided with a follower L₂ and a suitable mechanism for giving it the necessary movements. 2nd. The combination of a movable dough-box with cams O and cut-off slides P, for the purpose of cutting off the dough during each movement of the dough-box. 3rd. A movable dough-box provided with a shaft I and gearing M₂ M₃, in combination with a ratchet wheel and pawl, a stud m and arm l having stops n u¹ for giving the required intermitting movements to the follower. 4th. The combination, with a material box, of a pan supporting table and mechanism for vertically moving one towards and away from the other, whereby, when the machine is in operation, the material flows from the nozzle upon the pan, and, when the deposit is made, the connection between the deposit and the box-brakes. 5th. A movable dough-box provided with one or more slides P, in combination with one or more cams O made adjustable.

No. 16,758. Improvements in Hoop Shaving Machines. (*Perfectionnements aux machines à planer les cercles.*)

John Prince, West Randolph, Vt., 24th April, 1883; for 5 years.

Claim.—1st. The combination of the plates F F₁ carrying the knives g h and the guide springs Q Q, the convergent ends of the latter being arranged towards the convergent ends of the knives, the slotted tie-plate G, wedge or key K, and the sliding wedge-shaped bar L. 2nd. The combination, with the bar or plate a attached to the carriage C, member e hinged or pivoted to the bar a, and having an elongated slot e₁, and the lever f having a stud i entering the slot of member e, of the arms n n¹ depending in a fixed position in the plane of the movement of the lever f. 3rd. The carriage C provided with the bifurcated arm P, in combination with and adapted to embrace the knife operating rod L, said rod having stops or projections o o¹ t, the shipper or lever H₁ and the carriage operating gear and belts H J. 4th. The hoop shaving machine having knives g h and guide springs Q Q affixed to the carrying plates or bars F F₁ hinged or pivoted together at their lower ends, the sliding wedge-shaped bar or rod L₁ having pins or stops o o¹ t and connected to the slotted plate G keyed to the bars F F₁, the reciprocating carriage C, the automatic clutch mechanism comprising the plate a, studded lever f, slotted member e and the arms N N₁ the bifurcated arm P, the slipper or lever H₁, the carriage operating gear and belts H J. 5th. The knife-carrying plate F and the plate F₁ hinged thereto, in combination with the slotted bar G, wedge K and sliding wedge-shaped bar L. 6th. The plate F₁ formed with the flanges b₁ b, in combination with plate F, slotted bar G and the knife operating bar L.

No. 16,759. Improvements in Potato-Diggers. (*Perfectionnements aux arrache-potates.*)

Loren G. Kelsey, Marilla, N.Y., U.S., 24th April, 1883; for 5 years.

Claim.—1st. The combination of a wheeled frame, an inclined axle arranged laterally in the frame, a cage having the form of a truncated cone mounted on said axle and arranged to turn on the ground, a plow which delivers the potatoes and earth into the inner large end of the cage, and an opening in the outer end of the cage through which the potatoes are discharged. 2nd. The combination of a revolving cage B arranged upon an inclined shaft b and resting at its largest end upon a supporting ring f₂, and open at both ends, a supporting wheel D arranged at the small end of the cage and adapted to be raised and lowered, and a plow I arranged at the large end of the cage and also adjustable vertically. 3rd. The combination, with a revolving cage B running at its largest end upon a supporting ring f₂, and open at both ends, of a scoop or plow I arranged opposite the largest end of the cage, and a preliminary outer N arranged in front of the supporting ring f₂ and of the rear portion of the plow I, whereby one side of the hill is cut away and turned under the cage and the latter lowered, and a track formed in the side of the hill for the supporting ring of the cage. 4th. The combination, with the cage B, of annular plate h, and a discharge opening h₁ arranged at its discharge end, whereby the potatoes are temporarily retained in the cage and discharged therefrom at intervals. 5th. The combination, with the cage B, of an annular plate h and discharge opening h₁ arranged at its discharge end, whereby the potatoes are discharged at intervals, and spiral blades g, whereby the material is propelled towards the discharge opening.

No. 16,760. Improvements on Axle Boxes. (*Perfectionnements aux boîtes des roues.*)

Pierre Proteau, Beauport, Que., 24th April, 1883; for 5 years.

Résumé.—1o La combinaison du réservoir A, du tube F et de la broche G, avec la boîte C. 2o La combinaison de la frette L avec la boîte B.

No. 16,761. Improvements on Electro-Separators. (*Perfectionnements aux électro-séparateurs.*)

Félix V. Rouleau, L'Isle-Verte, Que., 24th April, 1883; for 5 years.

Résumé.—La combinaison des bobines avec plaques de fer doux ou d'acier D D, etc., rangées sur des barres longitudinales et isolées les unes des autres et à égale distance, assujéties sur deux disques H H, à

travers lesquels passe un essieu en fer doux ou en acier E aux extrémités, le centre est en bois franc pour communiquer le courant électro-aimant aux bobines et à chaque plaque séparément.

No. 16,762. Machine for Turning Carriage Axles. (*Machine à tourner les essieux des voitures.*)

The Guelph Carriage Goods Company, Guelph, Ont., (Assignee of Wheeler Beers, Bridgeport, Conn., U. S.,) 24th April, 1883; for 5 years.

Claim.—1st. The combination of the hollow open mandrel, the chuck and the main gear G, said gear being arranged on the forward end of the said mandrel and directly behind the chuck, whereby all strain on the mandrel and centering supports is practically removed. 2nd. The chuck F and jaws K, each of said jaws consisting of two parts connected by loosely turning centre pins or any other suitable device, and having respectively the half circular faces, in combination with suitable mechanism for operating the same. 3rd. The adjustable roughening and finishing cutter, in combination with the back rest composed of independently adjustable parts, whereby free access to, and sight of the back of the axle are obtained. 4th. The back rest consisting of the two jaws or sections 3 4, in combination with the cutter 8 for turning the collar of the axle, and the adjusting screw 7. 6th. In a machine for turning carriage axles having a hollow mandrel and provided with a turret arranged to hold the cutter for turning the ends of an axle, the combination of a die-holding, chuck set into the said turret and arranged to form a thread on the end of the axle held in the hollow mandrel. 6th. In a machine for turning carriage axles having a hollow mandrel open on one or more sides, a centre fixed on the end of a spindle held in the centre of the mandrel in such manner that it can be adjusted to suit the length of the axle. 7th. In a spindle fixed in the centre of the revolving mandrel and formed to chuck the axle box, the combination of a knife blade cutter having its cutting edge serrated to form a series of ratchet grooves on the surface of the axle box. 8th. In a rimmer for turning the inside of the axle box, the combination of a collar arranged to carry an adjustable overhanging cutter for turning the outside of the back end of the axle box.

No. 16,763. Improvements on Tailors' Stoves (*Perfectionnements aux poêles des tailleurs.*)

James R. Burchfield, Sharon, Pa., U. S., 24th April, 1883; for 5 years.

Claim.—1st. The top heating surface of the stove formed of thin plates or holders for the irons, lap joined and provided with top bridge ribs, one of which extends vertically along the lapped edge of said plate. 2nd. In a stove for heating tailors' irons, the top heating surface formed of thin lap joined plates or holders, the lap of one edge of each plate being under, and the lap of the other edge being over, correspondingly formed edges of the contiguous plates, each plate having a bridge rib extending vertically along the top surface of that edge, which underlaps, and a similar middle top longitudinal rib. 3rd. The fire-box formed with the vertical ribs *g* and the fire-bridge *j*, in combination with the ash chamber-box *b* and the combustion chamber, the said fire-box being supported upon the ash chamber-box and forming a surrounding air space *h* opening into the latter and into the combustion chamber, around the top and beneath the bridge of said fire-box.

No. 16,764. Improvements in Crayon Mould Machines. (*Perfectionnements aux machines des moules à crayons.*)

Charles H. Bill, Waltham, Mass., U. S., 24th April, 1883; for 5 years.

Claim.—The machine or combination composed of the base plate A curved on its upper surface, the block B provided with the operative screw D, the guides G G, curved as shown, the block F having the screws *f* *h* L, nut *p*, bow spring H and bolt *m*, and the mould plate carrier I adapted to the block F, and provided with the series of setting holes *l* to receive the end of the bolt.

No. 16,765. Improvements on Nut Machines. (*Perfectionnements aux machines à écrous.*)

Alfred Marland, Pittsburgh, Pa., U. S., 25th April, 1883; for 5 years.

Claim.—1st. The combination, with the stationary forming die *c*, of the knife bar D, punches *j* *l* and hollow mandrels H *k*. 2nd. The combination, with the knife D provided with the openings *e* *d* and cutting edge *d*, the lever F and cam G, of the mandrel H, the cross head E, rods *e*, yokes I I and cam E I E'. 3rd. The cross head E provided with the openings *f*, gutters *f* *1* and ways *f* *2* *f* *2*, in combination with the collared feed tube *j* and the mandrel H having head H' and collars *h* *h*, said tube and mandrel being yoked together. 4th. The combination, with the cross head K carrying hollow man-

drel *k*, and the cross head L carrying punch *l*, of the connecting rods *k* *1*, yokes K' L' and cams M N.

No. 16,766. Improvement on Metal Roofing.

(*Perfectionnement des toitures métalliques.*)

John Walter, Nashville, Tenn., U. S., 24th April, 1883; for 5 years.

Claim.—1st. The combination of two sheet metal roofing plates adapted to be arranged with other similar plates in horizontal overlapping layers and formed, at their lapping horizontal edges, to constitute a transverse anti-capillary seam, and provided with central longitudinal corrugations, fitting one upon the other across the transverse seam at right angles, and formed to divert the water and direct it towards the side edges of the plate. 2nd. A sheet metal roofing plate having one of its lateral edges formed with two parallel corrugations to form a gutter, and the other lateral edge formed with a broad corrugation adapted to make a seam with the corrugations, and a cap for the gutter of a corresponding plate. 3rd. A sheet metal roofing plate having a gutter formed by corrugations at one side, and a perforated flange at the side of the gutter, whereby it shall be nailed to the roof of a house, and of broad corrugation at the other side adapted to form a seam with the adjacent edge of a corresponding plate. 4th. The combination of two sheet metal roofing plates, each having corrugations shaped like an inverted Y and an arrow head, and so arranged that the arrow head corrugation of one plate shall form a continuation of the Y-shaped corrugation of the other.

No. 16,767. Improvements on Umbrellas.

(*Perfectionnements aux parapluies.*)

John G. Peace, Salem, Mo., U. S., 24th April, 1883; for 15 years.

Claim.—1st. An umbrella having tubular ribs made of rubber cloth, or equivalent flexible material. 2nd. An umbrella having tubular ribs and a central collapsible air-chamber, in communication with the ribs. 3rd. An umbrella having tubular ribs a central air-chamber in connection therewith, and a tubular staff connected to, and in communication with the said air-chamber. 4th. In combination with the tubular ribs D, air-chamber C and staff A, the force pump A' B.

No. 16,768. Improvements on Harrows.

(*Perfectionnements aux hersees.*)

Benjamin B. Carpenter, Richmond Corner, N. B., 24th April, 1883; for 5 years.

Claim.—A harrow made in sections, each composed of a rectangular wooden frame A B connected by loops C, a double or S-shaped hook E, each bull A having four square teeth F set to incline downwardly and rearwardly, the harrow sections connected to shackles G, to a draft bar H provided with clevises.

No. 16,769. Improvements on Mortising Machines. (*Perfectionnements aux machines à mortaiser.*)

Taylor E. Daniels, Chicago, Ill., U. S., 25th April, 1883; for 5 years.

Claim.—1st. The combination of the frame A, spindle I mounted vertically in the said frame, mechanism for rotating the said spindle head L sliding in guides formed by the frame, and also sliding upon the spindle I, a chain cutter mounted upon a driver *h* and encompassing a bar P terminating in a pulley, mechanism for rotating the driver *h* from the spindle I, mechanism for raising and lowering the head L and with it the chain cutter, and a suitable counterbalance. 2nd. The combination of the frame A mounted upon guides on the base B, mechanism for sliding the said frame forward and backward on the said guides, spindle I mounted vertically in bearings in the frame, mechanism for rotating the said spindle, head L carrying the driver *h*, bar P and chain cutter, and sliding vertically in the upper part of the frame and upon the spindle I, gear wheels *m* *m*' and shaft *l* for rotating the driver *h*, mechanism for raising and lowering the head L, and a suitable counterbalance for the same. 3rd. The base B, frame A having a forward and backward movement thereon, table H mounted on a suitable support at the front of the base and having a right and left movement, head L having a vertical up and down movement in the frame and carrying the endless-chain cutter and the pulleys and bar on which the said cutter is mounted, in combination with mechanism for driving the said cutter. 4th. The bar P made hollow for a portion of its length, to receive oil and terminating in bearings *e* *i* carrying a pulley, the lower end of said bar above the pulley being provided with an opening leading to the hollow interior and containing a loose pin *u*, which rests upon the pulley. 5th. In combination with the bar P having the extensions *e* *i* to form bearings and provided with the hollow interior to receive oil, and with an opening through its lower end containing a loose pin *u*, the anti-friction pulley suspended in the bearings *e* *i* and formed of two concentric rings *r* *1* *r* *2*, each divided into two parts at the centre through the groove *c* and separated from each other by an interposed series of rollers *u*.

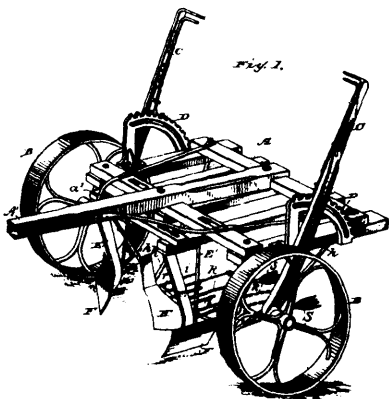
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ILLUSTRATIONS.

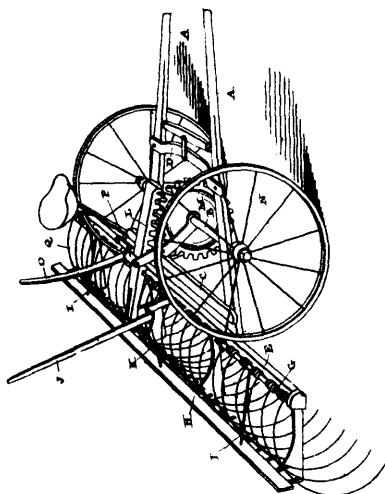
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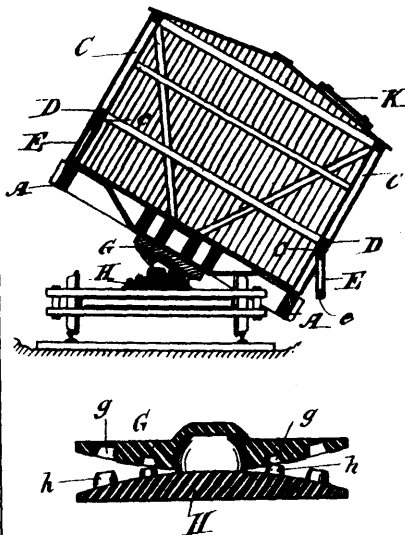
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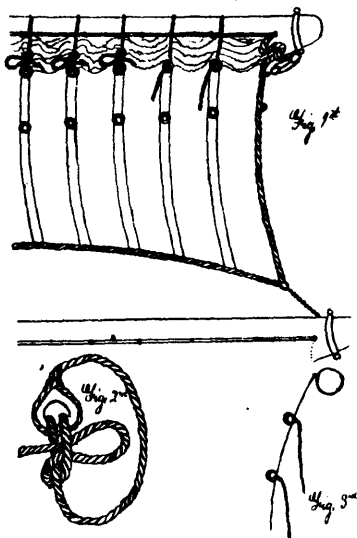
16603 Ansley's Combined Cultivator and Potato-Digger.



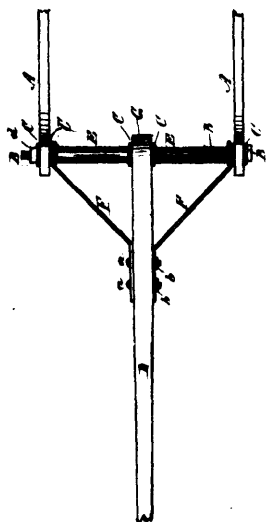
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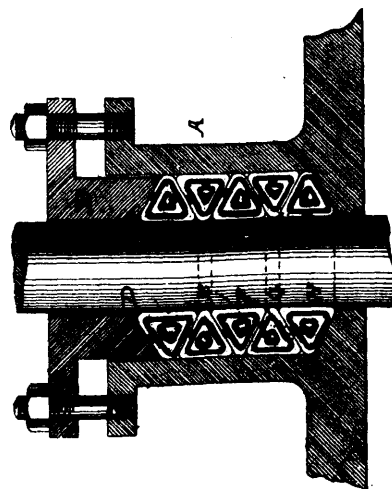
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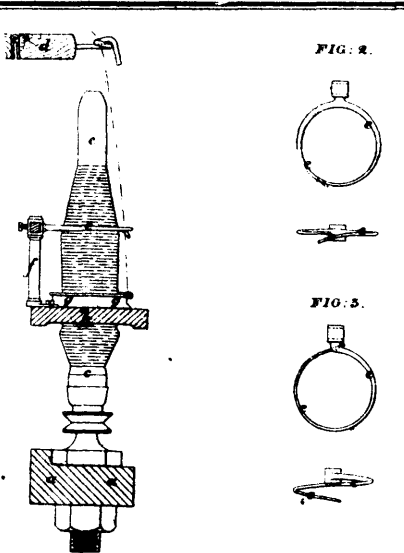
16608 Bigelow's Improvements in Reefing Gear.



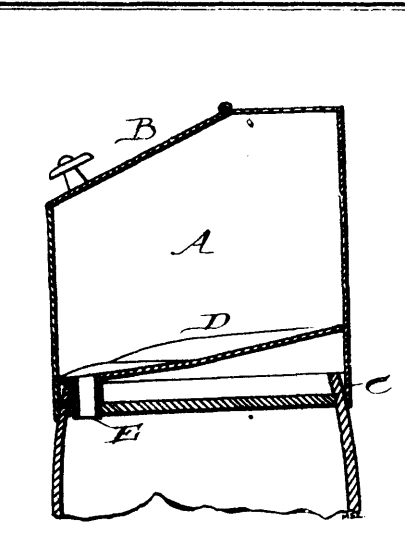
16610 Filman's Improvements on Draft Bolts.



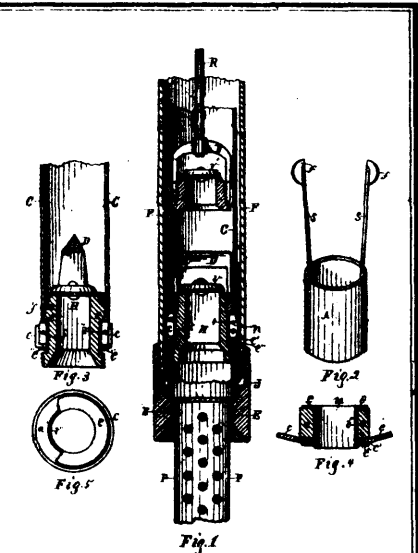
16611 Katzenstein's Improvements on Metallic Packing.



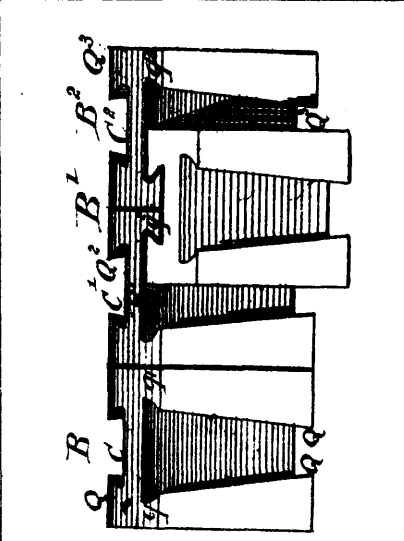
1662 Young and Furniss' Improvements in Spinning and Doubling Frames.



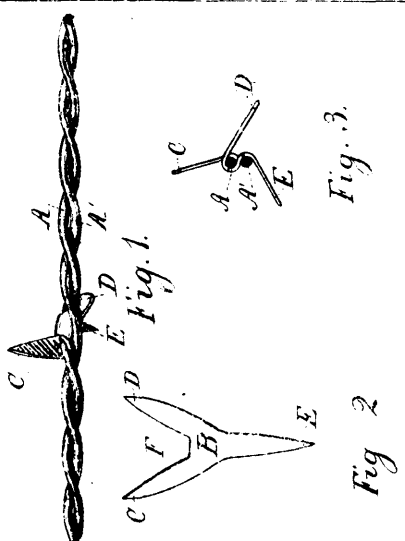
16613 Crapon's Improvements on Draught Cases for Barrels.



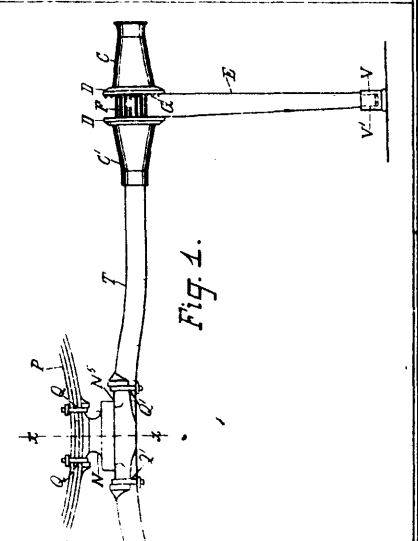
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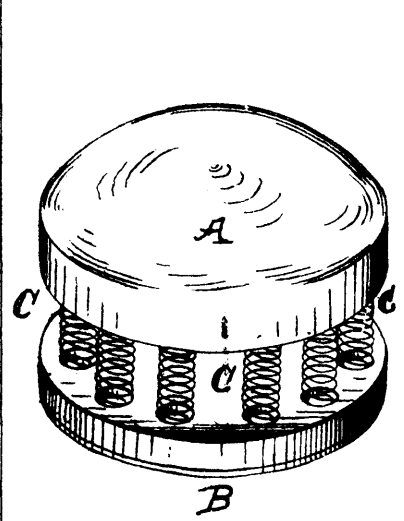
16616 Darrigan's Double Clamping Brick.



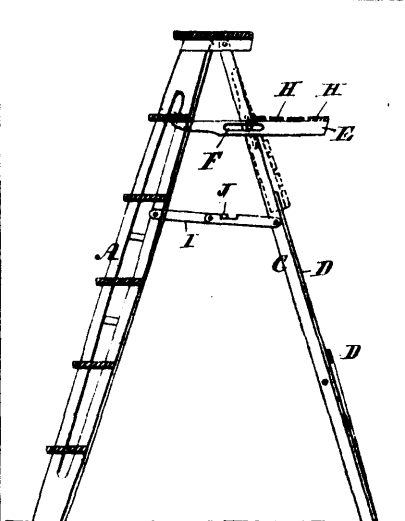
16617 Martland and McPherson's Improvements on Wire Fences.



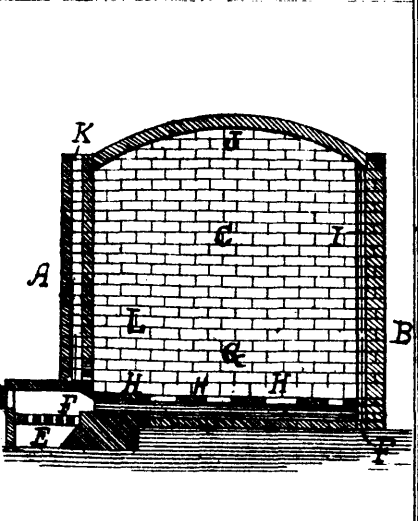
16618 Wildern's Improvements on Vehicles.



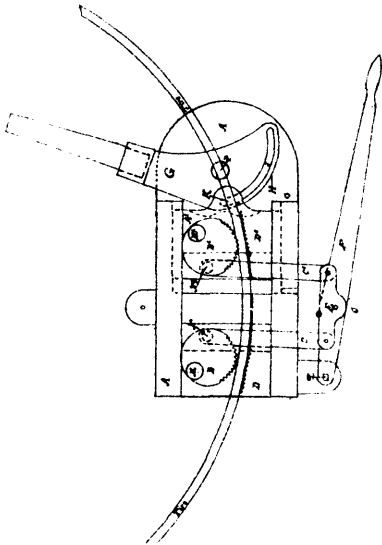
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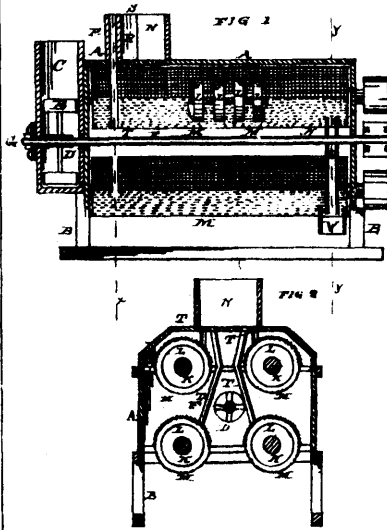
16620 Francis' Improvements on Step Ladders



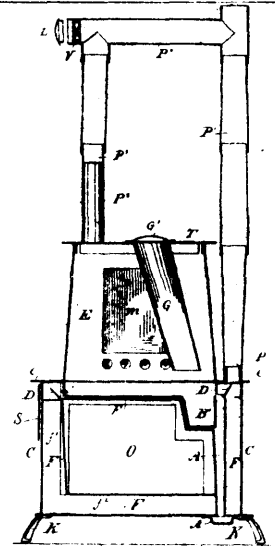
16622 Brown's Improvements on Brick and Tile Kilns.



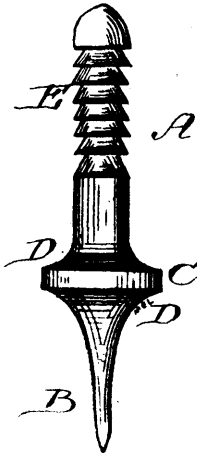
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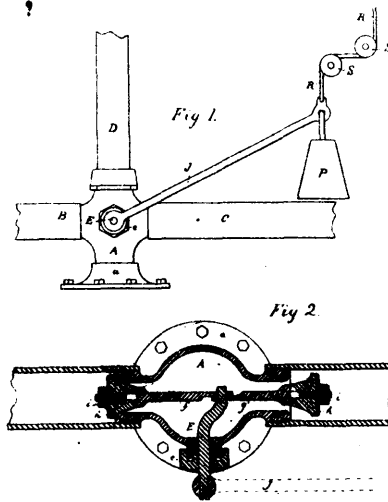
16624 McChesney and Craig's Machine for Decorticating and Cleaning Wheat and other Grain.



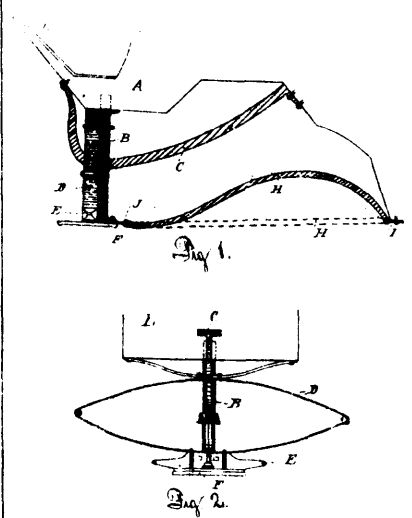
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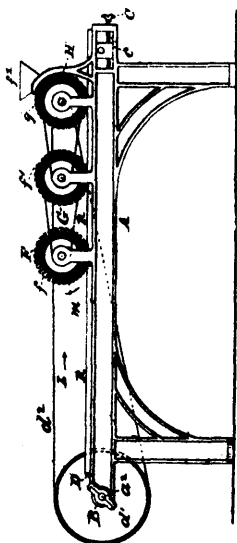
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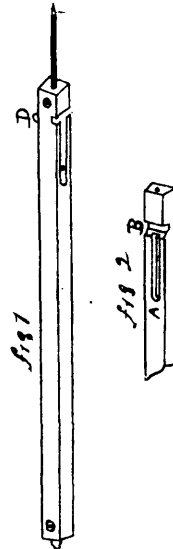
16627 Kelly's Improvements on Stop and Waste Cocks.



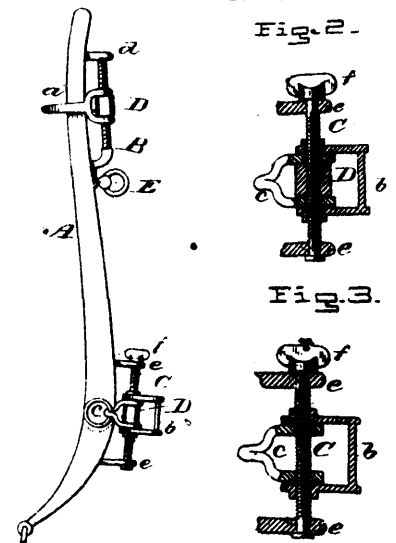
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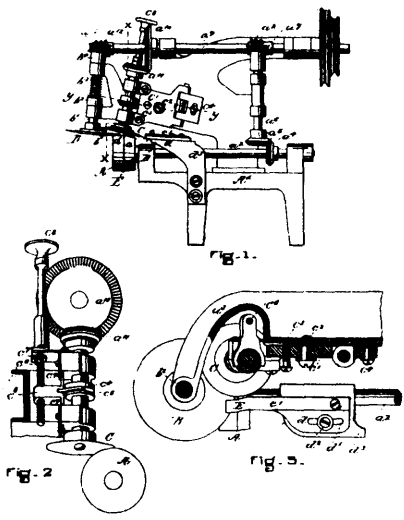
16629 Owen's Improvements on Pan Cleaning Machines.



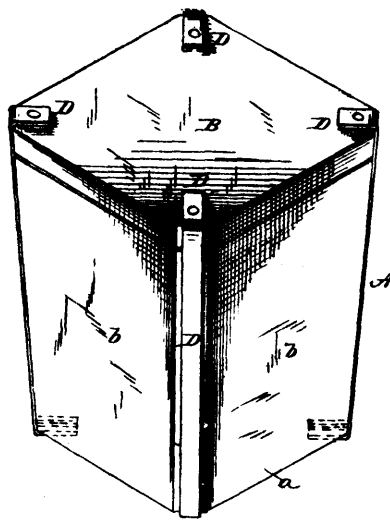
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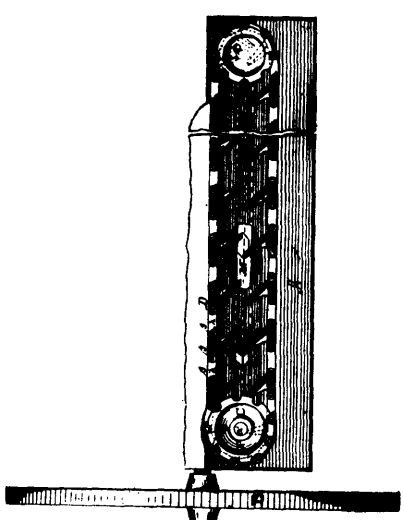
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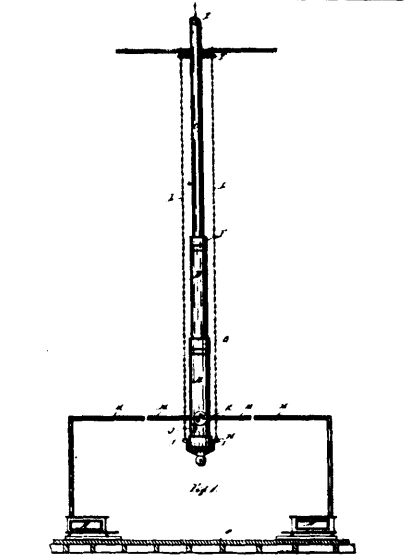
16634 Amazeen's Improvements on Skiving Machines.



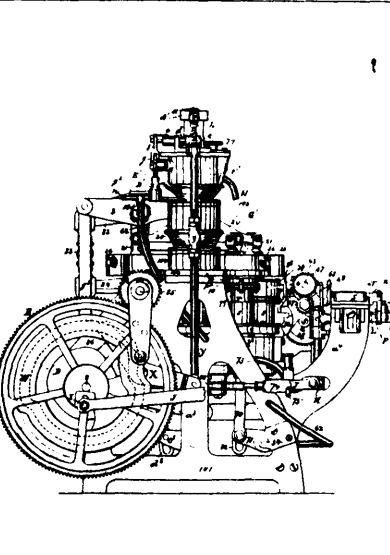
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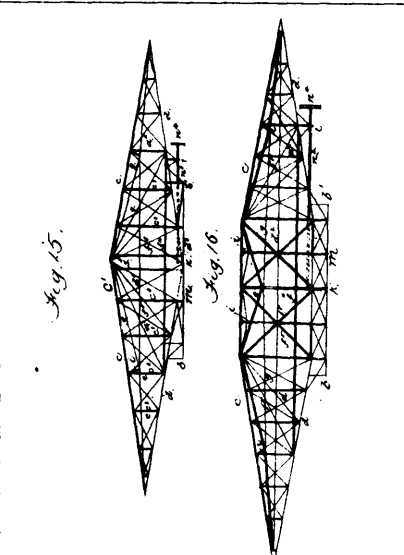
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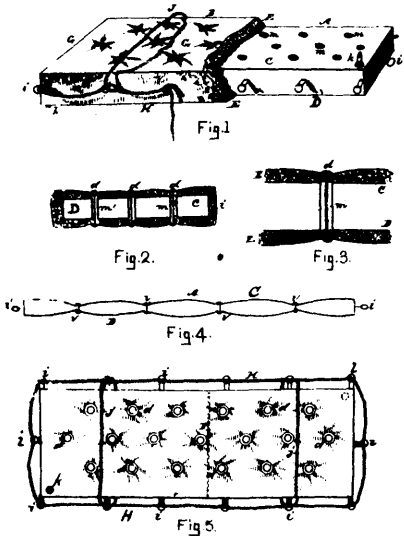
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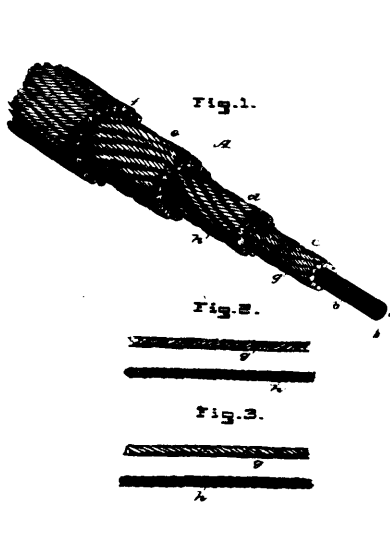
16641 Keefe's Improvements on Paper Box Machines.



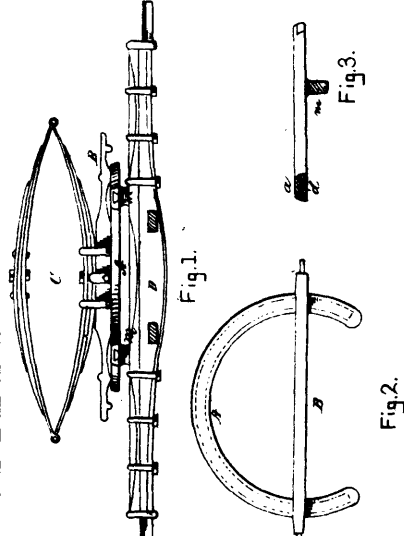
16642 Falconnet's Improvements in Vessels for Aerial Navigation.



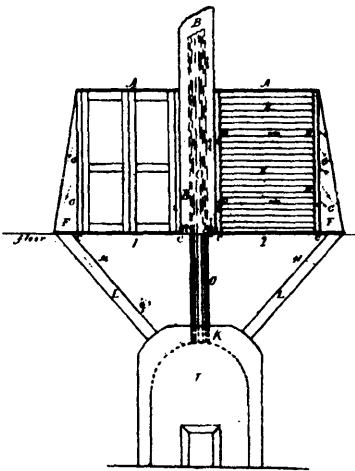
16643 Heath's Improvement on Mattresses.



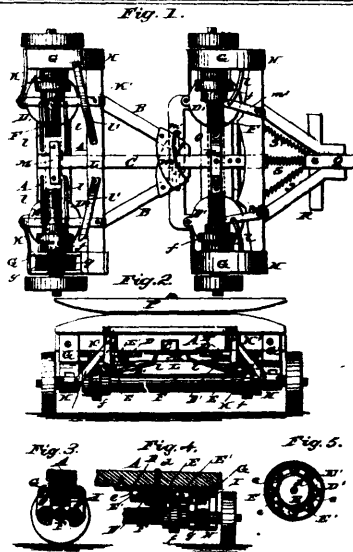
16644 Trott and Hamilton's Improvements in Submarine Telegraph Cables.



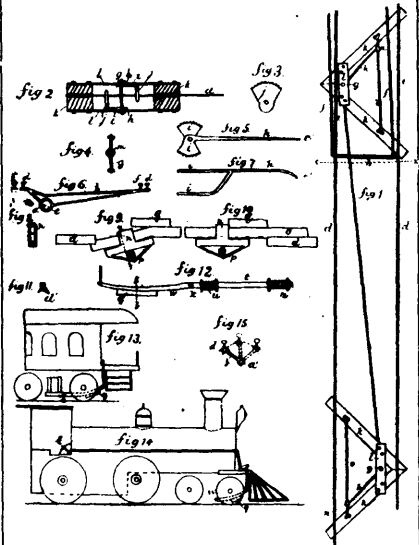
16647 Haskell's Improvements on Carriage Perches.



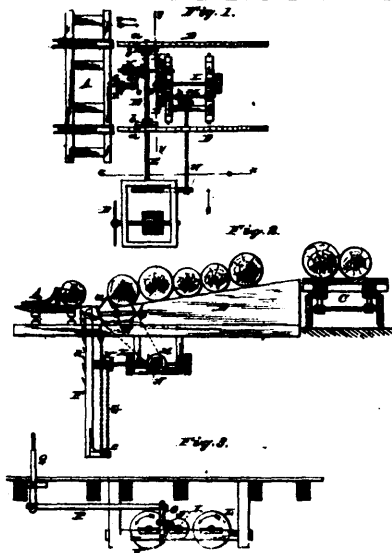
16648 Moody's Improvement on Fruit Dryers.



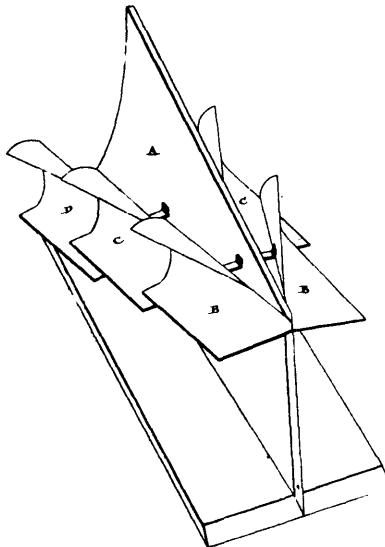
16649 Mackey's Improvements on Waggons.



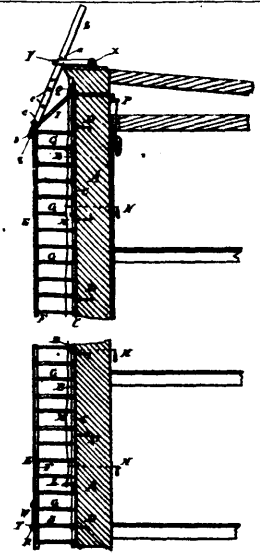
16651 Kennedy and Hall's Improvement on Switch Openers.



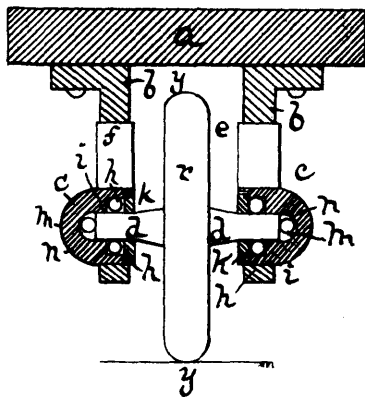
16652 Loud's Improvement on Log Feeders and Turners.



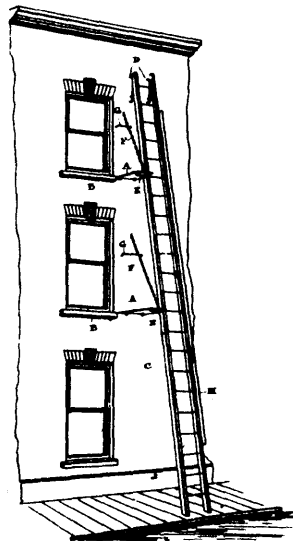
16653 Johnston's Improvement on Snow Ploughs.



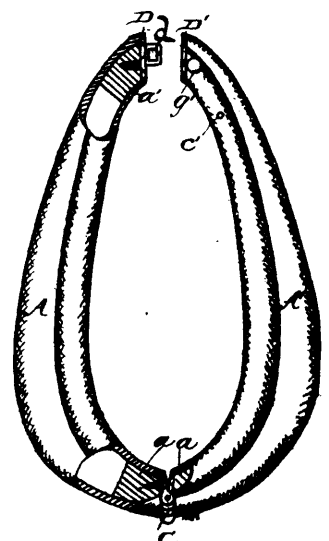
16654 Winter's Improvements on Fire-Escapes.



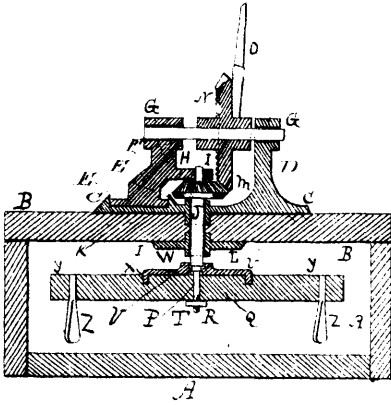
16655 Burdon's Improvements on Roller Stakes.



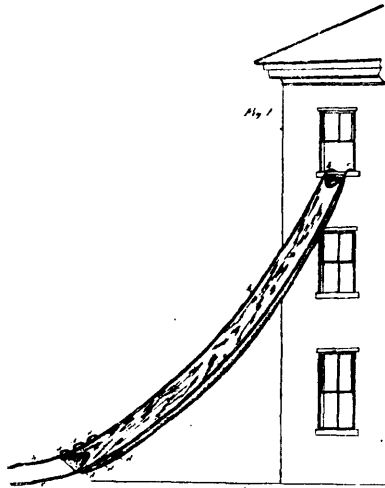
16656 Ford's Improvement on Fire-Escapes.



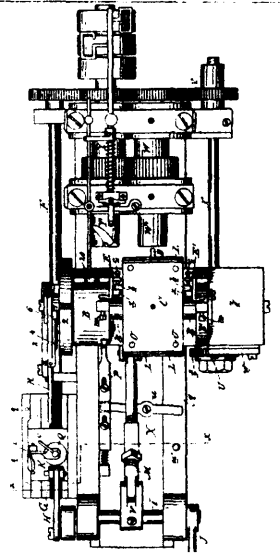
16657 Calo's Improvements on Horse Collars.



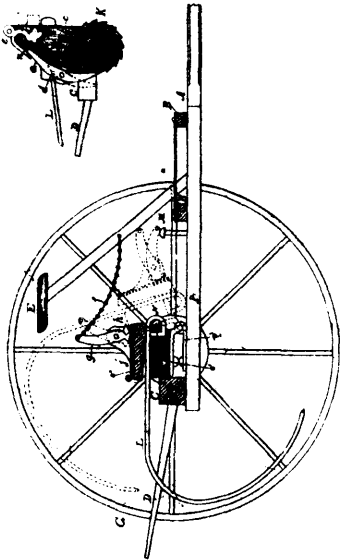
16658 Fox's Improvements on Washing Machines.



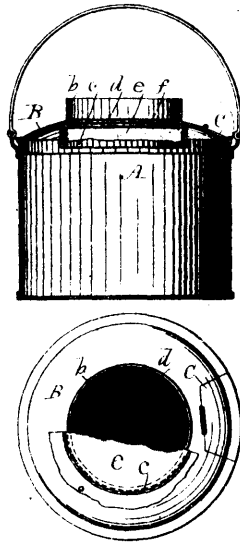
16659 Sintzel's Improvements in Fire-Escapes.



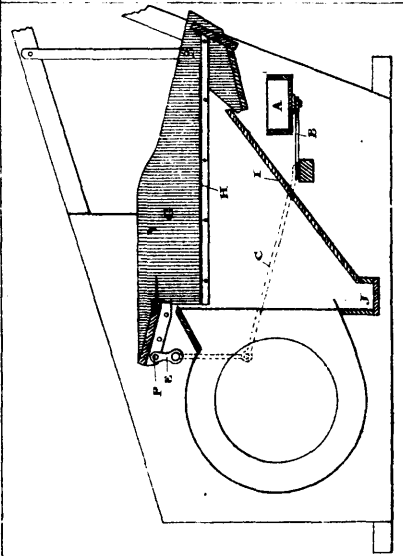
16662 Taylor's Improvements in Screw Cutting Machines.



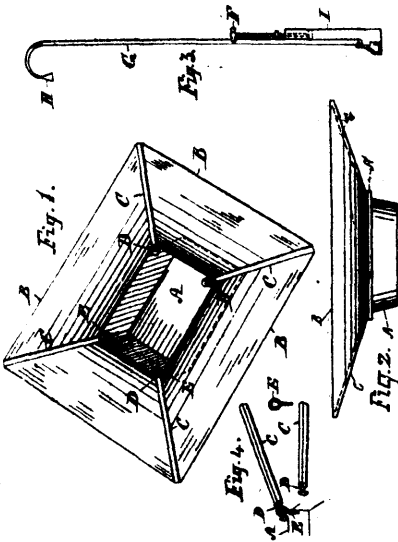
16663 Myers' Improvements on Horse Rakes.



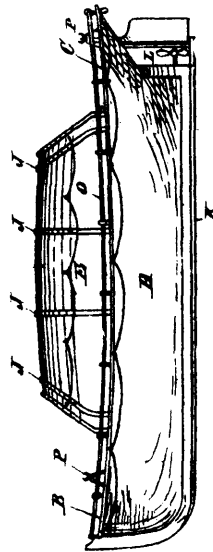
16664 Tracy's Improvements in Milking Pails.



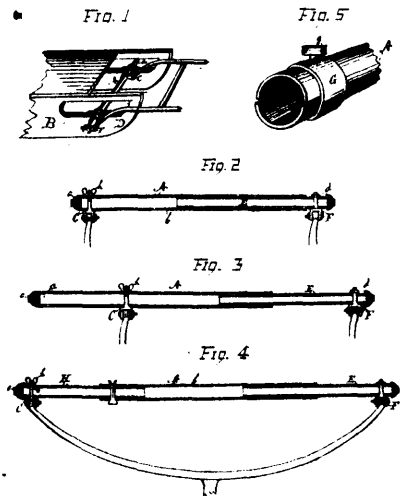
16665 Burkholder's Improvements on Thrashing Machines.



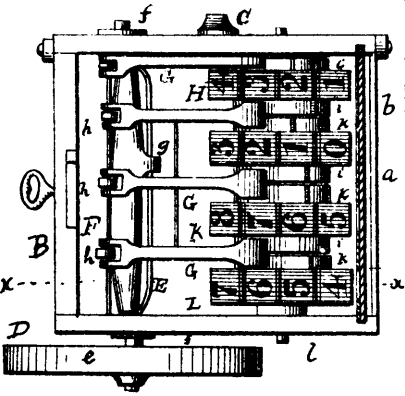
16666 Crocker's Improvements on Shower Baths.



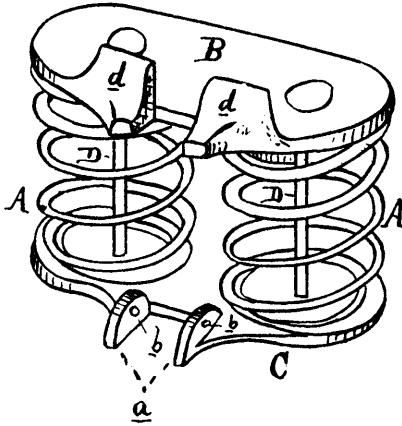
16667 Chapman's Improvements on Life Boats.



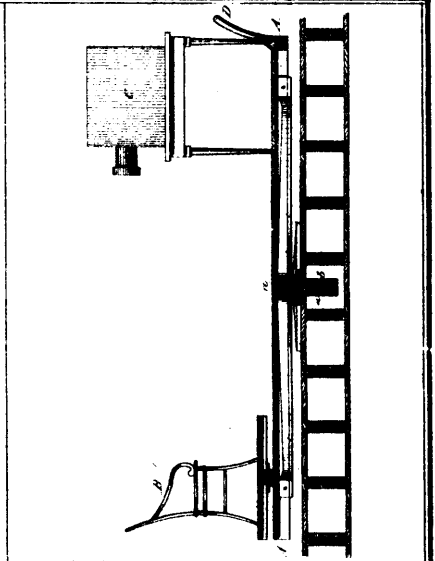
16669 Jones and Woolsey's Improvement in Sleigh Shafts.



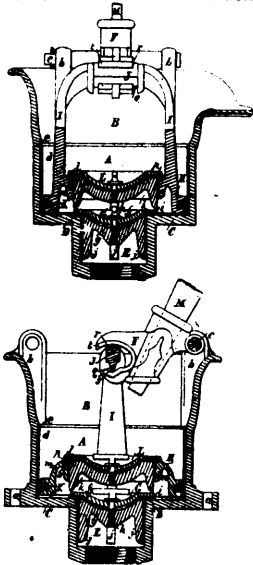
16663 Farmer's Register for Wood Working Machines.



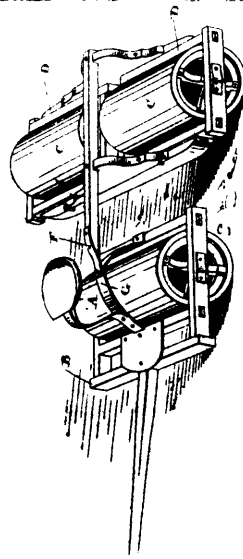
16664 Wilbur's Improvements on Vehicle Springs.



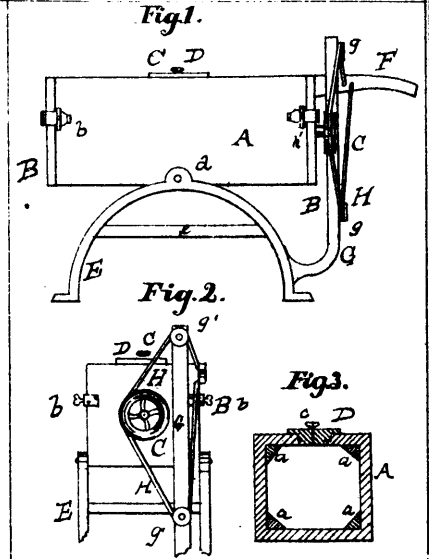
16671 Kurtz's Method of Producing Photographic Images and Apparatus therefor.



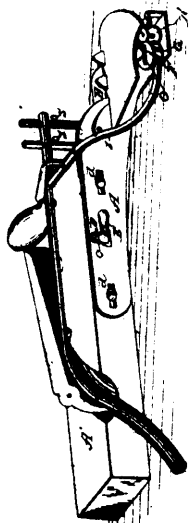
16676 Russell and Curtis' Improvements on Ships' Pumps.



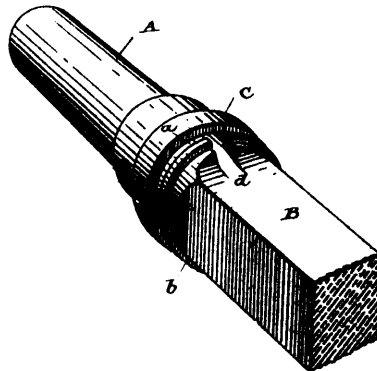
16677 Gates' Improvements on Land Rollers.



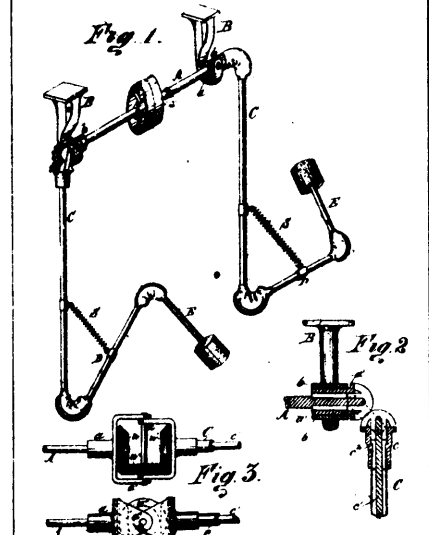
16678 Burrow's Improvements on Churns.



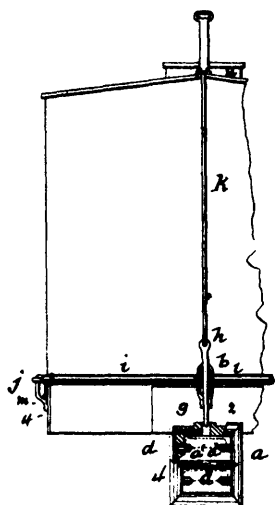
16679 Whipple's Improvements on Paint Distributors.



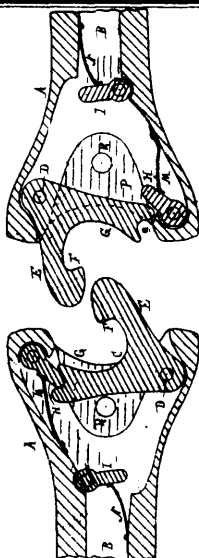
16680 Warnock's Improvements on Axles.



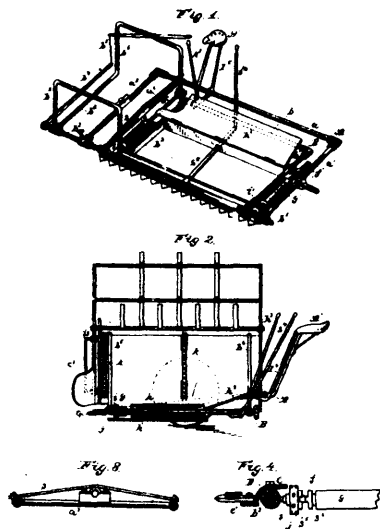
16681 Greenough's Machinery for Grooming Horses and other Mechanical Purposes.



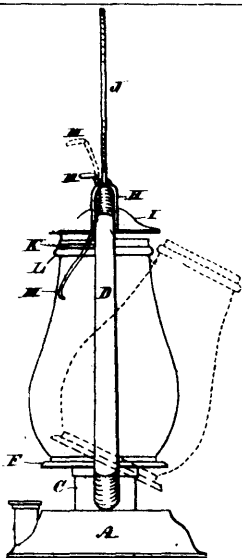
16882 Oulton's Improvements on Car-Couplings.



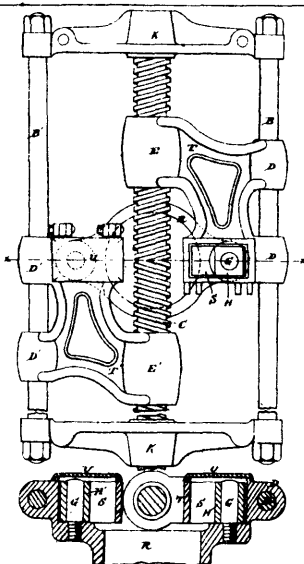
16883 Kieley's Improvements on Car Couplings.



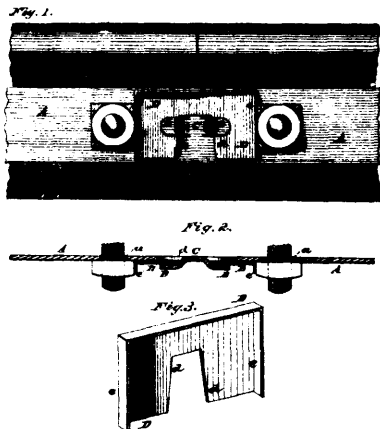
16884 Maddin's Improvements on Harvesters.



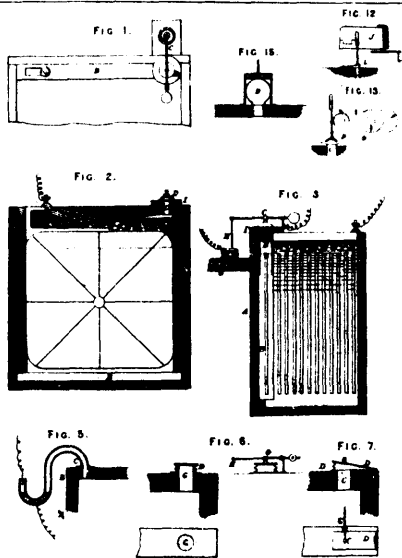
16885 Kennedy's Improvements on Tubular Lanterns.



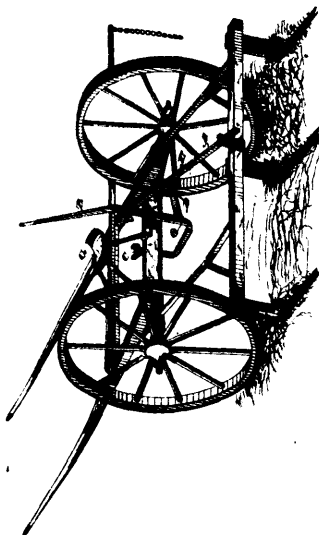
16886 Richardson's Improvements on Steering Mechanism.



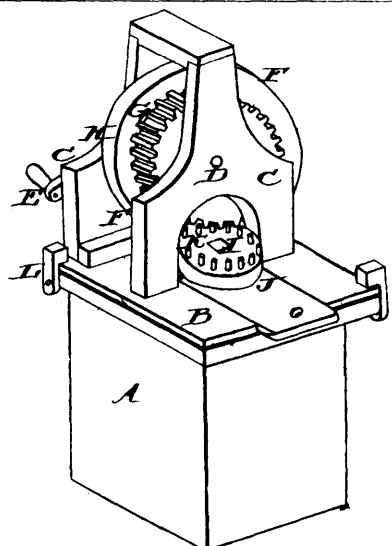
16887 Churchill's Improvements on Nut Locks.



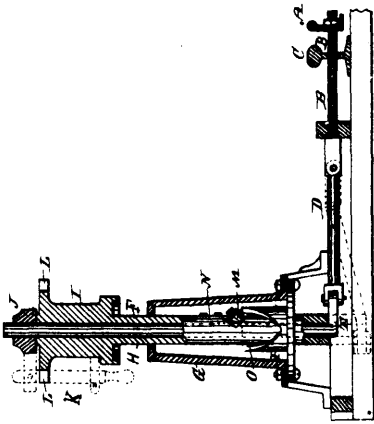
16888 Beeman, Taylor and King's Secondary Regulator Battery.



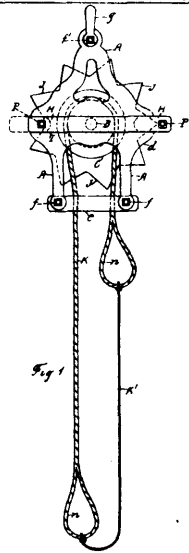
16891 Miltenberger's Combined Hay Rake and Check Bowler.



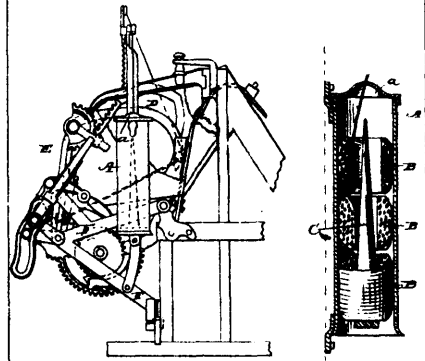
16892 Mays' Improvements on Churn Motors.



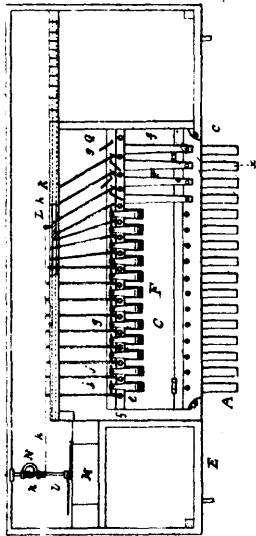
16693 True and Houghton's Improvements on Switch Stands.



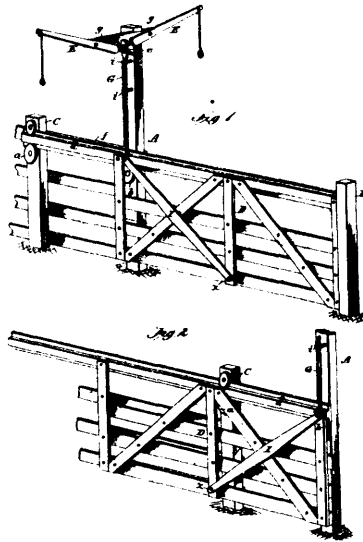
16694 Pugsley's Improvement on Fire-Escapes.



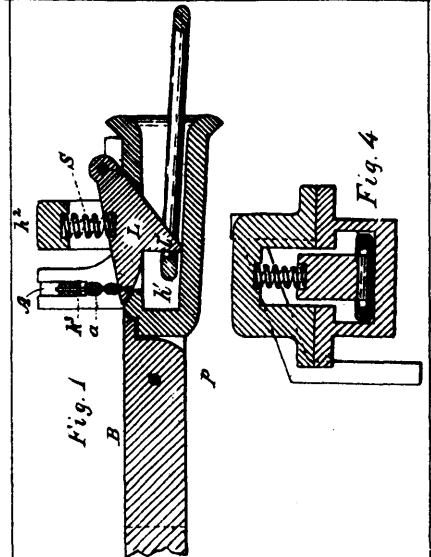
16695 Levalley's Improvements on Grain Binders.



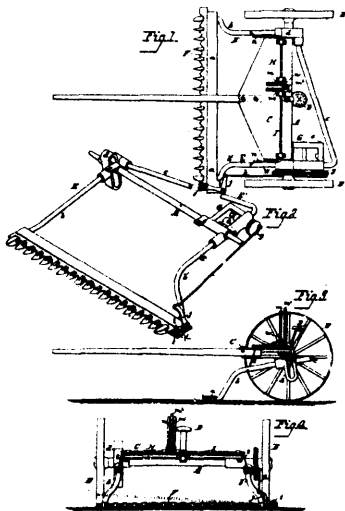
16696 Eaton's Improvements on Alarms or Signals.



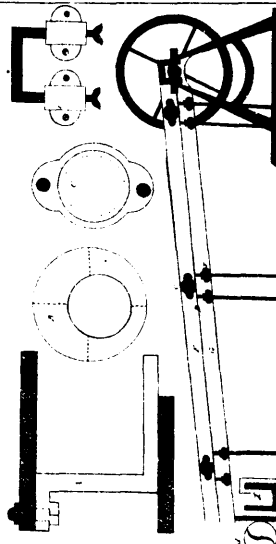
16698 White's Improvements on Gates.



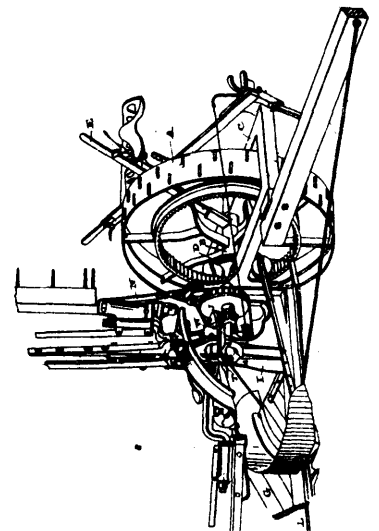
16699 Mitchell's Improvements on Car-Couplers.



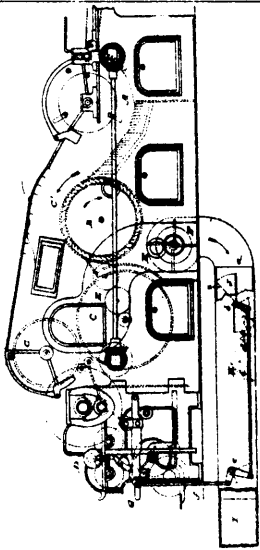
16700 Maddin's Improvements on Harvesters.



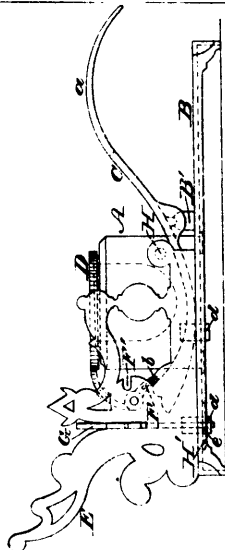
16701 Atkinson's Apparatus for the Manufacture of Starch.



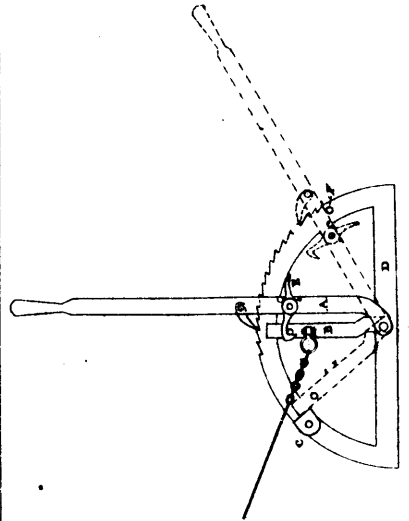
16702 McLachlan's Improvements on Harvesting Machines.



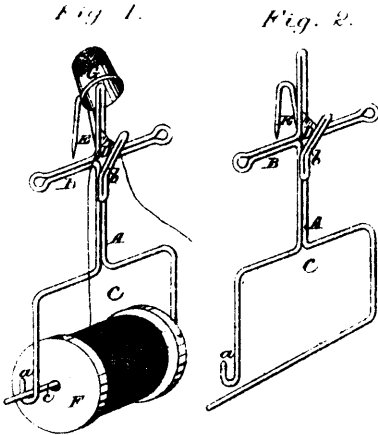
16703 Whitehead's Machinery for opening and Preparing Cotton.



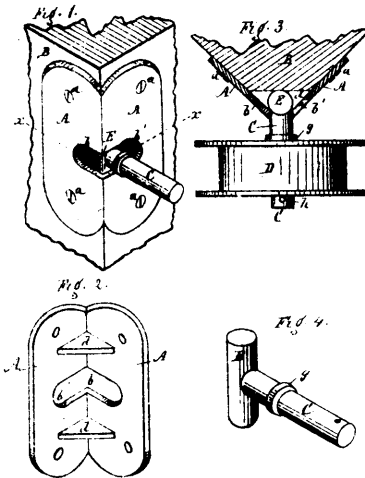
16704 Brook's Improvements on Ink Stands.



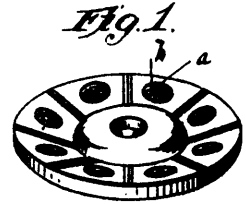
16705 McLellan's Machine for Operating Semaphore Signals.



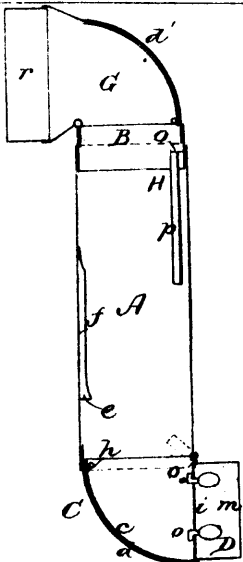
16706 Barrett's Combined Spool and Thimble Holder and Thread Cutter.



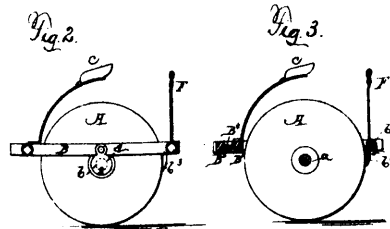
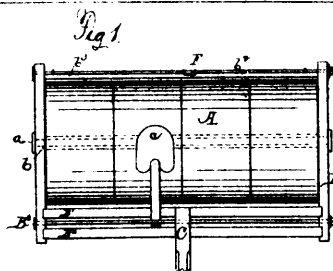
16707 Hudson's Improvements on Gate Hinges.



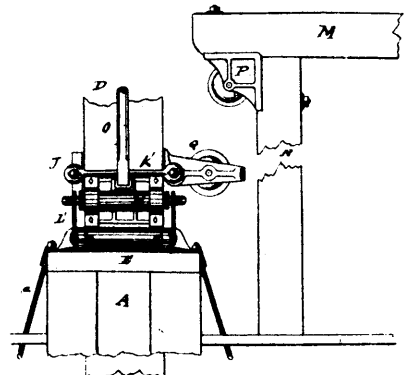
16708 Dobb's Improvements in Decorating Buttons



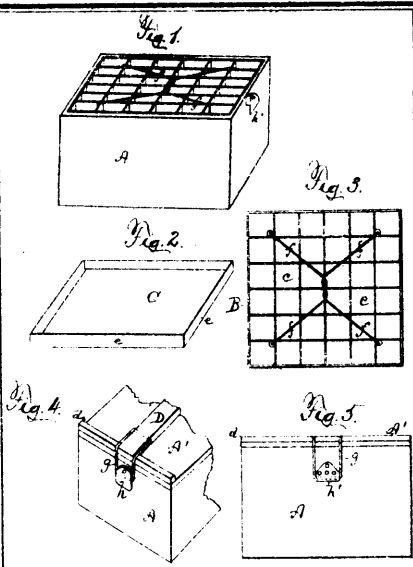
16709 Ring's Improvements in Stove Pipes.



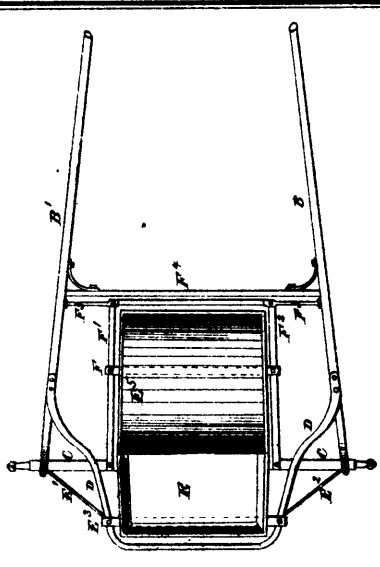
16710 Jones' Improvements on Land Rollers.



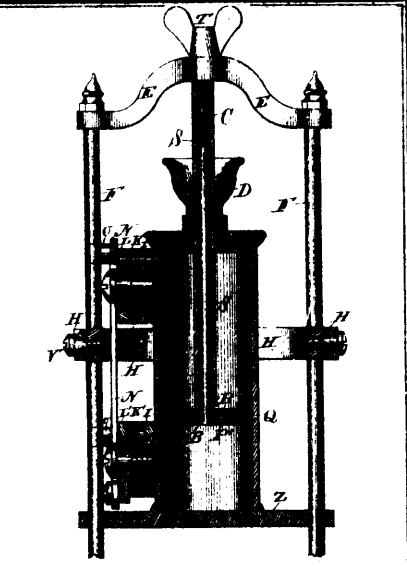
16711 Osgood's Improvements on Spud Fixtures.



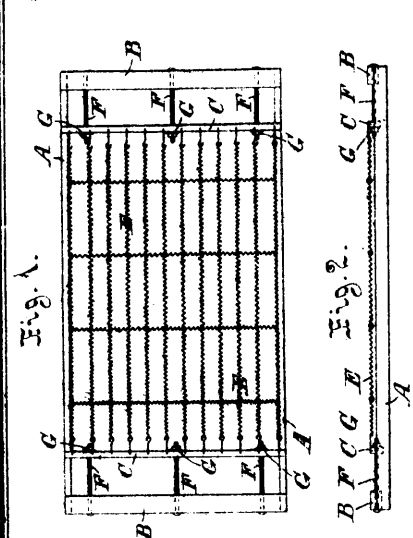
16712 Fiske's Improvements on Egg Carriers



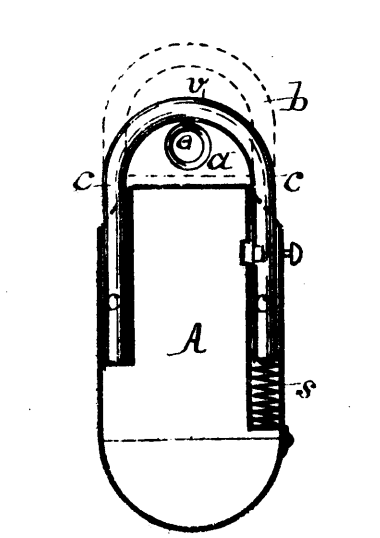
16713 Barnes' Improvements on Road Carts.



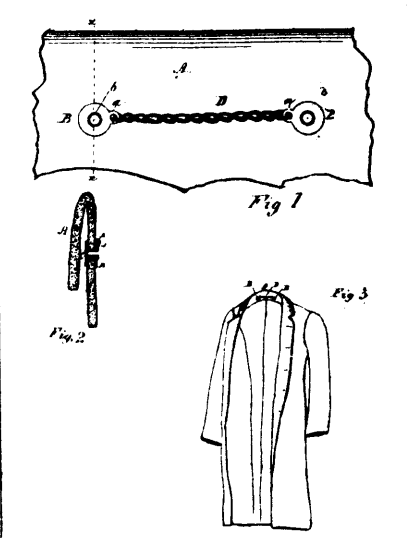
16714 Blackmer's Improvements on Air Pumps.



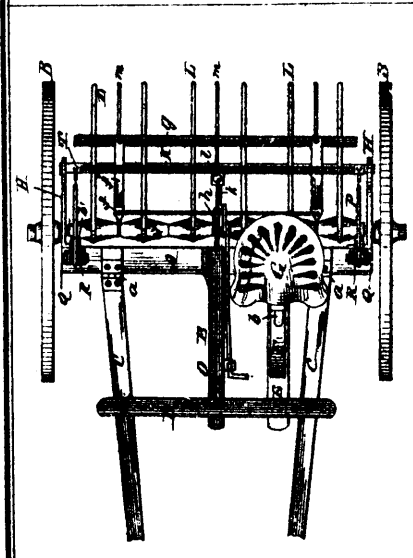
16715 Townshend's Improvements on Spring Mattresses.



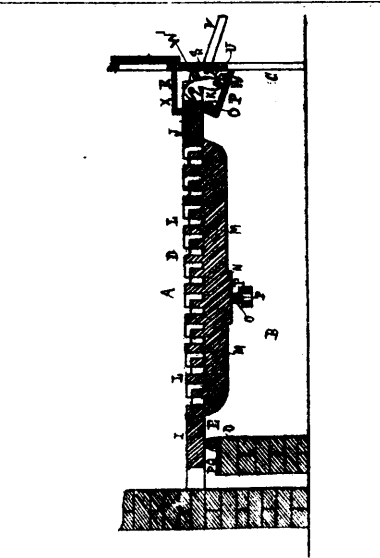
16716 Yates' Combined Pocket Case and Cigar Clipper.



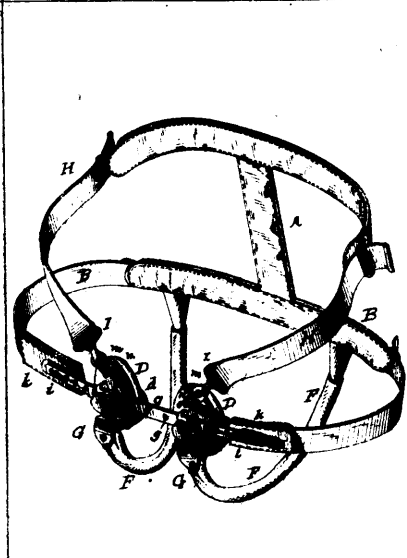
16717 Krause's Improvements in Coat Hangers.



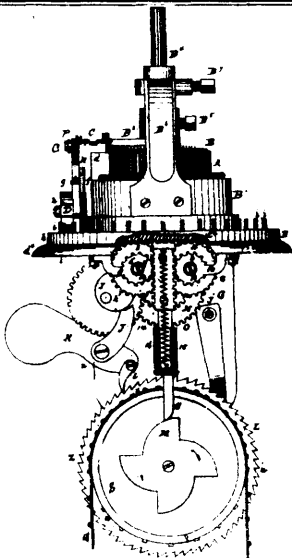
16718 Bollinger's Improvements on Horse Rakes.



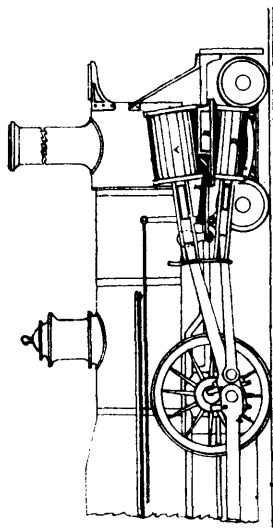
16719 Richards' Improvements on Fire Grates.



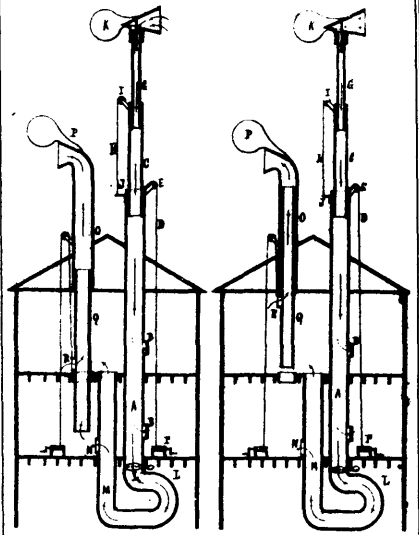
16720 Simmon's Improvements on Trusses.



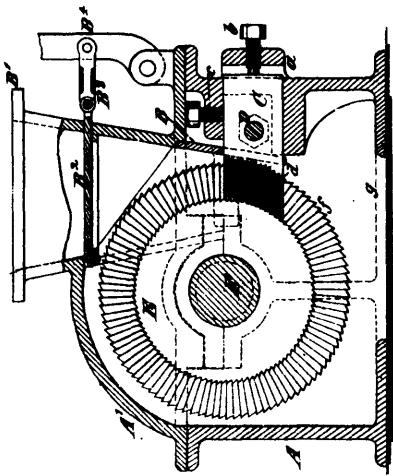
16721 Huse's Improvements on Knitting Machines.



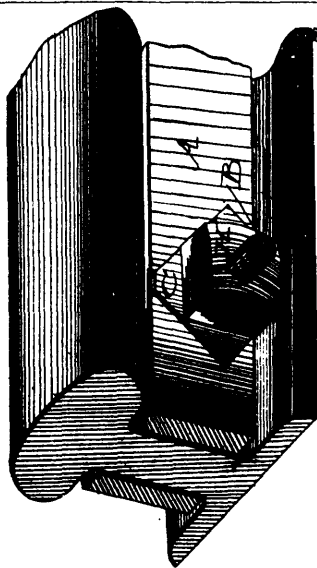
16722 Monk's Improvements in Steam Engines.



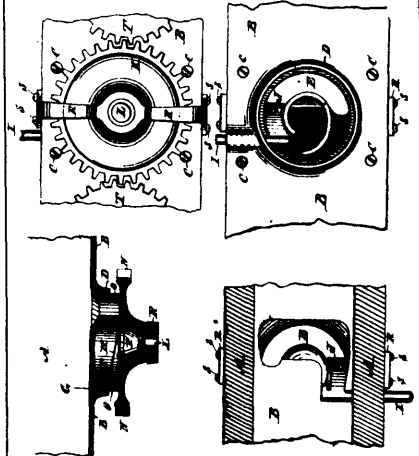
16723 Moore's Improvements on Ventilators.



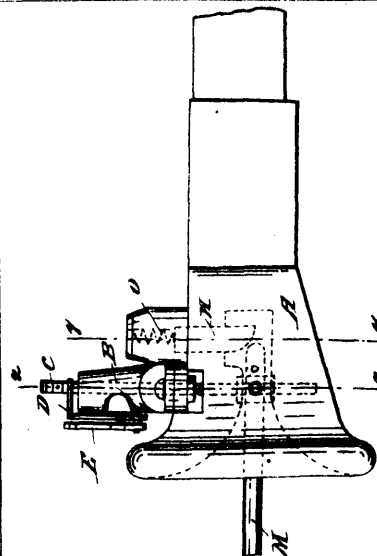
16724 Dodson's Improvement on Disintegrating Machines.



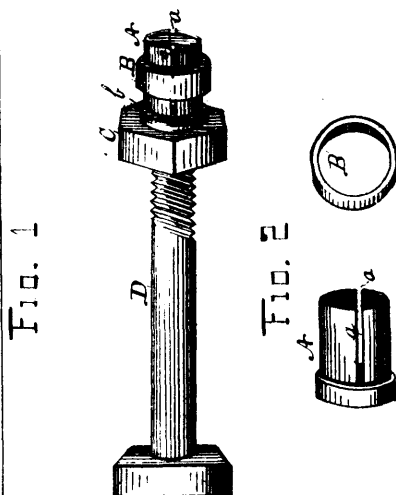
16725 Farra's Improvements on Nut Locks.



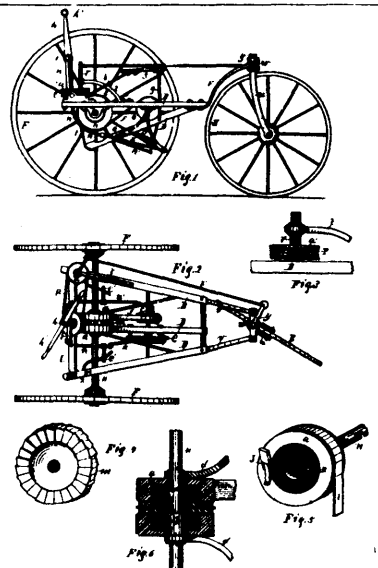
16728 Belling's Improvements on Grain Drills.



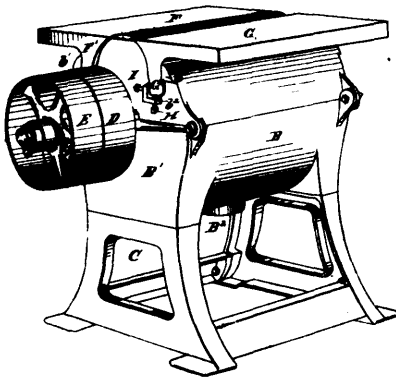
16729 Haines and Hankerson's Improvements in Car-Coupling.



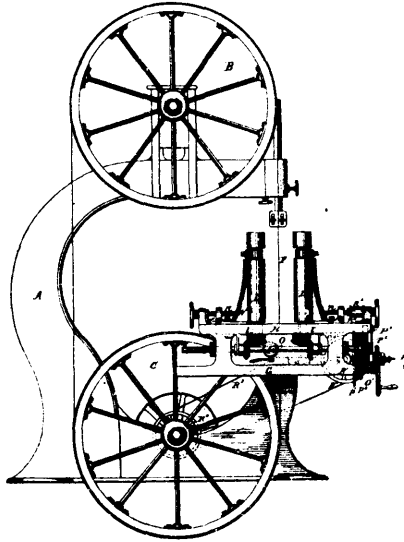
16730 Graham's Improvements on Nut Locks.



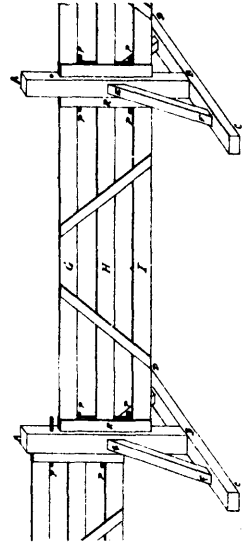
16731 Spencer's Improvements in Velocipedes.



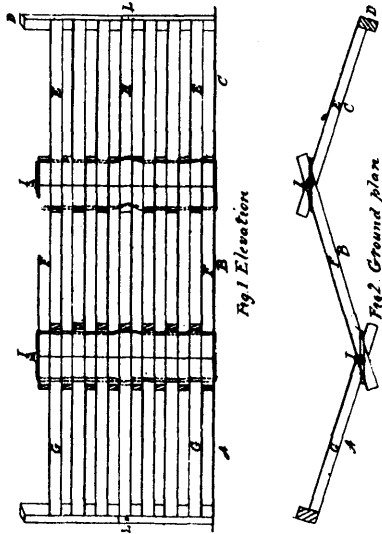
16732 Doane's Improvements on Sand Papering Machines.



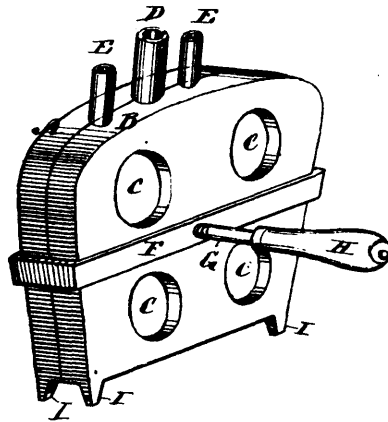
16733 Doane and Eugbee's Improvements on Band Saws.



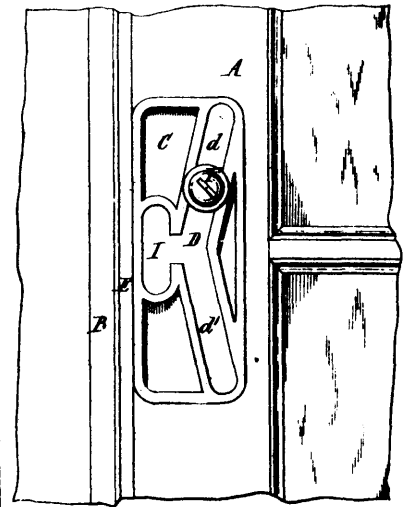
16734 Haldane's Improvements on Fences.



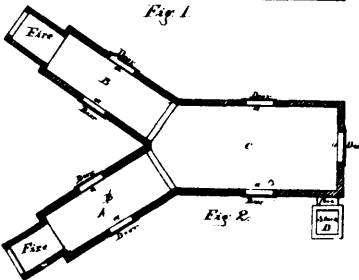
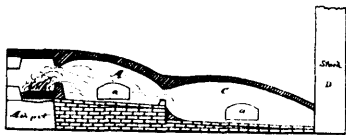
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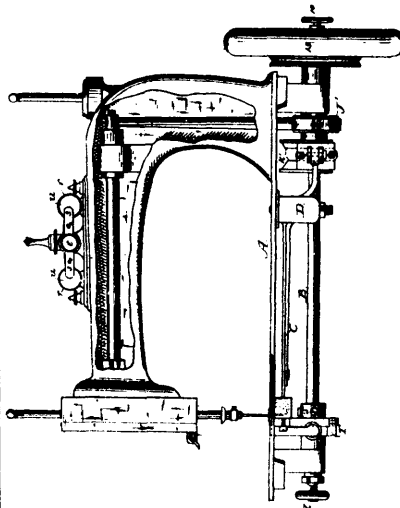
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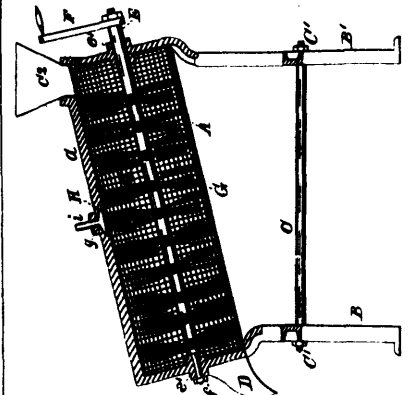
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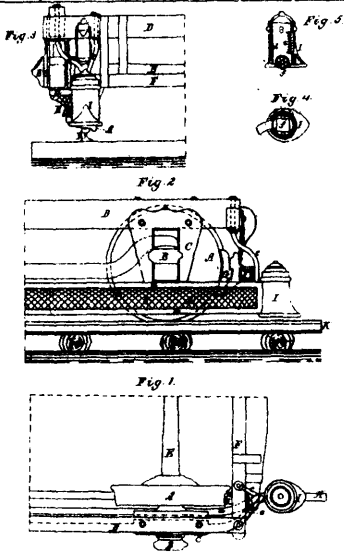
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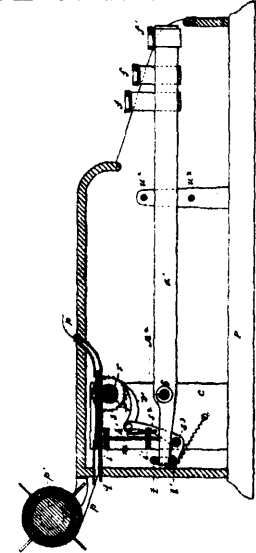
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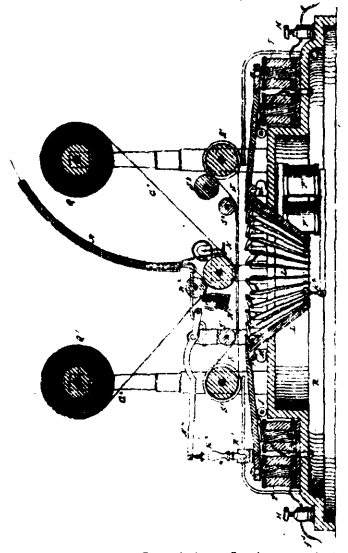
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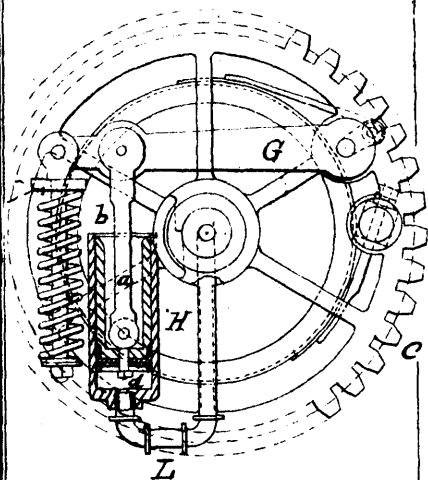
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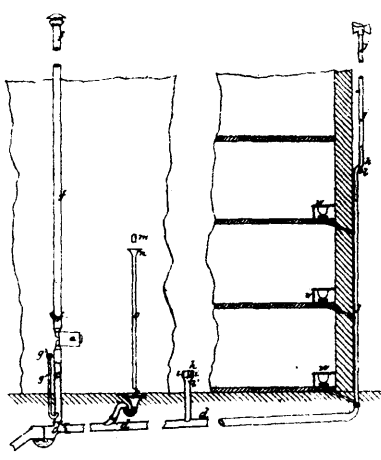
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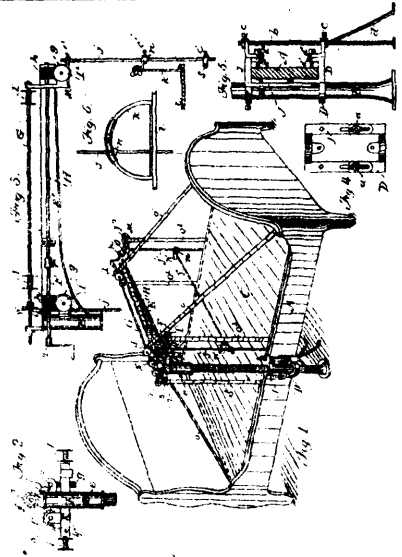
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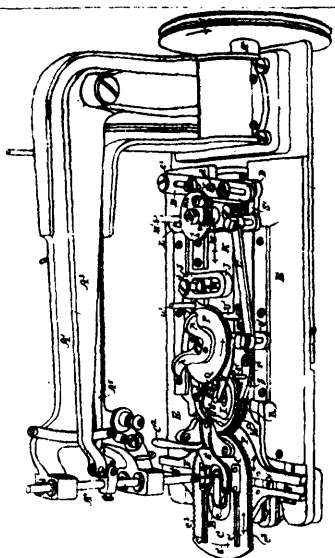
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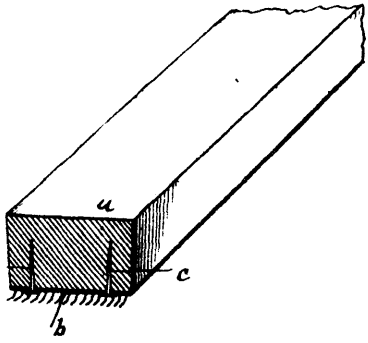
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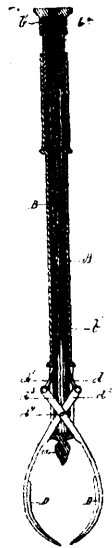
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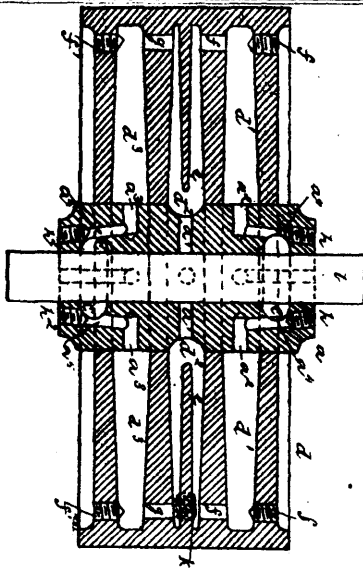
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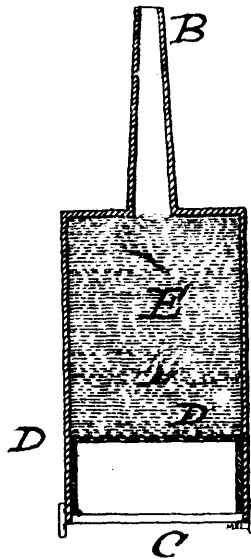
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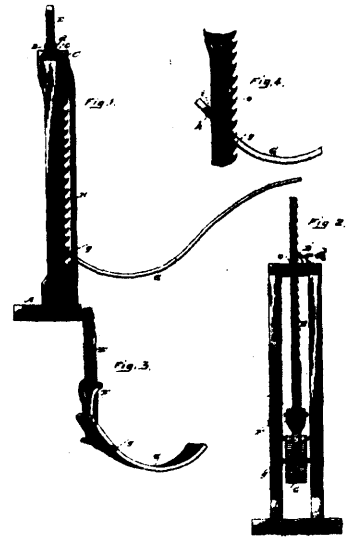
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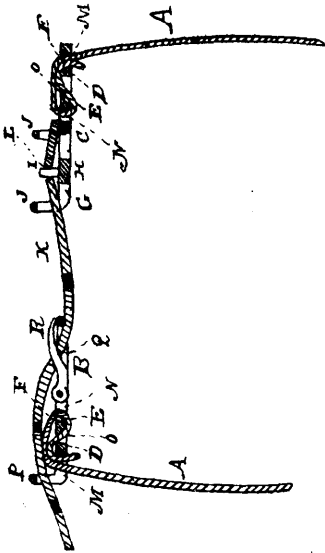
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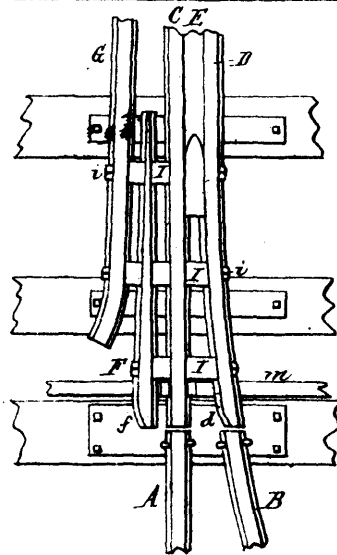
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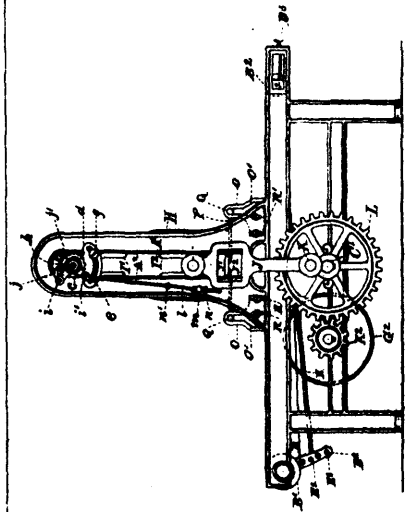
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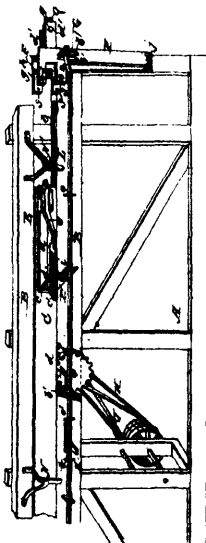
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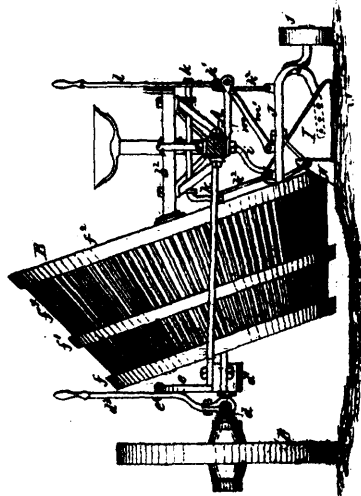
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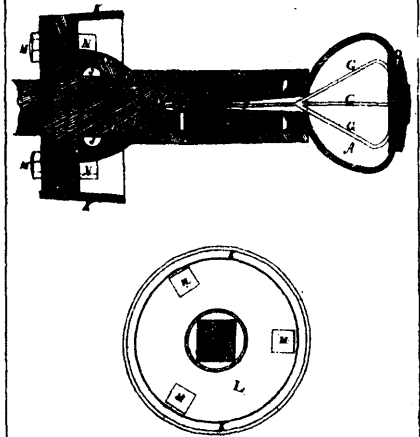
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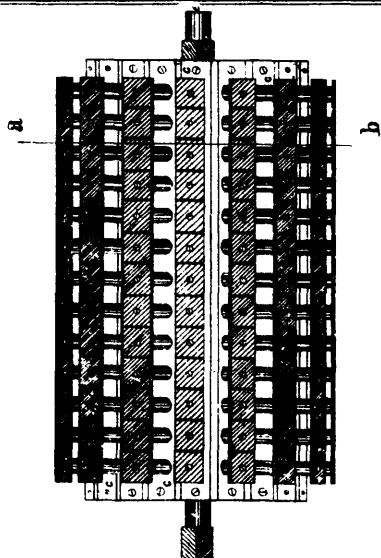
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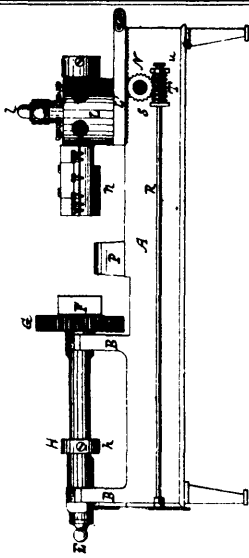
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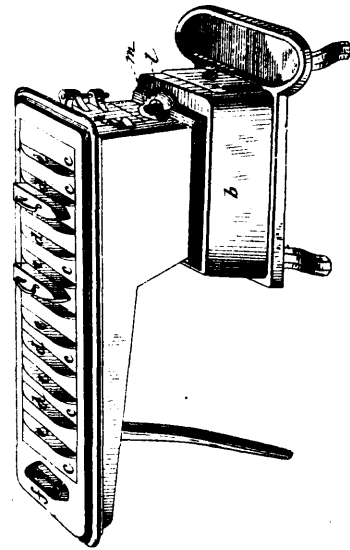
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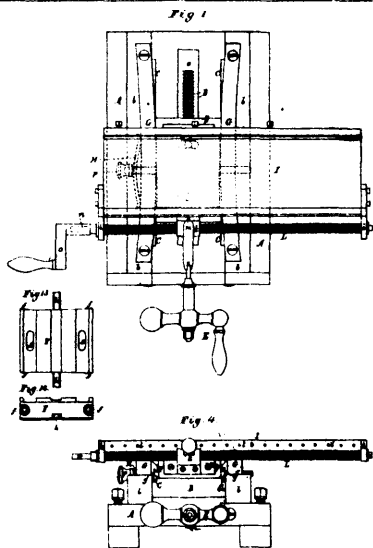
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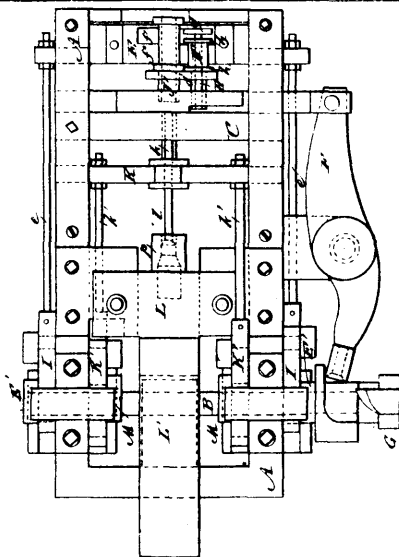
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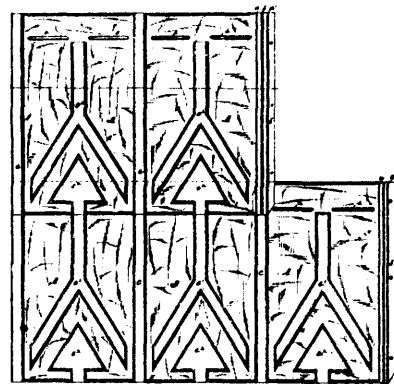
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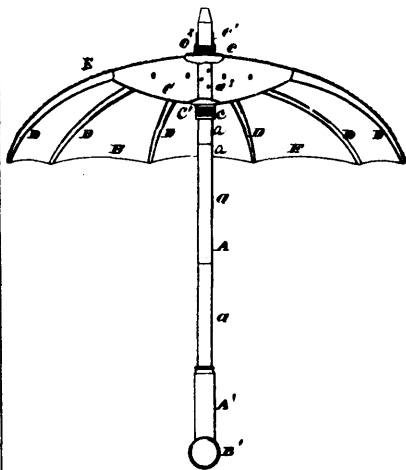
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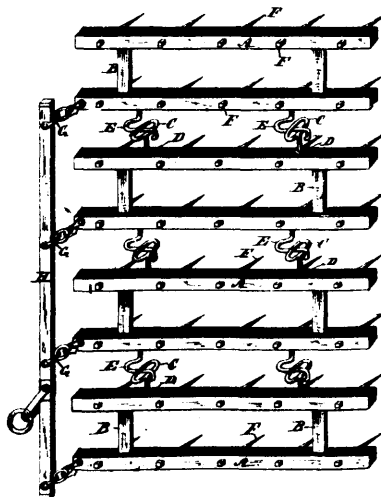
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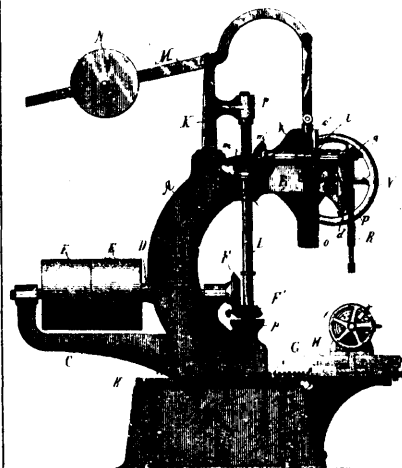
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Haldane, J., fences.....	16,734
Hall, T. P., et al., switch openers.....	16,651
Hallenbeck, J. P., sewing machines.....	16,749
Hamilton, F. A., et al., telegraph cables.....	16,644
Hankerson, A. D., et al., car-couplings.....	16,729
Haskell, L. D., carriage perches.....	16,647
Heath, L., mattresses.....	16,643
Hewitt, H. H., et al., oil box lid.....	16,650
" (The) Box Lid Co., oil box lid.....	16,650
Houghton, H. H., et al., switch stands.....	16,693
Hubbard, E., pulp pails.....	16,739
Hudson, M. B., gate hinges.....	16,707
Huse, W. D., knitting machines.....	16,721
Ireland, F. C., et al., hygienic foods.....	16,661
Isherwood, T., cloth weaving.....	16,632
Jardine, A. B., tire upsetting machines.....	16,623
Jobson, C., gate hinges.....	16,707
Johnson, A. F. and F. B., telegraph perforator.....	16,743
" " " " receiving instrument.....	16,744
Johnston, R., snow ploughs.....	16,653
Jones, F., et al., sleigh shafts.....	16,668
" W. P., land rollers.....	16,710
Katzeinstein, L., metallic packing.....	16,611
Keefe, W. J., paper box machines.....	16,641
Kelly, J., stop and waste cocks.....	16,627
Kelsey, L. G., potato diggers.....	16,759
Kennedy, G. A., tubular lanterns.....	16,685
" J. H., et al., switch openers.....	16,651
Kiely, J. D., car-couplings.....	16,633
King, F., et al., secondary batteries.....	16,621
" " " regulator batteries.....	16,688
Krause, C., coat hangers.....	16,717
Kurtz, W., photographic images.....	16,671
Levalley, C. W., grain binders.....	16,695
Lewis, J. T., et al., wire fences.....	16,617
Loud, H. M., log feeder and turners.....	16,662
McChesney, P. N., et al., decortiating and cleaning machine.....	16,624
McIntyre, A. F., et al., wire fences.....	16,617
McLachlan, J. C., harvesting machines.....	16,702
McLellan, W. W., machine for operating signals.....	16,705
McPherson, J., et al., wire fences.....	16,617
Mackey, T. B., waggons.....	16,649
Maddin, S. D., harvesters.....	16,684
Marland, A., nut machines.....	16,765

Martel, A. F., et al., wire fences.....	16,617	Simmons, T., trusses.....	16,720
May, B. C., churn motors.....	16,692	Sintzel, J., fire-escapes.....	16,659
Miltenberger, T., hay rake.....	16,691	Smyth, S., stove and furnace grate.....	16,675
Mitchell, G., car-couplers.....	16,690	Spencer, G. N., velocipedes.....	16,731
" J. W., et al., packing vessels.....	16,636	" J. M., cooking stoves.....	16,748
Monk, H. and W., steam engines.....	16,722	Strait, R. E., tubular wells.....	16,616
Moody, W. D., fruit evaporators.....	16,648	Susemihl, F. C. L. G., et al., oil box lid.....	16,650
Moore, W. E., ventilators.....	16,723	Taylor, H. C., screw cutting machines.....	16,662
Myers, H., horse rakes.....	16,663	" W., et al., secondary batteries.....	16,621
National (The) Machine Co., sewing machines.....	16,749	" " " regulator batteries.....	16,688
Nellis, A. J., horse rakes.....	16,718	Tibbles, C. E., sewing machines.....	16,740
Nelson, E. J. and W., hernial trusses.....	16,619	Townshend, J. E., spring mattresses.....	16,715
Osgood, R. R., spud fixtures.....	16,711	Tracy, A. C., milking pails.....	16,664
" " et al., friction clutches.....	16,745	Triplett, L., nut locks.....	16,725
Oulton, J. W., car-couplings.....	16,682	Troit, S., et al., telegraph cables.....	16,644
Ovens, W. S., cake machines.....	16,757	True, O. J., et al., switch stands.....	16,693
" " pan cleaning machines.....	16,629	Vankeuren, J. A. and L. N., waterproof blacking.....	16,635
" " et al., fruit cleaning machine.....	16,741	Walter, J., metal roofing.....	16,766
Palmer, A. A., register for wood working machines....	16,669	" L., et al., disintegrating machines.....	16,724
Patterson, P., harvesting machines.....	16,702	Warner, W. E., door hangers.....	16,639
Patric, C. E., fertilizer distributors.....	16,637	Warnock, A., axles.....	16,680
Peace, J. G., umbrellas.....	16,767	Whipple, J. P., paint distributors.....	16,679
Price, D. E., river and fishway registers.....	16,727	White, W. R., gates.....	16,698
Prince, J., hoop shaving machines.....	16,758	Whitehead and Atherton (The Machine Company)....	
Proteau, P., axle boxes.....	16,760	machinery for opening cotton.....	16,703
Pugsley, W. S., fire-escapes.....	16,694	Whitehead (The) and Atherton Machine Co., carding	
Rice, S. A., et al., fruit cleaning machine.....	16,741	machines.....	16,750
Richards, P., et al., fire grates.....	16,719	Whitehead, W. E., carding machines.....	16,750
Richardson, N., steering mechanisms.....	16,686	" " machinery for opening cotton.....	16,703
Ring, F. A., stove pipes.....	16,709	Wilbur, A. O., vehicle springs.....	16,670
Robinson, C., packing vessels.....	16,636	Wildern, A., vehicles.....	16,618
Rose, R. M., sewing machines.....	16,645	Wilson, R. P., smelting furnace.....	16,738
Rosenwasser, N., percolators.....	16,753	Winter, J. R., fire-escapes.....	16,654
Rouleau, F. V., electro-separators.....	16,761	Witham, E., calks.....	16,626
Rowan, T., ventilating.....	16,746	Wood, W., et al., water traps.....	16,673, 16,674
Roy, F. X., carriages.....	16,628	Woodward, I. C., et al., smelting furnace.....	16,738
Russell, A., et al., ships' pumps.....	16,676	Woolsey, W., et al., sleigh shafts.....	16,668
Schaller, G., et al., fire grates.....	16,719	Yates, A. P., cigar clipper.....	16,716
Simkins, M. W., sewing machines.....	16,630	Young, J., et al., spinning and doubling frames.....	16,612

Patents issued up to 23rd May, 1883, Claims and Drawings of which will appear in a subsequent number of the Patent Record.

- No. 16,777. W. Varnum, Erie, Penn., "Step ladders," 4th May, 1883.
- No. 16,778. T. H. Doyle and A. R. Stagg, Norwich, N.Y., "Whisk broom holder," 4th May, 1883.
- No. 16,779. S. S. Applegate, Camden, N.J., "Waking device," 4th May, 1883.
- No. 16,780. D. A. McDonel, Detroit, Mich., "Brush," 4th May, 1883.
- No. 16,781. J. W. Thomas, Jersey City, N. J., "Stove," 4th May, 1883.
- No. 16,782. S. Morton, Milton, N.S., "Coat adjuster," 4th May, 1883.
- No. 16,783. I. B. Keller, Lebanon, Penn., "Shirt," 4th May, 1883.
- No. 16,784. The Guelph Carriage Goods Company, Guelph, Ont., Assignees, "Vehicle," (Re-issue of Pat. 13,420,) 4th May, 1883.
- No. 16,785. J. Connell, Rochester, N.Y., Assignee, "Hoop machine," 4th May, 1883.
- No. 16,786. C. J. Fox, Liverpool, Eng., "Coffer-dams for ships," 4th May, 1883.
- No. 16,787. T. B. Dowsley, Owen Sound, Ont., "Wheel hub," 4th May, 1883.
- No. 16,788. The Powell Manufacturing Company, Burlington, Vt., Assignees, "Process of treating milk for the production of butter and cheese," 4th May, 1883.
- No. 16,789. W. Higly, Jackson, Mich., Assignee, "Bustle," 4th May, 1883.
- No. 16,790. S. C. Taylor, Morton, Eng., "Window," 4th May, 1883.
- No. 16,791. J. H. Snyder and W. Brodie, Muskegon, Mich., "Horse collar," 4th May, 1883.
- No. 16,792. G. H. Mallary, London, Eng., "Machinery for cutting or scraping wood," 4th May, 1883.
- No. 16,793. D. Shirley, New Market, Va., "Paper bags," 4th May, 1883.
- No. 16,794. L. H. Rhoades, Bay Centre, Washington, "Anchor," 4th May, 1883.
- No. 16,795. K. H. Pedrick, Lynn, Mass., "Envelope," 4th May, 1883.
- No. 16,796. J. Moneur, Owen Sound, Ont., "Lantern," 4th May, 1883.
- No. 16,797. F. H. DeTray and R. D. Vernilya, McClure, Ohio, "Knock down table," 4th May, 1883.
- No. 16,798. J. Turner, Grosse Isle, Mich., "Track layer," 4th May, 1883.
- No. 16,799. H. M. Rounds, Clear Lake, Iowa, R. K. Noye, Buffalo, N.Y., "Reduction machine for flour mill," 4th May, 1883.
- No. 16,800. E. Larson, South Pueblo, Colorado, "Saw sets," 4th May, 1883.
- No. 16,801. W. J. Coughlin, Lowell, Mass., "Pad holder," 4th May, 1883.
- No. 16,802. T. Blanchard, Stoughton, Mass., "Speed indicator," 4th May, 1883.
- No. 16,803. A. H. Armstrong, Plainville, Conn., "Car-coupler," 4th May, 1883.
- No. 16,804. C. J. Weld, G. W. Hooker, Brattleboro, G. C. Noble, St. Albans, Vt., "Shingle machine," 4th May, 1883.
- No. 16,805. C. Cook, Baltimore, Maryland, "Ash-sifter," 5th May, 1883.
- No. 16,806. W. O. Frost, Le Roy, N.Y., "Horse power," 5th May, 1883.
- No. 16,807. La F. Collins, Bay City, Mich., "Car shunters," 5th May, 1883.
- No. 16,808. A. McDougall, Duluth, Minn., "Tow Boat," 5th May, 1883.
- No. 16,809. G. A. Melcalf, Malden, Mass., "Ore separators," 5th May, 1883.
- No. 16,810. C. M. Douglass, Que., "Folding canvas boats," 5th May, 1883.
- No. 16,811. D. A. McDonel, Detroit, Mich., "Brush," 5th May, 1883.
- No. 16,812. S. Ollendorff, Detroit, Mich., "Spectacles," 5th May, 1883.
- No. 16,813. A. and A. J. Russell, Burr Oak, Mich., "Fences," 5th May, 1883.
- No. 16,814. P. Straith, Toronto, Ont., "Grindstone," 5th May, 1883.
- No. 16,815. I. G. Campbell, Chicago, Ill., "Catemenial sacks," 5th May, 1883.
- No. 16,816. J. England, N.Y., "Croze," 5th May, 1883.
- No. 16,817. A. Hudson, Newton, Mass., "Antimony furnace," 5th May, 1883.
- No. 16,818. J. E. Smith, Shilok, Ohio, "Grain separator," (Ext. of Pat. No. 8,780,) 5th May, 1883.
- No. 16,819. G. H. and W. H. Nichols and J. B. F. Herreshoff, Brooklyn, N.Y., "Copper smelting furnace," 5th May, 1883.
- No. 16,820. J. C. Farquhar and W. Oldham, Paris, France, "Filtering apparatus," 5th May, 1883.
- No. 16,821. G. H. Poschel, Union Hill, N.J., "Roofing composition," 5th May, 1883.
- No. 16,822. H. H. Rayner, London, Ont., "Automatic vent pegs," 5th May, 1883.
- No. 16,823. P. Lord, J. B. and A. S. Vmet, Montreal, Que., "Joints," 4th May, 1883.
- No. 16,824. G. W. Ainsworth, Montpelier, Vt., "Clothes drier," (Extension of Patent No. 2315,) 5th May, 1883.
- No. 16,825. W. W. Butcher, London, Ont., "Swinging baby's chair," (Extension of Patent No. 2342,) 8th May, 1883.
- No. 16,827. J. A. Graham, London, Eng., "Coating or covering iron with lead," 11th May, 1883.
- No. 16,828. J. S. Beeman, W. Taylor and F. King, London, Eng., "Battery," 11th May, 1883.
- No. 16,829. H. E. Braunfeld, Phil., Penn., "Fire escape," 11th May, 1883.
- No. 16,830. J. H. Elward, Polo, Ill., "Traction engines," 11th May, 1883.
- No. 16,831. R. A. Clark, Liverpool, Eng., "Potato digger," 11th May, 1883.
- No. 16,832. E. V. Gardner, London, Eng., "White lead process and apparatus," 11th May, 1883.
- No. 16,833. A. F. Martel, Montreal, Que., "Railroad construction cars," 11th May, 1883.
- No. 16,834. B. J. Foster, Glenn-Williams, Ont., "Self sustaining motor," 11th May, 1883.
- No. 16,835. P. Lessard and B. Boutin, St. Marguerite, Que., "Creamers," 11th May, 1883.
- No. 16,836. J. Allen, Alliston, Ont., "Vehicles," 11th May, 1883.
- No. 16,837. R. B. D. June and O. S. French, Fremont, Ohio, "Spark arrester," (Extension of Patent No. 8783,) 11th May, 1883.
- No. 16,838. J. Léveillé, Montreal, Que., "Sounding machine," (Extension of Patent No. 8774,) 11th May, 1883.
- No. 16,839. W. H. Hall, Tiffin, Ohio, "Horse hay rakes," 11th May, 1883.
- No. 16,840. J. A. Moffat, Hamilton, Ont., "Potato peeler," 11th May, 1883.
- No. 16,841. R. A. Bush, Brockville, Ont., "Fire escape," 11th May, 1883.
- No. 16,842. P. Allard, Sherbrooke, Que., "Wheel barrows," 11th May, 1883.
- No. 16,843. W. G. Fraser, Campbellford, Ont., "Bag fastener," 11th May, 1883.
- No. 16,844. F. Hyde, Toronto, Ont., "Self closing tap," 11th May, 1883.
- No. 16,845. F. McKay, Lobo, Ont., "Ointment," 12th May, 1883.
- No. 16,846. B. F. and B. Moore, Heathcote, Ont., "Churning apparatus," 12th May, 1883.
- No. 16,847. A. Watson, Summerside, Prince Edward Island, "Truck flangers," 12th May, 1883.
- No. 16,848. M. T. Buchanan, Ingersoll, Ont., "Compound for reducing the friction of the cutting tool when cutting threads on bolts, etc.," 12th May, 1883.
- No. 16,849. H. Bond, Haverhill, Mass., assignee, "Heel burnishing tool," 12th May, 1883.
- No. 16,850. J. Milne, Hamilton, Ont., "Stop cock valve," (Extension of Patent No. 6785,) 12th May, 1883.
- No. 16,851. J. L. Whiting, Boston, Mass., "Brush," (Extension of patent No. 9017,) 12th May, 1883.
- No. 16,852. J. L. Whiting, Boston, Mass., "Brush," (Extension of Patent No. 9017,) 12th May, 1883.
- No. 16,853. The Imperial Oil Company, (Limited), Cleveland, Ohio, assignees, "Apparatus for distillation of oils," (Extension of Patent No. 9438,) 12th May, 1883.
- No. 16,854. The Imperial Oil Company, (Limited), Cleveland, Ohio, assignees, "Apparatus for distillation of oil," (Extension of Patent No. 9438,) 14th May, 1883.
- No. 16,855. D. W. Case, Bay City, Mich., "Steam vessels," 14th May, 1883.
- No. 16,856. J. B. Wilson, Phil., Penn., "Umbrella runners," 14th May, 1883.
- No. 16,857. A. St. C. Buxton, F. O. Ross, London, Eng., and J. E. Blenn, Cincinnati, Ohio, "Means for regulating the supply of water to house service pipes and cisterns," 14th May, 1883.
- No. 16,858. A. F. and F. B. Johnson, Brooklyn, N. Y., "Electric perforator," 14th May, 1883.
- No. 16,859. A. F. and F. B. Johnson, Brooklyn, N. Y., "Automatic printing telegraph," 14th May, 1883.
- No. 16,860. T. J. Graham, Mobile, Alabama, "Paper bag-holder," 14th May, 1883.
- No. 16,861. E. M. Cross, Syracuse, N.Y., "Belting," 14th May, 1883.
- No. 16,862. R. Williams, Boston, and W. Booker, Somerville, Mass., "Hoop pole sawing machine," 14th May, 1883.
- No. 16,863. E. A. Sperry, Cortland, N.Y., "Dynamo electric machine," 14th May, 1883.
- No. 16,864. J. O. and W. S. Wiener and E. L. Gould, Brantford, Ont., "Spring hoe," 14th May, 1883.
- No. 16,865. D. M. Poirier, Halifax, Que., "Creamers," 14th May, 1883.

No. 16,866. J. Haggas, Uxbridge, and W. Gooderham, Jr., Toronto, Ont., "Water elevator for locomotive," (Ext. of Pat. No. 8,827,) 14th May, 1883.

No. 16,867. J. Haggas, Uxbridge, and W. Gooderham, Jr., Toronto, Ont., "Water elevator for locomotive," (Ext. of Pat. No. 8,827.)

No. 16,868. A. M. Rosebrugh, Toronto, Ont., "Telephone signal," (Ext. of Patent No. 10,243) 15th May, 1883.

No. 16,869. A. M. Rosebrugh, Toronto, Ont., "Telephone signal," (Ext. of Pat. No. 10,242,) 16th May, 1883.

No. 16,870. W. F. Wilkins and J. T. Sawyer, Montreal, Que., "Washing machines," (Ext. of Pat. No. 8,840,) 18th May, 1883.

No. 16,871. C. C. Richmond, Boston, Mass., "Lamp burner," (Ext. of Pat. No. 8,800,) 19th May, 1883.

No. 16,872. C. C. Richmond, Boston, Mass., "Lamp burner," (Ext. of Pat. No. 8,800,) 19th May, 1883.

No. 16,873. E. V. Lapham, Morrison, Ill., "Seamless cheese cloth or bandage," (Ext. of Pat. No. 9,249) 22nd May, 1883.

No. 16,874. E. V. Lapham, Morrison, Ill., "Seamless cheese cloth or bandage," (Ext. of Pat. No. 9,294,) 23rd May, 1883.

No. 16,875. R. S. Whitman, D. H. Burrell and W. W. Whitman, Little Falls, N.Y., Assignees, "Milk vat," (Ext. of Pat. No. 9,455,) 23rd May, 1883.

No. 16,876. D. H. Burrell, J. H. Ives, R. S. Whitman and W. W. Whitman and D. H. Burrell, Little Falls, N.Y., "Hoop cutter," (Ext. of Pat. No. 9,485,) 23rd May, 1883.

No. 16,877. S. T. Wray, Buffalo, N.Y., "Polishing or buffing wheels," 23rd May, 1883.

No. 16,878. J. Dolbeer, San Francisco, Cal., "Logging engines," 23rd May, 1883.

No. 16,879. J. M. Collier, Atlanta, Georgia, "Grinding mill," 23rd May, 1883.

No. 16,880. C. K. Cordrey, Harrison, Ont., "Car-coupling," 23rd May, 1883.

No. 16,881. C. H. McCaw, and T. Brown, Port Perry, Ont., "Heater," (Ext. of Pat. No. 8,833,) 23rd May, 1883.