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The Canadian Patent Office

RECORD




Vol. XII.—No. 11.

NOVEMBER, 1884.

Price in Canada \$2.00 per An.
United States - \$2.50

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INVENTIONS PATENTED.

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

No. 20,310. Paper Flooring.

(Parquetage en Papier.)

Elijah B. Martindale, Indianapolis, Ind., U. S., 1st October, 1884; 5 years.

Claim.—A floor made of paper paste-board, straw-board, or boards, or blocks made wholly or partly of pulp cemented, pressed, dried, cut into strips, and laid down with the cut edge of the paper forming the face or surface of the floor.

No. 20,311. Grease Trap for Sinks.

(Réceptacle d'Evier pour Corps Gras.)

John Tucker, New York, N. Y., U. S., 1st October, 1884; 5 years.

Claim.—1st. A grease-trap or contrivance for preventing the flow of greasy matter into the waste-pipe, composed of a receiver or receptacle, which is connected to the orifice of the same and provided with an ascending discharge pipe or leg and with means, substantially as described, for conveying the liquid discharged in said receptacle down to the lower part of the same, whereby the particles of greasy matter, which are contained in such liquid, are carried down to the lower part of said receptacle and allowed to rise upward therein, and accumulate on the surface of the liquid in said receptacle, substantially as set forth. 2nd. The combination of a receptacle adapted to receive the greasy liquid from the sink, of means for affording a supply of cold water for keeping said receptacle cool, and of a suitable discharge or exit pipe leading upwardly from the bottom of said receptacle, substantially as set forth. 3rd. The combination, with a receptacle adapted to receive the greasy liquids from the sink, a water-jacket around the same, water-supply and discharge-pipes connected with the said water-jacket, and a discharge or exit-pipe leading upward from the bottom of said receptacle to the waste-pipe, substantially as set forth. 4th. The combination of a receptacle A adapted for cooling liquids from the sink, a water-jacket surrounding the same, a water-supply and discharge-pipe connected to said water-jacket, a pipe for supplying the greasy liquids to the lower part of the receptacle, and a discharge or exit-pipe leading upward from the bottom or lower part of said receptacle to the waste-pipe, substantially as set forth. 5th. The combination, with the receptacle A, of an upper end with the chamber P, and adapted to receive the contents of the sink, and is provided at its lower end with a circular plate or disk R, whereby, on removing said tube O with its bottom plate or disk R, the lower end of the tubular device L will first be closed up and, then, all of the removable parts will be lifted out of the vessel A for the purpose of removing from the latter the mass of collected grease, as hereinbefore set forth. 6th. The combination, with the receptacle A and the tube O, of the cup-like device or disk Q into which the lower end of said tube Q discharges, and from which the discharged liquid overflows, substantially as hereinbefore set forth.

No. 20,312. Means of Fastening Shoes on Horses.

(Moyens d'Assujétir les Pies à Cheval.)

James Kiteley, Norwich, Ont., 1st October, 1884; 5 years.

Claim.—The combination, with an ordinary horse shoe B, of light straps of iron C, C, passing crossways on the front of a horse's hoof

and attache I to the screw by screws and nuts D, in the manner and for the purposes specified.

No. 20,313. Upright Piano Action.

(Clavier de Piano Droit.)

Theodore A. Heintzman, Toronto, Ont., 1st October, 1884; 5 years.

Claim.—1st. In an upright piano, a key A having an upward projection e formed on its end to which the pilotte E is connected, and a downward bend f in the key on the other side of its pivot-point, substantially as and for the purpose specified. 2nd. A jack-lever B having an extension-piece F formed on it, substantially as and for the purpose specified. 3rd. A jack-lever B having an extension-piece F formed on it, in combination with the pilotte E connected to the key A, substantially as and for the purpose specified.

No. 20,314. Apparatus whereby the relative Motion of two or more Bodies may either be varied in any required manner independently of their Actual Motion or may be determined.

(Appareil par lequel le Mouvement de deux ou plusieurs Corps peut être soit Changé de toute manière voulue indépendamment de leur Mouvement Actuel, ou déterminé.)

Henry S. H. Shaw, Bristol, Eng., 1st October, 1884; 5 years.

Claim.—1st. The combination of sphere and roller mechanism, in which two sets of rollers in contact with the sphere have either axes of revolution in two diametral planes respectively perpendicular to each other, so that the sphere can only revolve about the intersection of these diametral planes as axes. 2nd. The combination of a sphere, with one or more rollers in one frame, and one or more rollers in another frame, by which the motion corresponding to derived from that of any external body is communicated to the sphere by means of one or more of the above rollers, and at the same time the consequent motion of another roller is altered independently in any required manner by the relative motion of the above frames, which moves relatively to the other and carries one of the two above sets of rollers. 3rd. The combination of a sphere, with two sets of rollers, one of which is connected with a screw or equivalent device by which independent motions corresponding to those of two moving bodies are communicated, one to the sphere and other to the screw axis of a roller driven by the sphere, so that the frame carrying one set of rollers always tend to move into a position which depends upon the relative motion or velocity ratio of the two moving bodies. 4th. The combination of a sphere and two sets of rollers, by which, if a certain definite motion be given to a roller or graduated wheel or disc in one set, a graduated wheel or roller in the same set is moved through a certain distance depending on the conjoint action of the first roller and of the screw axes of the second which later continuously alters the position of the second set of rollers and thus of the axis of rotation of the sphere. 5th. The combination of rods and swivel or cross joints, and screws suitably arranged in connection with one or more spheres and sets of rollers, so that numerical results are obtained with the sphere and roller mechanism, substantially as hereinbefore set forth and illustrated. 6th. The combination of any number of sets of sphere and roller mechanism, so as to obtain the resultant effect of any required number of variable quantities.

No. 20,315. Autographic Duplicating Register.

(Régistre à Copie.)

James C. Shoup, St. Louis, Mo., U. S., 1st October, 1884; 5 years.

Claim.—1st. A registering or recording apparatus in which a slip to be torn off or severed and issued in parts is fed forward, for tearing or severing by the movement of a record registry or copy slip to be preserved, substantially as set forth. 2nd. In a registering or recording apparatus, the combination of one or more dispensing spools or rollers, and a storing reel or roller, each mounted independently of the others, the dispensing spool being moved to give off a plurality

of slips by drawing the record or registry slips, substantially as described. 3rd. In a registering or recording apparatus, the combination of one or more dispensing spools or rollers, a storing spool or roller and gripping or feeding rollers mounted independently of each other, and moved simultaneously to give off a plurality of slips, and wind up one or more of them by moving the said storing spool or roller, substantially as described. 4th. In a registering or recording apparatus, the combination, with the independently mounted dispensing spools, storing spool and gripping rollers or wheels, of means for moving a transfer slip at right angles to the path of the slips travelling from the dispensing spools, substantially as described. 5th. In an automatic registering or recording apparatus, the combination, heretofore described, of the dispensing spools, galle rollers, grip or feed rollers and storing reel, all independently mounted in the frame, substantially as set forth. 6th. In a registering or recording apparatus, substantially as described. 7th. In a registering or recording apparatus, with the frame, of the removable independently mounted dispensing spools and means for locking the same in place, substantially as described. 7th. In a registering or recording apparatus, the combination, with the independently mounted dispensing and storing spools, of means for preventing too free running of the dispensing spools and backward movement of the slips, whereby a proper tension of the slips is maintained, substantially as described. 8th. In an autographic registering or recording apparatus, the combination of the dispensing spools, guide rolls, tablet or desk, gripping rollers, inclined window pane and storing reel, arranged to operate substantially as described.

No. 20,316. Picture Brace. (*Porte-Cadre*.)

Charles H. Gatchell and Gilbert W. Vanwart, Woodstock, N. B., 1st October, 1884; 5 years.

Claim.—1st. The adjustable clasps A, A, and their combination with a spring or slide D D, substantially as and for the purpose heretofore set forth. 2nd. The brace U, and its combination with a spring or slide D D, substantially as and for the purpose heretofore set forth.

No. 20,317. Car-Coupling. (*Accouplage de Chérs.*)

James C. Mitchell, James A. Smith and Alden R. Tinkham, Lancaster, N. H., U. S., 1st October, 1884; 5 years.

Claim.—1st. The draw-bar having the head and the link-pin, combined with the elevating pawl, pivoted at its upper end upon the link pin and resting at its lower end upon the inclined plane of the head, the said pawl having its face inclined downward and backward from the corner 3 to its lower end, whereby the link when striking the inclined face of the pawl is prevented from passing under the pawl without also lifting the link-pin in unison with it, substantially as described. 2nd. The draw-bar, its head and a lifting pawl adapted to lift the link-pin, combined with a link-pin provided at its front side with a web or spline to a point opposite where the link bears against the said pin, as shown, to strengthen the same in the direction of the greatest strain thereon, substantially as described. 3rd. The draw-bar, its head provided with the groove *e* and the link-pin, combined with the elevating pawl to operate, all substantially as described. 4th. The draw-bar, its head provided with the inclined plane, and the link-pin provided with a spline at its front side and extended thereon to a point opposite where the link meets, the link-pin and the elevating pawl *d* pivoted upon the said pin, combined with the rock shaft having arms *g, g* by which to lift the said pin, substantially as described.

No. 20,318. Machinery for Cutting Metal, &c. (*Appareil pour Couper le Métal, &c.*)

Joshua E. L. Bradeen, South Berwick, Me., U. S., 1st October, 1884; 5 years.

Claim.—The combination of the standard B, having the bed *c*, the lever A carrying the cutter *a* and fulcrumed to the standard B at *d*, the pedal lever D and links *l* connecting the lever D, and the lever A, all constructed, arranged and combined as and for the purpose set forth.

No. 20,319. Process and Apparatus for Annealing, Cleaning and Galvanizing Wire Continuously. (*Procédé et Appareil pour Recuire, Nettoyer et Galvaniser le Fil de Fer Continuellement.*)

Charles S. Hall, Calvin M. Whitecomb and William J. D'Ewart, Worcester, Mass., U. S., 1st October, 1884; 5 years.

Claim.—1st. In the art or process of annealing, cleaning and galvanizing or plating wire or wire-rods by a continuous operation, the improvement consisting in gradually cooling said wire or wire-rods after annealing and prior to introduction into the acid cleaning-bath, substantially as described. 2nd. In the art or process of annealing, cleaning and galvanizing or plating wire or wire-rods by a continuous operation, the improvement consisting in exposing the said wire or wire-rods to the atmosphere for a space of time sufficient to cool the same gradually before introducing them into the cleaning-bath, substantially as described. 3rd. In the process of annealing, cleaning and galvanizing or plating wire or wire-rods, continuously cooling said wire or wire-rods gradually until they are nearly or quite cold or at least considerably below an extreme black heat after the annealing and prior to the cleaning operation, by passing the same over suitable guide-rolls or their equivalents, so that they may be exposed to the action of the atmosphere, substantially as shown and described. 4th. The combination, with the annealing bath or furnace and the acid cleaning-bath, of means, as described, for gradually cooling the wire or wire-rods under treatment after annealing and previous to their introduction into said acid bath without interrupting the continuous process of annealing, cleaning and galvanizing, as set forth. 5th. The combination, with the annealing bath or furnace and acid cleaning-bath for carrying out the process of annealing, cleaning and galvanizing or plating wire or wire-rods continuously,

of two or more rolls or their equivalents for supporting and conducting said wire or wire-rods back and forth, so as to expose them to the action of the atmosphere between the annealing and cleaning operations, substantially as and for the purposes set forth.

No. 20,320. Reduction Machine.

(*Machine à Moudre.*)

The Case Manufacturing Company, (assignees of John M. Case,) Columbus, Ohio, U. S., 1st October, 1884; 5 years.

Claim.—1st. In a reduction-machine, the combination, with a pair of *roli* of a stationary grinding plate interposed between and extending above and below the horizontal plane of their axes, substantially as may for the purpose set forth. 2nd. In a reduction-machine, the combination, with a pair of rolls, of a stationary grinding-plate interposed between them, substantially in the manner set forth, and means for adjusting said stationary plate, so as to present different portions of its surface for action, as described. 3rd. In a gradual reduction machine, the combination of the casing, a pair of hopper spouts, a pair of grinding rolls, an interposed grinding plate and a pair of delivery spouts, all constructed and arranged, substantially as herein shown and described. 4th. In a grain-breaking or reducing machine, the combination of a pair of grinding rolls and a stationary grinding plate having parallel faces interposed between said rolls and extending above and below the horizontal plane of their axes. 5th. In a grain-breaking or reducing-machine, the combination, with a pair of rolls and a grinding-plate interposed between the adjacent faces of said rolls and extending above and below the horizontal plane of their axes, of means for adjusting said plate vertically, as set forth. 6th. In a grain-breaking or reducing-machine, the combination, with a pair of rolls, a grinding-plate interposed between said rolls and extending above and below the horizontal plane of their axes, and means for adjusting said plate vertically, of means for locking it in any position in which it may be set, as described. 7th. In a grain-breaking or reducing-machine, the combination, with a pair of grinding rolls and a stationary grinding-plate interposed between the adjacent faces of said rolls and extending above and below the horizontal plane of their axes, of means for adjusting the distance as under of the rolls. 8th. In a reducing-machine, the combination with two coils of a grinding-plate for use between them, constructed of a central frame and removable face or grinding-plates, as set forth. 9th. In a reduction-machine, the combination, with two rolls, of a grinding-plate for use between them, constructed of a central frame removable face or grinding-plates and suitable elastic packing interposed between said plates and frame, as set forth.

No. 20,321. Dynamo Electric Machine.

(*Machine Dynamo-Electrique.*)

Joshua Gray, Melford, Mass., U. S., 1st October, 1881; 5 years.

Claim.—1st. The method of operating dynamo, or magneto electric generators, which consists in causing the ir armatures and field-magnets to pass with a rolling motion in close proximity to, but out of contact with, each other, substantially as described. 2nd. The method of operating magneto, or dynamo electric machines, which consists in rotating and revolving the armature through the field of magnetic force, and in close proximity to, but not in contact with, the field-magnets. 3rd. In dynamo, or magneto electric generators, the combination, with the field-magnets or armatures and means for causing the field-magnets and armatures to pass each other with a rolling motion in close proximity to, but out of contact with, each other, substantially as described. 4th. The combination, in a magneto, or dynamo electric machine, of the field-magnets and armature and means for rotating and revolving said armatures in close proximity to but out of contact with, the field-magnets, substantially as described. 5th. The combination, with an external and internal field magnet, or pole, of rotating and revolving armatures, substantially as described. 6th. The combination, with an external and internal field magnet, or pole, of a series of rotating and revolving armatures and means for rotating the armatures and for collecting the current from the several armatures, substantially as described. 7th. The combination, with an external field-magnet, of a series of armatures revolving inside the magnet and an internal field-magnet loose upon its supporting-shaft, substantially as described. 8th. The combination, with the magnets having polar extensions and the cylinder attached thereto forming the external field of the internal field-magnet and net, the rotating and revolving armatures the commutators and the collecting brushes and rings, substantially as described. 9th. The combination of a frame supporting the electro magnets and cylinder forming the external pole, of a shaft supporting the internal pole and carrying the armature supporting pieces or plates, and a gear-plate for rotating the armatures, substantially as described. 10th. The combination, with the external field magnet, the internal field-magnet, the rotating and revolving armatures and means for rotating and revolving the same, of the commutators, collecting brushes and rings M, M, and of the rings O, O, and brushes P, P, substantially as described.

No. 20,322. Machinery for Finishing Boot-Legs, or other Seams. (*Appareils pour Finir les Tiges des Bottes ou autres Coutures.*)

Louis H. Allen, Farmington, N. H., U. S., 1st October, 1884; 5 years.

Claim.—In combination with two rollers A and B and their mechanism, as described, for revolving them at different rates of speed, and with the pressure spring and lever of the upper of said rollers, mechanism, substantially as set forth, for causing the gear in worm of the upper roller to rise and fall in unison with the gear in engagement with it and fixed on the shaft of the said roller, such mechanism consisting of the lever H, the slide I and the two pivoted boxes *q, r*, all being arranged and adapted substantially in manner and to operate as represented.

No. 20,323. Water Heater. (Réchauffeur d'Eau.)

Marmaduke Matthews, Toronto, Ont., 1st October, 1884; 5 years.

Claim.—1st. A burner A, provided with the air-tube *a*, and wick *c*, in combination with the deflector B and flue or chimney C carried through the boiler E, substantially as and for the purpose specified. 2nd. A burner A, provided with an air-tube *a*, arranged to support a perforated deflector B, in combination with the deflector D, arranged substantially as and for the purpose specified. 3rd. A burner A, provided with a flue or chimney C passing through a boiler E, in combination with the coil F supported over the flue C and connected to the boiler E, substantially as and for the purpose specified.

No. 20,324. Spring Tooth Harrow. (Herse à Dents Élastiques.)

(Herse à Dents Élastiques.)

Thoms Gray, Oshawa, Ont., 1st October, 1884; 5 years.

Claim.—1st. In spring tooth harrows, a harrow frame with tooth supporting bars extending outside the frame, and said bars or beams carrying with both inside and outside the frame, substantially as and for the purpose shown. 2nd. A harrow frame carrying and supporting tooth bars or beams that will tilt or raise for the purpose of adjusting the teeth for deep or light work, substantially as and for the purpose shown. 3rd. A spring tooth with an offset or angle at one end, so adjusted as to fit the frame or bar it may be attached to, for the purpose of holding said tooth in proper position, substantially as and for the purpose shown. 4th. A spring harrow tooth thickened from the front back at the point or end that works in the ground, substantially as and for the purpose shown. 5th. A spring harrow tooth having its bow or curved part above, below and behind its connection with the bar or frame it is attached to, substantially as and for the purpose shown. 6th. The combination of the spring tooth and socket, said socket to receive a portion or part of the tooth, together with a part of the tooth bar or frame, and all the said parts to be securely fastened by means of one or more wedges or keys, substantially as and for the purpose shown.

No. 20,325. Cash and Parcel Carrier. (Système de Transport de la Monnaie et des Paquets.)

(Système de Transport de la Monnaie et des Paquets.)

Herbert L. Randale, (co-inventor with William H. Jones,) Montreal, Que., 1st October, 1884; 5 years.

Claim.—1st. The combination of the tube G having openings *a* 2 and *b* 2, tube H having openings *c*, *b* 2, straps *d*, levers *i* and pawl *h*, boxes *a* having projections *K* 1 with pulleys L, M, and band K having projections N, the whole substantially as described. 2nd. The combination of the tubes G and H, provided with slots I, openings *b*, *a* 2, *c*, *b* 2, as described, pulleys L, M and *h*, band K having projections N and springs *m*, traps *d*, operated as described, and with box *a*, the whole substantially as described. 3rd. The combination of the tube G having openings *b*, *a* 2, tube H having openings *c*, *b* 2 and traps *d*, constructed as described and shown, with box *a*, operated as described, and platform *n*, the whole constructed and arranged substantially as described. 4th. The combination in a tube, as described, provided with traps, as described, and with levers *i* and pawls *h*, arranged as described, with boxes *a* provided with grooves *p*, *q*, *r* and projections *k*, the whole constructed, arranged and operated substantially as described.

No. 20,326. Carpenter's Gauge. (Trusquin.)

George S. Forrest and Philip Pethick, Concord, N.H., U.S., 1st October, 1884; 5 years.

Claim.—1st. In a carpenter's gauge, the combination of the gauge-bar A having at either end the marking points B projecting from opposite sides thereof, with the double headed slide D provided with the thumb screw E, operating substantially as and for the purpose set forth. 2nd. In a carpenter's gauge consisting of a gauge bar having suitable marking-points, and a movable head provided with a thumb screw for setting the same, the adjustable tongues D, D' having marking-brads B₁, B₁ for use as a gauge fitted to grooves in said gauge-bar, and a movable head forming ways upon which said head may move, substantially in the manner and for the purpose set forth. 3rd. In a carpenter's gauge consisting of a gauge-bar having suitable marking-points, and a movable head provided with a thumb-screw for setting the same, the adjustable tongues D, D' having marking-brads B₁, B₁ for use as a gauge fitted to grooves in said gauge-bar, and a movable head B secured within the grooves in said head and bearing against said tongues D, D', substantially as and for the purpose set forth. 4th. In a carpenter's gauge consisting of a gauge-bar having suitable marking-points, and a movable head provided with a thumb screw for setting the same, the adjustable tongues D, D' having marking-brads B₁, B₁ for use as a gauge fitted to grooves in said gauge bar, and a movable head B, fastened upon which said head may move and suitable springs to secure the grooves in the movable head, substantially as described, and for the purpose specified. 5th. In a carpenter's gauge, the combination, with one or more marking-brads, of the set pin C acting against said brads for the purpose of holding them in position, constructed and operated substantially in the manner described and set forth. 6th. In a carpenter's gauge the following combination, the adjustable tongue-bar A having grooves *a*, *a* 1, the adjustable tongues D, D' and tongue *d* having marking-brads B₁, B₁, with the movable head F, and the marking-brads, all constructed and operated substantially in the manner and for the purpose specified.

No. 20,327. Automatic Grain Binder. (Lieuse Automatique à Grain.)

(Lieuse Automatique à Grain.)

The Massey Manufacturing Company, Toronto, Ont. (assignee of William N. Whitely, Springfield, Ohio, U. S.), 1st October, 1884; 5 years.

Claim.—1st. A butt rake 2 located on the elevator frame, and butt board 1 working in line with the deck platform of binding devices, but independent thereof. 2nd. A butt rake 2 connected with the butt board by a link 13, and carried on and driven by a crank 4 located on the elevator frame independent of the binder platform, as set forth and described. 3rd. The butt rake 2 and driving rake 4, with the shaft 5 and bevel-gear 6, in combination with combined bracket and pipe-box 7, which holds all in place on the elevator frame. 4th. A butt rake mounted above the binder deck or platform, in combination with a relief rake at the foot of the elevator and shafts 5, 13 and 16, whereby said rakes are driven by the same shafts, substantially as set forth. 5th. The shafts 16, in bearings at the front and rear ends of the machine, and receiving power at its rear end from the prime mover, combined with the shafts 5 and 13, actuated by said shaft 16, the butt rake 2, relief rake F and reel G, driven by chain from shaft 13, all actuated by power transmitted by said shaft 16. 6th. A head relief rake located over the binder table between the rear end of binder and needle arm, in combination with the packing and knotting devices. 7th. The head rake 18 located on top and at the rear of binder above the inflowing grain, mounted on and driven by a crank, substantially as shown and described. 8th. A head rake located above the binder platform and inflowing grain, in combination with the crank whereon the said rake is carried, and the driving chain and cog-gear engaged with the packer-shaft, for the purpose set forth. 9th. A butt rake, in combination with a grain-binding device. 10th. A head rake, butt rake and relief rake, in combination with binding device and harvester. 11th. A head rake, in combination with a grain-binding device. 12th. A head rake formed like a hand with fingers, in combination with mechanism arranged to operate the head rake, so that it shall sweep the grain like a human hand. 13th. The grain-binding mechanism, longitudinally adjustable upon the harvester machine, combined with a head rake mounted on said binder, so as to move with it when shifting back and forth. 14th. The grain-binding mechanism, longitudinally adjustable upon the harvester and provided with a head rake mounted upon the binder and movable therewith, in combination with a butt rake mounted upon the frame of the elevator and independent of the binder, as set forth. 15th. In an automatic grain-binder longitudinally adjustable on the harvester in combination with the automatic grain packers of said binders working beneath the platform and nearer the butts of the grain, a butt rake located over and close to the binder platform, but entirely independent thereof, for the purpose of clearing the elevator butts and raking the grain over the binding table. 16th. In an automatic grain-binder and in combination with devices for placing the band and securing the ends of the same, the packers working upwardly through the platform, a head rake mounted above the platform and inflowing grain, and a butt rake arranged and operating substantially as set forth. 17th. In an automatic grain-binder, longitudinally adjustable on the harvester and in combination with the devices against which the grain is compressed, the packers working from below upwardly through the platform of the binder, a head rake mounted on said binder above the platform and inflowing grain, said packer and head rake being movable with the binder and a rake mounted on the frame of the elevator independent of the binder butt, substantially as set forth. 18th. An automatic grain-binder longitudinally adjustable upon the harvester, and provided with a butt rake independent of the binder, and a head rake carried on and moving with said binder, combined with a shield cover in two parts, one part attached to and moving with the binder, the other part rigidly attached to the harvester and arranged substantially as set forth. 19th. The automatic binder longitudinally adjustable on the harvester, provided with the shield 47, attached to and movable with said binder, combined with the stationary shield 42 and butt board 1, both mounted upon the stationary elevator frame. 20th. The head rake and its crank-shaft 21 combined with packer crank shaft 26, the standard 23 and the sprocket-wheels and connecting chains, whereby the head rake is actuated by the packer-shaft, as set forth. 21st. The shafts 21 and 26, with their sprocket wheels and the connecting chain, the extensible standard 23 combined with clamping bolt, eccentric or cam washer 26 and stud 37, by which the said extensible standard 23, combined with clamping bolt, eccentric or cam washer 26, and stud 37, by which the said extensible standard is held securely in adjustment, as set forth. 22nd. The extensible standard 23, made in two parts, capable of longitudinal motion upon each other, combined with eccentric or cam washer 36 attached to and moving with one part, and the stud 37 attached to and moving with the other part, as and for the purpose set forth. 23rd. The braces 33, fastened at one end to the rear sill and near the other, and supported by the rear elevator post 39, with slotted holes for the fastening bolts and a seat for the hub of wheel 32, thereby forming and adjustable support for the rear end of the packer shaft. 24th. The bracket 38, with seat arm bolted on the rear elevator post 39, making a combined support for the twine box 41 and packer-shape brace 33. 25th. The wheel 32 provided with a hub having flanges to retain it in its seat in the brace 33, combined with a longitudinally-grooved shaft 31, and the sliding gib key 34, whereby the said shaft may turn the said wheel while moving endwise without moving said wheel from its plane. 26th. The driving-wheel 34, the driving chain and train of sprocket-wheels driven thereby, and the idler combined with the cranked axle, whereby said idler may be adjusted, as desired.

No. 20,328. Hanger for Sliding Doors. (Ferrure pour Portes en Coulisse.)

(Ferrure pour Portes en Coulisse.)

Benjamin J. Cloes, Lake Bluff, and Charles B. George, Waukegan, Ill., U.S., 1st October, 1884; 5 years.

Claim.—1st. In a hanger for sliding doors, the combination of two angle-irons secured one to the upper part of the door and the other to the wall of the structure above the door in reverse order and overlapping each other, whereby the horizontal portion of the one attached to the door lies above the horizontal portion of the one at-

tached to the wall, and loose balls or rollers E between the horizontal portions of the said angle-irons and in frictional contact with each of them, substantially as described. 2nd. A hanger for sliding-doors, comprising the angle-irons B and C, the one secured to the upper part of the door and the other to the wall of the structure above the door in reverse order and overlapping each other, in combination with the loose balls or rollers E resting on the angle-iron C and supporting the angle-iron B, said angle-irons being provided with stops to limit the movement of the balls or rollers, substantially as described. 3rd. The combination, with a wall and sliding door, of the ball or balls confined in sockets equal or essentially equal in length to the distance travelled by the balls in the operation of the door, substantially as described.

No. 20,329. Hydro-Carbon Furnace for Steam Boilers. (*Foyer à Hydrocarbures pour Chaudières à Vapeur.*)

Albert H. Shipman, Rochester, N. Y., U. S., 3rd October, 1884; 5 years.

Claim.—1st. The combination, with a steam boiler, of an oil reservoir, a steam oil atomizing jet, an oil conduit, a steam supply-pipe and a steam regulator operating to vary or cut off the supply of steam from the boiler to the atomizer, substantially as and for the purposes set forth. 2nd. The combination, with a steam boiler, of an oil reservoir, a steam oil atomizing jet, an oil conduit and a steam-supply regulator, through which the steam passes on its way from the boiler to the atomizer, substantially as described.

No. 20,330. Locomotive Head Light.

(*Lanterne de Locomotive.*)

Alexander H. Handlan, Jr., St. Louis, Mo., U. S., 3rd October, 1884; 5 years.

Claim.—1st. A locomotive head-light provided with a rim having an upward extension at top, and a signal chamber within said extension, and front and side signal plate openings into said chamber, the signal chamber receiving its light wholly through the semaphore chamber, as set forth. 2nd. In a locomotive head-light, the combination, with a body A and a reflector C, of a rim B having an extension B₁ formed by front plate b, rear plate b₁ and broad connecting band B₂ extending over the signal chamber being formed by said extension and having front and side signal plate openings and receiving its light through the semaphore chamber, as set forth. 3rd. A locomotive head-light having a rim with a broad flattened extension at top, providing a signal chamber E within the rim between the body of the lantern and the front plate of the rim in close proximity to the reflector, and provided with front signal plates and side signal plates illuminated by light passing through the semaphore chamber, as set forth. 4th. The combination, with a locomotive head-light with the body having an extended rim, and the chamber E within the rim having front and side openings, and into which the light shines, of the frames H located in the openings to receive the glasses J and signal plates, and the removable adjustable plates holding the glasses in the frames, substantially as shown and described. 5th. In combination with a head-light case having signal openings, the frame H having flanges h, signal plates and clamp plates I removably and adjustably secured to the frame having slots I₁ and set-screw K, as set forth. 6th. A locomotive head-light provided with a removable or changeable number plates, for the purpose set forth. 7th. The combination, in a locomotive head-light, of removable frame or frames G containing removable or interchangeable stencil or number plates F, for the purpose set forth. 8th. The combination with a locomotive head-light, of removable frame or frames G containing number plates F movable in the frame, and blank plate or plates F₁ removable or interchangeable in the frame, for the purpose set forth.

No. 20,331. Clay Pigeon. (*Pigeon d'Argile.*)

The Ligowsky Clay Pigeon Company (assignee of George Ligowsky), Cincinnati, Ohio, U. S., 3rd October, 1884; 15 years.

Claim.—1st. A concave saucer, or cup-shaped flying-target, formed as a thin shell of clay or similar material suitably hardened, without slot or tongue or projection, substantially as and for the purpose specified as a new article of manufacture. 2nd. A concave saucer, or cup-shaped flying target having a peripheral rim of uniform thickness, circumferentially and without slot or tongue, or provision for the attachment of a tongue or extraneous or special handle for propulsion, or which might constitute an impediment to the axial rotation of the target, substantially as described. 3rd. For application to a tongueless target, a bar, wire, or plate having a projecting tongue, and suitably bent or curved to fit snugly around, within or over said target, and to grasp the latter by frictional contact with its walls, substantially as described. 4th. For application to a tongueless target, a spring bar, wire or plate of whatever material, suitably bent or curved to fit snugly around, within or over said target, and having a projecting tongue that is grasped by the jaw or clamp of the trap, substantially as described. 5th. For application to a tongueless target, a spring bar, wire, or plate of whatever material, suitably bent or curved to fit snugly around, within or over said target, and having an integral projecting tongue that is grasped by the jaw or clamp of the trap, substantially as described. 6th. For application to a tongueless target, the spring bar, wire or plate K suitably bent or curved to fit snugly around, within or over said target, said spring being provided at its ends L, L₁, and having at or near its mid-length a projecting tongue N that is grasped by the jaw or clamp of the trap, as herein described. 7th. The application to a tongueless target, the spring bar, wire or plate K, suitably bent or curved to fit snugly around, within or over said target, said spring being provided at its ends with hooks L, L₁, and having at or near its mid-length a projecting tongue N that is integral with said spring, and is grasped by the jaw or clamp of the trap, as herein described. 8th. In combination with a concave tongueless target, the spring bar, wire or plate K suitably bent to fit snugly within the rim of said target, said spring being provided with hooks L, L₁ and having a projecting tongue N, that is grasped by the jaw or clamp of the trap, as herein described. 9th. In combination

with a concave, tongueless target, a spring bar, wire or plate suitably bent to fit snugly around, within or over said target, the spring having a projecting tongue that is grasped by the jaw or clamp of the trap, substantially as described. 10th. The combination with a frangible flying target, of an expanding spring inserted within the periphery of said target and adapted to assist in its complete disruption when struck by shot.

No. 20,332. Valve Gear for Steam Engines. (*Distribution par Tiroirs pour Machines à Vapeur.*)

Leon B. Carricaburn, New York, N.Y., U. S., 3rd October, 1884; 5 years.

Claim.—1st. The combination, with the valve, the stem rocker lever and collar or tappet, of cams movably connected with the rocker lever and acting with the collar to complete the movement of the rocker and valve after the stroke of the engine has been completed, and the piston commences to move in the other direction, substantially as set forth. 2nd. In an engine valve motion, the combination with the rocker lever, of two cams pivoted to the rocker lever near its ends, and swinging freely by pressure from the collar or tappet when approaching the end of the stroke and falling behind the collar, so as to complete the movement of the valve after the piston commences to move in the reverse direction, substantially as specified. 3rd. The combination, with the valve and rocker lever, of two cams introduced into mortises in the rocker lever, pivots and springs for said cams, substantially as set forth. 4th. The combination, with the steam piston, piston rod and direct acting mechanism for moving the valve, of a valve having one or more small ports that coincide with similar ports passing into the steam cylinder at the time that the valve covers both the ordinary steam ports, substantially as and for the purposes set forth.

No. 20,333. Device for Opening and Closing Windows, Blinds and Shutters. (*Appareil pour Ouvrir et Fermer les Croisées, Persiennes et Contrevents.*)

Ferdinand A. Aubé dit Trudeau, Newburyport, Mass., U. S., 6th October, 1884; 5 years.

Claim.—1st. A device for opening and closing outside window blinds or shutters, consisting mainly of a bracket having the back a, shelf b and cover c, the gear wheels d and e, arm f, arranged to turn the shutter, shank h, crank i with its sliding bolt k and the plate j with its bolt holes l, substantially as herein shown and described. 2nd. The combination of an outside window blind or shutter, with a device operated from the inside of the house, for opening and closing such blind or shutter, substantially as and for the purpose herein shown and described.

No. 20,334. Refrigerator. (*Réfrigérateur.*)

Joseph F. Haurahan, and James Gordon, Ottawa, Ont., 6th October, 1884; 15 years.

Claim.—1st. The combination of an ice chamber, and a refrigerating chamber, the former provided with pipe J, at its top, and wing partitions N, forming air passages O, entering the refrigerating chamber, both chambers connected by a pipe I, leading from the top of the refrigerating chamber into the side of the ice chamber, near its top, as set forth. 2nd. The combination of an ice chamber and a refrigerating chamber, connected by apertures K, provided with doors and passages O, formed by wing partitions N, in the ice chamber, the ice chamber having pipe J, at its top, and connected to the refrigerating chamber by pipe I, leading from the top of the refrigerating chamber into the side of the ice chamber, near its top, as set forth. 3rd. The combination with a building or vessel, or forming part thereof, of an ice chamber and a refrigerating chamber, the former having a pipe J, at its top, and wing partitions N, forming air passages O, connecting with the refrigerating chamber, and pipe I, leading from the top of the refrigerating chamber into the side of the ice chamber, near its top, as set forth. 4th. The combination of an ice chamber, building or vessel, or forming part thereof, of an elevated ice chamber having pipe J, at its top, and partition wings N, forming air passages O, connecting with pipe P, descending into a refrigerating chamber at or near its floor, said chambers connected by pipe I, leading from the top of the refrigerating chamber, into the side of the ice chamber, near its top, as set forth.

No. 20,035. Manufacture of Carbon Electrodes or Pencils for Electric Illumination. (*Fabrication des Electrodes de Charbon ou Crayons pour l'Eclairage Electrique.*)

John A. Moffitt, Arlington, Mass., U. S., and James G. Foster, Halifax, U.S., 6th October, 1884; 5 years.

Claim.—An electrode or electric light conductor, or carbon pencil, or candle, composed of carbon, infusorial earth, or diatomaceae, and a binding vehicle, mixed or combined and desiccated as described.

No. 20,336. Machine for Cutting Holes through Ice. (*Machine pour Pratiquer les Trous dans la Glace.*)

Rufus Fitzgerald, Nashua, N.H., U.S., 9th October, 1884; 5 years.

Claim.—1st. In a machine for cutting holes through ice, a cylinder provided with means, whereby it may be rotated, and with curved cutter-stocks B having cutter-blades and depressed surfaces c₁ on rear of the blades, substantially as and for the purpose described. 2nd. Cylinder A, provided with cutter-stocks and cutting-blades, the cutting stocks having their under surface flush with the lower end of the cylinder, and affording around the cylinder A continuous bearing

upon the ice in the act of use, except at the point of delivery of the cut ice upon the cutter-blades and stocks, substantially as and for the purpose described. 3rd. The platform D, in combination with cylinder A1, provided with cutting-blades, whereby the cylinder and its cutting-blades are held in working position in the act of cutting a hole through ice, substantially as described.

No. 20,337. Attachment for Reins, &c.

(*Acroche-Guides. &c.*)

Joseph Lépine, Montreal, and Joseph A. Riendeau, Longueuil, Que., 9th October, 1884; 5 years.

Claim.—1st. In the construction of a clasp, the combination of a suitable attaching end C, sides A, bridge-piece D having flange I, bridge-pieces D and F, tongue I and end of strap K, constructed and arranged substantially as described. 2nd. In the construction of a clasp, the combination of a suitable attaching end C, sides A, bridge-pieces B, bridge-piece E having projection G, bridge-piece F having tongue I and bridge-piece D, the whole constructed and arranged substantially as described.

No. 20,338. Method of and Means for Finishing Photographic Pictures. (*Méthode et Moyens pour Finir les Images Photographiques.*)

Nathan L. Stone, Potsdam, N.Y., U.S., 9th October, 1884; 5 years.

Claim. 1st. That method of finishing photographic pictures which consists in covering certain light portions of the figure, or of the figure and draperies, with some opaque substance, and then exposing the back-ground and the uncovered portions of the figure and draperies of the print or picture to the action of diffused light, thus darkening or softening the back-ground, and the uncovered portions of the figure and draperies at one operation, substantially as described. 2nd. That method of darkening or softening photographic prints or pictures, and printing in a new back-ground at one operation, which consists in placing a back-ground negative over the print or picture, covering certain light portions of the figure, or of the figure and draperies, with some opaque substance which may be applied to the back-ground negative, or to a transparent plate laid over the same, and then exposing the back-ground and the uncovered portions of the figure and draperies of the print or picture to the action of diffused light, substantially as described. 3rd. That method of forming ground-work for new figures or dresses and accessories, which consists in first printing the head of the figure and subsequently forming ground-work for a new figure by arranging a properly-shaped pattern over said head in correct relation to the same, and then exposing that portion of the print on which the new ground-work is to be formed to the action of the light, substantially as set forth. 4th. That method of forming ground-work for new figures or dresses, or for darkening the latter, which consists in placing a transparent plate over a photographic print, laying a cut-out, or pattern, in proper position over said print on said plate, then securing said pattern in place by a second transparent plate and finally exposing said print with its superposed plates and pattern to the action of the light, substantially as described. 5th. That method of rendering a photograph of a light or rough dress, dark and smooth in appearance, which consists in covering a photographic print with a pattern which is cut away, so as to expose only such dress, and then subjecting the exposed picture of the dress to the action of light to darken or smooth the same, substantially as set forth. 6th. A cut-out, or pattern, for forming ground-work for new figures in photographic prints, such pattern having a cut-away portion, conforming exactly in shape to the outline of the proposed new figures, substantially as described.

No. 20,339. Sheet Metal Fabric.

(*Toile en Lamé de Métal.*)

Israel Kinney, Windsor, Ont., 9th October, 1884; 5 years.

Claim.—1st. An open and stiffened sheet of metal formed by slitting the sheet, as described, and then bending the strips between the said slits out of the plane which they occupied in the original sheet, substantially as and for the purpose set forth. 2nd. A sheet of metal, slitted and fashioned, as described, galvanized or tinned after the metal is cut and put into shape, as set forth for the purpose specified. 3rd. A metallic fabric, constructed as described, and provided with feet steps or projections E, E, integral therewith, substantially as shown and described and for the purpose specified. 4th. A tube or column, constructed from a sheet of metal, slitted, and the strips between the slits distorted from their original position in the sheet to form openings, substantially as described. 5th. The combination of the sheet metal fabric, constructed, as described, with a rail or other suitable device placed on the top or in any desired position to stiffen said fabric, substantially as described. 6th. A fabric or column, constructed from a sheet of metal, slitted, in which the strips between the slits are cut tapering towards a given point, so that when these strips are distorted from their original position, the fabric or column will be strongest and heaviest at the point formed by the strips of the greatest width, substantially as set forth.

No. 20,340. Thistle Cutting Plough.

(*Charrue Coupant les Chardons.*)

Robert Hull, Otonabee, Ont., 9th October, 1884; 5 years.

Claim.—The thistle-cutting plate B, in combination with a mould board A of a plough, as and for the purpose specified.

No. 20,341. Piston Packing. (*Garniture de Piston.*)

James C. Farmer, Providence, R. I., and Robert A. Calder, Lyman, Mass., U.S., 9th October, 1884; 5 years.

Claim.—1st. The combination, with a stuffing box and piston rod, of a gland fitted to the outer end of the stuffing box and a thimble within said stuffing box, the outer end of which extends into said gland, said thimble being provided at its inner end with a grooved

flange provided with a packing ring, substantially as described. 2nd. The combination, with a stuffing box and piston rod, of a detachable gland fitted to the outer end of the stuffing box, a thimble within said stuffing box, the outer end of which extends into said gland, said thimble being provided at its inner end with a grooved flange provided with a packing ring, and an expansive spring interposed between said flange and the end of the steam cylinder, substantially as described.

No. 20,342. Button-Hole Attachment for Sewing Machines. (*Machine à Coudre faisant les Boutonnères.*)

Frederick Egge and Carl J. A. Sjöberg, Bridgeport, Ct., U.S., 9th October, 1884; 5 years.

Claim.—1st. In a button-hole sewing attachment for sewing machines, the oscillator having a yielding fulcrum and adapted to be vibrated and fed back and forth, substantially as set forth. 2nd. In a button-hole sewing attachment for sewing machines, the oscillator or cloth support having two racks and fulcrumed by means of two springs embracing said oscillator at each side, and adapted to be fed forward and backward by the action of an intermittently revolving pinion on said racks, in combination with means for shifting the normal position of the oscillator laterally, and throwing said pinion out of engagement with the rack, whereby a series of barring stitches may be made in different places in the fabric and across the end of the button-hole, substantially as set forth. 3rd. The pivoted fulcrum plate having spring arms adapted to constantly embrace the oscillator, and capable of being shifted around its pivotal point by the action of an eccentric, in combination with the devices for effecting the vibration and feeding of said oscillator, substantially as shown and described. 4th. The eccentric trippet and wheel having two long teeth and intermediate short teeth, all secured on the same short shaft, in combination with the pivoted plate having spring arms, the oscillator fulcrumed between said arms, and provided with stationary and adjustable push bars, pinion arranged between racks in the oscillator and the devices for continually revolving said pinion and for operating against the teeth in said wheel, whereby the oscillator is fed and the barring stitches formed, substantially as set forth. 5th. The combination of the rock shaft A adapted to be actuated by the vertically reciprocating needle-bar of a sewing machine, dog D depending from said shaft and operated by adjustable abutments, pivoted lever H having attached thereto spring pawls U T K, lever N, cut away to accommodate a wiper Q, secured on the same short shaft with the ratchet wheel R, pivoted plate Z having upwardly extending spring arms I wheel W having two long teeth and intermediate shorter teeth, eccentric X arranged between two diametrically opposite points of contact, of the plate Z, trippet G, said wheel eccentric and trippet being secured on the same short shaft, oscillator I fulcrumed between said spring arms and having at its forward portion racket slot J1, and at the rear clove-notched slot K1, pin T extending upward through the slot P in the lever N within the slot K1, and adjustably secured by means of set screw V, ratchet wheel M secured on the extremity of short shaft N1 pinion O1 also secured on said shaft and extending below the under surface of the ratchet and between the racks in the sides of the slot J1, and stationary and adjustable push-bars V1, B1 attached to the sides of the oscillator and adapted to act on the trippet, substantially as shown and set forth. 6th. The L shaped lever pivoted to the bed-plate and recessed at one extremity and vibrated by a wiper wheel revolving intermittently within said recess, in combination with the oscillator connected to the lever by a pin adjustable along elongated slots in said oscillator, and lever, whereby vibration is imparted to the oscillator and the throw of the same determined, substantially as set forth. 7th. The pivoted fulcrum plate carrying the oscillator and adapted to be moved to and fro by the action of an eccentric having two diametrically opposite points of contact with said plate, substantially as set forth and described. 8th. The lever H capable of being vibrated and carrying spring pawls adapted to operate the devices that effect the feeding and vibration of the oscillator, substantially as shown and described. 9th. In combination with the toothed wheel, having two long teeth and intermediate short teeth, and the trippet screwed in the same short shaft with said wheel, the pawl adapted to be reciprocated throughout the length of the short teeth and to thereby turn the wheel, in combination with the oscillator having arranged at the sides thereof push-bar adapted to abut against said trippet, and thereby turn the said wheel whereby said pawl may engage with the long teeth and by turning the wheel enable barring stitches to be made across the end of the button-hole, substantially as shown and specified.

No. 20,343. Detachable Hook. (*Crochet à Détente.*)

Hickman E. Foster, Décar, Ill., U.S., 9th October, 1884; 5 years.

Claim.—1st. The combination, with the hook body of the pivoted hook-mouth, the locking pawl and the spring for pressing said pawl into locked position, substantially as described. 2nd. The combination, with the hook-body, of the pivoted hook-mouth having a perforated and notched end, a perforated pawl and a locking-pin adapted to enter the perforations of said pawl and notched end, substantially as described. 3rd. The combination, with the hook-body, of a pivoted mouth having a perforated and notched end, a perforated pawl and a locking-pin adapted to pass across said hook-mouth and also to lock the parts in position, substantially as described. 4th. The combination, with the hook-body, of the pivoted hook-mouth having notched ends, the pawl, the locking-pin and a tripping cord connected to said locking-pin and to the pawl, substantially as described. 5th. The combination, with the hook-body, of the pivoted hook-mouth and hook-chain secured to the pin of the hook-body, and means for holding the mouth in position for use, substantially as described. 6th. The combination, with the hook-body, of the pivoted hook-mouth and means for holding the same in position for use, the hook-chain and locking-pin adapted to extend across said mouth and retain the chain therein, substantially as described. 7th. The combination, with the hook-body, of the pivoted hook-mouth having notched end, the pawl, the support and a swivel-joint between the hook-body and the support, whereby the hook may be allowed to turn freely upon its support, substantially as described.

No. 20,344. Breech Loading Fire-Arm.*(Arme à Feu Chargeant par la Culasse.)*

William H. Whitney, East Brookfield, Mass., U. S., 9th October, 1884; 5 years.

Claim.—1st. In a breech-loading fire-arm, a main-spring pivoted and inseparably connected with a link-joint, in combination with an external lever-piece distinct from the barrel-fastening, and cocking devices, and operated by hand, and means for applying power to said main-spring from said lever-piece, substantially as herein specified, whereby said main-spring may be wholly relieved from strain, at will, and is adapted to be cocked either automatically or from the trigger, as herein set forth. 2nd. In a double-barrelled fire-arm having the interior of its body-casting divided longitudinally by a vertical partition, a pair of pivoted main-springs arranged within the respective compartments, in combination with a single lever-piece pivoted to the sole of said body-casting for operation by hand, and a device common to both springs for transmitting power from said lever-piece to both main-springs simultaneously, substantially as herein specified for the purposes set forth. 3rd. The combination, substantially as herein specified, of a pivoted main-spring connected at its front end to a concealed firing-hammer, and constructed with a downwardly-projecting cam-wedge, with an external lever-piece pivoted below said main-spring and having a rigid arm provided with an anti-friction roller to engage with said cam-wedge when said lever-piece is operated to apply power to said main-spring preparatory to firing said lever-piece, being adapted to be retained in effective position by the co-action of the main-spring with said arm through said cam-wedge and roller, as set forth. 4th. The combination, substantially as herein specified, of a pivoted main-spring, a concealed firing-hammer, a spring-projected dog for holding said hammer in "cocked" condition, a trigger for tripping said dog and a spring applied to said pivoted main-spring for restoring the hammer to "cocked" condition when the main-spring is freed from tension, for the purposes set forth. 5th. The combination, substantially as herein specified, of a lever-piece, a main-spring put in tension by the movement of said lever-piece, a concealed firing-hammer to which said main-spring is connected, a spring-projected dog for holding said hammer normally in "cocked" condition, a trigger for tripping said dog and a spring for simultaneously restoring said hammer, and said lever-piece to normal condition when the latter is released.

No. 20,345. Thill and Pole Coupling.*(Armon de Limonière et de Limon.)*

Henry M. Holiday, Olivet, Mich., U. S., 9th October, 1884; 5 years.

Claim.—1st. In a coupling, as herein described, the pivoted cover C having top and side wings and recessed stationary portion D, with inner catches or projections *d* and draft-bar E, with recesses *e*, the parts being organized and combined, substantially as shown and for the purpose set forth. 2nd. In a thill-coupling, the socket or box D having an open top and end, and provided on its inner side with side projecting lugs *d*, having rear vertical ends and draft-bar E, with projecting portion *E* having side recesses *e* and cover C pivoted above the same, the parts being combined and organized, substantially as shown and for the purposes set forth.

No. 20,346. Fog Signal for Railways.*(Signal de Brume pour Routes.)*

George M. Garfoot, Carleton Place, Ont., 9th October, 1884; 5 years.

Claim.—1st. A fog signal provided with wedges or inclined planes on each end fore and aft, as shown and described and for the purpose set forth. 2nd. A fog signal provided with a fastener to fit between the ends of the rails at their junction, as shown, and described, and for the purpose set forth. 3rd. A fog signal provided with wedges or inclined planes on each end and having fasteners to fit between the ends of the rails and fish-plates, as shown and described and for the purposes set forth.

No. 20,347. Sewing Machine.*(Machine à Coudre.)*

John J. Wheat, Indianapolis, Ind., U. S., 9th October, 1884; 5 years.

Claim.—1st. The needle-bar movement, herein described, consisting of the combination and arrangement of a crank-rod connected at its upper end to a crank-wheel driven by a revolving shaft, and at its lower end to the short arm, of a bell-crank lever pivoted to the stationary arm at a point substantially midway between the revolving shaft and the lower end of the arm, the long arm of the bell-crank lever connected by a link to the central part of a short needle-bar, substantially as and for the purpose described. 2nd. The combination, with the needle-bar, of a crank-lever R, link connecting the long arm of the lever and the center of the needle-bar and means for rocking the crank-lever, substantially as described.

No. 20,348. Sewing Machine Table and Cover.
(Table et Couvercle de Machine à Coudre.)

John J. Wheat, Indianapolis, Ind., U. S., 9th October, 1884; 5 years.

Claim.—1st. A sewing-machine cover provided with a base box and an interior leaf, and hinged to the table T between the machine-head and the end of the table, which is recessed from such end to the hinge to allow the base to overlap the table sufficiently to support the former in position when thrown open, substantially as described. 2nd. The sewing-machine cover with its base hinged to the table and overlapping the latter so far as to be supported in position when open, substantially as described. 3rd. The combination of the table top, and cover having a box and base, the end of the latter being hinged to the top at a point within its outer edge, substantially as set forth.

No. 20,349. Plumber's Trap of Wrought Lead.
(Valve de Fosse d'Aisance en Plomb.)

Frederick N. Dubois, New York, N. Y., U. S., 10th October, 1884; 5 years.

Claim.—A plumber's trap of seamless soft metal, constructed with a series of seals or dips, substantially as set forth.

No. 20,350. Self-adjusting Millstone Iron.*(Anille Mobile de Meule.)*

George Summerton, San Francisco, Cal., U. S., 10th October, 1884; 5 years.

Claim.—1st. In a grinding mill, a self-adjusting non-revolving stone or disc opposed to the runner, and means for holding said non-revolving stone or disc in proper relation to the runner constructed to allow said stone or disc automatically to yield, so that the grinding or working faces are parallel with each other, as herein described. 2nd. In a grinding mill, the stone A having the central hub and shell or inque fixed within it, and the spindle D to which the inque is bolted fast. 3rd. In a grinding mill, the non-revolving disc fixed to the circular plate, the internal extensions with bearings at opposite sides, the interior cylinder with trunnions, and the intermediate cylinder with trunnions and bearings corresponding with those of the outer and inner cylinders. 4th. The cylinder with interior projections forming triangularly-arranged vertical channels, the segmental bearing or followers, the plates and adjusting wedges and the curved or spherical bearings interposed between the bearings and the plates. 5th. In a grinding mill, the revolving disc rigidly fixed to the driving spindle and the non-revolving disc supported, so as to have a universal adjusting movement, the regulating screws N, and the flexible gasket or apron V. 6th. The means for adjusting and holding the spindle in position, consisting of the ball and socket or spherical joint applied to the boxes or followers, as herein described.

No. 20,351. Carriage Hub and Axle.*(Mojeu et Essieu de Voiture.)*

Willis Jones, Brooklyn, N. Y., U. S., 10th October, 1884; 5 years.

Claim.—1st. The combination, substantially as hereinbefore set forth, with the axle D having the curved neck N and enlarged hollow arm B, of the hub A having the projection *b* and the collar C. 2nd. The combination, substantially as hereinbefore set forth, of the hollow cylindrical hub having the annular projection *a*, an axle having an enlarged arm and the screw-threaded plug P having shoulders *s* and flange *i*. 3rd. The combination, substantially as hereinbefore set forth, of a vehicle axle having its arm of a greater diameter than the thickness of its body, and having a neck between said arm and body of gradually increasing thickness from the body to the arm, a collar surrounding said neck, a hole formed longitudinally in said arm, a washer intervening between said neck and collar and the washers *s* and *v* respectively intervening between the extremity of said arm and projection *b* and between projection *b* and flange *i*. 4th. The combination, substantially as hereinbefore set forth, of the body of the axle D, the enlarged hollow arm B, the neck N, the collar C surrounding said neck, the intervening washer D, the screw-threaded hollow plug P, having shoulder *s* and flange *i*, the cap H and the washers *g* and *v* respectively intervening between the extremity of said arm and projection *b* and between projection *b* and flange *i*. 5th. The combination of the axle D, having the enlarged hollow arm B, the curved neck N and the slot X, with the hub A, substantially as described.

No. 20,352. Press for Printing in Colours.*(Presse pour Imprimer en Couleurs.)*

Donny E. Mack, Brooklyn, N. Y., U. S., 10th October, 1884; 5 years.

Claim.—1st. The cylindrical ink distributing drum, and the sectional lifters applied upon the end portions thereof, in combination with the composition inking rollers and the respective disks in the shafts of the same and the lifters at the sides of the form, whereby one ink distributing drum is employed to ink each of a plurality of composition inking rollers in different colours and the same are employed to the different portions of the types, substantially as specified. 2nd. The combination, with the inking rollers *h, k, l*, of the ink distributors *L, H*, the lifters *p, q, r*, and the disks *h, l, k, 1, k, 1, l, 1*, substantially as set forth. 3rd. The combination, with the inking drum L, of the segmental lifters *p, q, r*, the working rollers *r, s*, and the disks *h, l, k, 1*, substantially as specified, for distributing and working two vari-coloured inks upon the drum L, as set forth.

No. 20,353. Astragal or Glazing Bar for Holding and Securing Glass for Roof Lights and Windows.
(Astragal ou Listel pour Retenir et Assujétir les Verres des Jours en Plomb et des Fenêtres.)

William R. Lester, Glasgow, Scotland, 10th October, 1884; 5 years.

Claim.—An astragal consisting of a rolled bar of iron of inverted I-section, with the transverse web straight or curved, such bar having applied to it two strips of thin lead for holding down the glass and a sheath of zinc, iron, steel, copper or brass, as hereinbefore described.

No. 20,354. Scoop Water Wheel.*(Roue Hydraulique à Augets.)*

Samuel T. Martin, Chatham, Ont., 10th October, 1884; 5 years.

Claim.—The combination of the enclosing side I I, and the shoe J, substantially as and for the purposes hereinbefore set forth.

No. 20,355. Fire-Escape. (*Sauveur d'Incendie.*)

John Dittrick, James H. Chambers and George F. Cairns, Smith's Falls, Ont., 10th October, 1884; 5 years.

Claim.—1st. In combination with the train wheels D, G, H, I, shafts B, B₁, B₂ having drum E and fan J, the frame A, spring clutch O and sheers K, as set forth. 2nd. In combination with shafts B, carrying drum E, the clutch O to release the shafts for endwise movement, as described. 3rd. The sheers K provided with roller M and to carry cable F, in combination with frame A having drum E, train wheels D, G, H, I, shafts B, B₁, B₂ and fan J, as set forth.

No. 20,356. Paper Machine. (*Machinerie à Papier*)

Thomas P. Barry, Stillwater, and John E. Gage, Waterford, N. Y., U. S., 10th October, 1884; 5 years.

Claim.—1st. The combination of the stand C having slotted cross-head D, sliding block E, tension spring F and screw G, substantially as and for the purpose set forth. 2nd. The combination of the spring-actuated block E, lever H having bevelled front end H₁ and slotted rear end H₂, sliding block L L₁ and means for adjusting the same, bell-crank M, engaging block L₁, valve-rod O O₁ and valve R, substantially as and for the purpose shown and set forth. 3rd. The combination of the spring-actuated block E, lever H, cam I I₁, block L L₁ and means for adjusting the same, bell-crank M, valve-rod O O₁ and valve R, substantially as and for the purpose shown and set forth. 4th. The combination, with the driers of a paper machine, of the roll T journalled in fixed bearings, roll S journalled in sliding box or block E, cross-head U, spring F and means for adjusting the tension of the same, cam I I₁, lever H, adjustable slide L L₁, bell-crank M, valve-rod O O₁ and valve R, substantially as and for the purpose shown and set forth. 5th. The device or apparatus for regulating automatically the flow of steam to the driers of a paper machine, herein shown and described, the same consisting of the stand C having cross-head D, sliding block E, spring F and means for regulating the tension of the same, pivoted cam I I₁, lever H, constructed and arranged as described, sliding box or block L L₁ and means for adjusting the same, bell-crank M, valve-rod O O₁ and valve R, all constructed and combined to operate substantially in the manner and for the purpose shown and set forth.

No. 20,357. Thill Coupling. (*Arçon de Limonière*)

Henry H. Stevens, Colorado Springs, Col., U. S., 10th October, 1884; 5 years.

Claim.—1st. In a thill coupling, the draw bar or iron having the clip formed therewith, a plate C connecting the lower ends of the clip, said draw bar or iron having parallel arms E, E₁ in combination with the thill m fitted in position between the arms, and the leaf-spring having one end slotted to fit around the clip and the other end extending up and fitting around the end of the thill, as set forth. 2nd. In a thill coupling, the combination, with the draw bar or iron having outwardly-extending arms E, E₁, formed with eyes, a groove extending transversely through one of the eyes of the thill, having its front end formed cam-shaped and provided with an eye, a groove K through said eye and a, operating as set forth.

No. 20,358. Ventilating Apparatus.(*Appareil d'Aérage.*)

Levi J. Wing, Brooklyn, N. Y., U. S., 10th October, 1884; 5 years.

Claim.—1st. A ventilating fan having its blades curved transversely and spread from the inner to the outer end to produce an expanding pitch from the anterior to the posterior edges of the blades, in combination with a means for adjusting the angle of such blades relatively to the axis of the fan, as and for the purpose herein described. 2nd. In a ventilating fan, the combination of a hub E and fan blade D, curved in cross-section and spread from the inner to the outer end, with screw-shank d and jam-nut c, substantially as and for the purpose described. 3rd. The combination, with the adjustable pulley C, hub E and set-screws f, of the fan-blades and the detachable shaft C, hub E and set-screws f, as herein shown and described. 4th. In a ventilating fan, the combination, with the adjustable shaft C and with the fan blades and the detachable pulley fixed to said shaft, of the divided boxes or bearings B and set-screws b, as herein shown and described. 5th. In a ventilating fan, the combination, with the longitudinal adjustable shaft c and with the fan-blades and detachable pulley, fixed to said shaft, of the boxes or bearings B and set-screws b, the coils G, set-screws h, hub E and set-screws f, substantially as and for the purpose shown and described.

No. 20,359. Pump. (*Pompe.*)

Samuel H. Brooks, East Bethel, Vt., U. S., 10th October, 1884; 5 years.

Claim.—1st. The pump case A, having a valve b₂ pivoted to a thimble b located near the bottom of said case, and a detachable strainer fitted over and closing the lower end of the case, as set forth. 2nd. As an improved article of manufacture, a hand pump, consisting of a plunger, the case A provided with the adjustable hose nozzle holder e₂, holes 3 near the lower end of the case, the thimble b containing the valve b₂ and threaded to receive the stem d, the pipe C having the valve W therein, and the hose c connected with said pipe C, as set forth.

No. 20,360. Feed Guide for Printing Presses.(*Guide-Alimentateur pour Presses d'Imprimerie.*)

John Blocher, Franklin Grove, and Nathan Underwood, Jr., Dixon, Ill., U. S., 10th October, 1884; 5 years.

Claim.—1st. The combination, with a platen of a printing press, of a side guide adapted to move on the face of the platen toward the centre and side thereof, and connected to the gripping finger bar of the press by mechanism, substantially as described, whereby said

movement of the guide is rendered automatic, substantially as and for the purpose set forth. 2nd. The combination, with the platen of a printing press, of a pivoted side guide and a bar pivoted to the arm of said guide and also connected to the gripping finger bar of the press by means, substantially as described and for the purpose specified. 3rd. The combination, with a pivoted side guide and a bar pivoted to the arm thereof and connected to the gripping finger bar of the press, of bottom guides, the arms of which are pivoted to spring clumps adjustable upon a rod on the lower band of the platen, substantially as and for the purpose described. 4th. The side and bottom guides for a printing press provided with adjustable gage-heads carrying suitable tongues pivoted thereto, substantially as and for the purpose set forth.

No. 20,361. Treadle Attachment.(*Pose de Marche.*)

Harry B. Springstein, Atlanta, and Andrew J. Van Dwyer, Athens, Ga., U. S., 10th October, 1884; 5 years.

Claim.—In combination with the table A, hand wheel B, pitman C and treadle D of a sewing machine, the hand power attachment consisting of the straight lever E hinged directly to the table A at a point below its middle portion, pitman H connected to the pitman C and rule joint G connecting the parts E and H, which are so mounted and proportioned that the wrist-pin b is at its greatest throw in a horizontal plane, they will be in alignment, substantially as and for the purpose set forth.

No. 20,362. Steam Valve. (*Soupepe à Vapeur.*)

Thomas P. Barry, Stillwater, and John E. Gage, Waterford, N. Y., U. S., 10th October, 1884; 5 years.

Claim.—The combination of the valve-chest A B C, having parts a and C₁, valve-seat H made in one piece with the bottom C, of the valve-chest, and having parts h, h at right angles to part a, of the chest sliding valve, consisting of the sleeve K, yoke L L₁ L, shoulder M, and valve-stem E, and spring N projecting with its lower free end down into a circular recess in the top of the valve-chest adapted to fit shoulder M of the valve, substantially as and for the purpose herein shown and specified.

No. 20,363. Device for Opening and Closing Sliding Gates. (*Appareil pour Ouvrir et Fermer les Barrières en Coulisse.*)

Charles W. Jones, Currie's Crossing (assignee of John Lund, London Ont.), 10th October, 1884; 5 years.

Claim.—The combination of the guide rail I, attached to the top, bar and projecting beyond the rear end of the gate, and bearing upon grooved guide-rollers H and K, and held laterally by guide roller L, and the ropes or chains b, b the ends attached to the rail and latch and winding around drum D on a crank shaft bearing on posts C, G and G₁, the whole constructed and arranged to operate as set forth.

No. 20,364. Seam. (*Couture.*)

Charles C. Cobleigh, Boston, Mass., U. S., 11th October, 1884; 5 years.

Claim.—1st. A seam formed by uniting two sections of cloth or other material, and a stay by a row or series of stitches disposed near the edges of the same, then folding or pressing the edges of the cloth or other material down over their respective sections and the stay down upon the edges of the cloth or other material, and uniting each of said edges of the cloth to its section and to said stay by a row or series of stitches passing respectively through and through the same, substantially as described. 2nd. In a seam, by means of which two pieces or sections of cloth, or other material, are united, a stay which serves as a backing for one or more rows of the lateral stitches, and two or more rows of the vertical stitches, substantially as set forth. 3rd. In a seam, by means of which two pieces or sections of cloth or other material are united, the sections A, B, and stay C united by the lateral stitches x, the section B, edge d and stay C united by the vertical stitches t, and the section A, edge m and stay C united by the vertical stitches r, substantially as described. 4th. In a seam, by means of which two pieces or sections of cloth or other material are united, the sections A, B, and stay C united by the lateral stitches x, the section B, edge f, edge d and stay C united by the vertical stitches t, and the section A, edge m and stay C united by the vertical stitches r, substantially as set forth. 5th. In a seam, by means of which two pieces or sections of cloth or other material are united, the sections A, B and stay C united by the lateral stitches x, the section A, edge d and stay C united by the vertical stitches t and the section A, end m, end l and stay C united by the vertical stitches r, substantially as described. 6th. In a seam, by means of which two pieces or sections of cloth or other material are united, the sections A, B and stay C united by the lateral stitches x, the section B, edge d, edge f and stay C united by the vertical stitches t and the section A, edge m, edge l and stay C united by the vertical stitches r, substantially as set forth. 7th. In a seam, by means of which two pieces or sections of cloth or other material are united, the stay C having one of its edges secured to the sections A, B by the lateral stitches x and its opposite edge l folded in between its body and the edge m of section A and secured thereto by the vertical stitches r, substantially as described. 8th. In a seam, by means of which two pieces or sections of cloth or other material are united, the stay C having one of its edges secured to the sections A, B by the lateral stitches x, and its opposite edge l interposed between the edge m and section A and secured thereto by the vertical stitches r, substantially as set forth. 9th. In a seam by means of which two pieces or sections of cloth or other material are united, the stay C having one of its edges secured to the sections A, B by the lateral stitches x and its opposite edge l projecting onto or over the edge m and secured thereto by the vertical stitches r, substantially as described.

No. 20,365. Paint. (*Peinture.*)

John A. Shephard, Wooster, Ohio, U.S., 11th October, 1884; 5 years.

Claim.—1st. A compound of red lead oil and glycerine, substantially as described. 2nd. The compound, consisting of red lead, linseed oil, glycerine, japan and turpentine, substantially as described.

No. 20,366. Shaping Dice. (*Matrice.*)

Frank A. Iddings, Warren, Ohio, U.S., 11th October, 1884; 5 years.

Claim.—The combination, with grasping dies and a series of shaping dies arranged in pairs, each pair moving in planes at right angles to the other pair, and each die constructed to overlap or reach beyond the lines where the adjacent dies engage, the blank of an upsetting die, the face of which is constructed to overlap or reach beyond the line where the shaping dies engage the blank, as set forth.

No. 20,367. Table Fork or Spoon.(*Fourchette ou Cuiller de Table.*)

Theodore W. Foster, Providence, R.I., U.S., 11th October, 1884; 5 years.

Claim.—As a new article of manufacture, a gold-plated table fork or spoon consisting of a front plate of rolled-gold-plated stock, and a back plate of the same material joined to the front plate by means of an intervening filling of solder.

No. 20,368. Device for Closing and Opening Carriage Doors. (*Appareil pour Fermer et Ouvrir les Portières des Voitures.*)

Harvey W. Yonley, Denver, Col., U.S., 11th October, 1884; 5 years.

Claim.—1st. The combination, in a device for opening and closing carriage doors, of the foot lever I, hinged to the carriage-body, the draw-bars *a*, the levers H and hinges *h*, the push-bars *b*, the hinged levers F, the draw-bars E, the curved levers D, the draw-bars B and pins *d*, substantially as herein shown and specified for the purpose set forth. 2nd. The combination, substantially hereinbefore set forth, of the foot-levers I hinged to the carriage-body, of the draw-bars *a*, the levers H and hinges *h*, the hinged levers F, the draw-bars E, the curved levers C, the draw-bars B, the pins *d* securely attached to the carriage doors, as specified. 3rd. A device for unlatching carriage-doors consisting of the hinged hand-lever K, the push-bar L, the lever N pivoted at *n*, the draw-bar *m*, the strike-plate O, the stationary plate P, the pins *t*, and the springs P.P. as described and specified. 4th. The combination, in a device for opening and closing carriage-doors, of the hinge lever K, the push-bar L, the lever N pivoted at *n*, the draw-bar *m*, the spring P.P., the guide-pins *t*, the stationary plate T and the strike-plate O, thereby retaining and releasing the carriage-doors, as specified.

No. 20,369. Grapple. (*Grappin.*)

Albert Sanford, Oshkosh, Wis., U.S., 11th October, 1884; 5 years.

Claim.—1st. The combination, with the hooks of the casting having the inclined slots or recesses in which the hooks are pivoted, and formed with shoulders or straps *a*, *a*, and *a*, *a* for limiting the movement of the hooks, substantially as described. 2nd. The combination of the hooks, the castings having the slots, or recesses in which the hooks are pivoted and formed with the limiting straps or shoulders, as described, with the carrying band or ring and a universal joint connection between the casting and said band or ring, substantially as described. 3rd. The combination of the hooks, the casting to which the hooks are pivoted provided with the projecting eye at the top, the connecting bar having the lugs between which said eye is pivoted and the band or ring to which said connecting bar is swivelled, the whole constructed and arranged, substantially as described, and for the purpose specified.

No. 20,370. Windmill. (*Moulin à Vent.*)

John A. McMartin, Montreal, Que., 11th October, 1884; 5 years.

Claim.—1st. A wind-mill adapted to be automatically regulated and adapted in violent winds by means of a brake lever fulcrumed to the head or frame, and caused to act upon a friction wheel rigidly mounted upon the crank shaft, and operated by means, substantially such as shown, in combination with the tail having a brake and sector gear connected to the said brake, being adapted to fold in with the tail against the friction wheel, and the said sector gear to engage with the teeth of a similar sector gear connected to a weighted lever fulcrumed to the head, substantially in the manner and for the purposes described. 2nd. A wind-mill having its head formed with two bearings for the crank shaft upon one side of which is mounted a level-gear and upon the other side a friction wheel, in combination with a smaller bevel-gear journaled to the head which engages with the bevel-gear mounted upon the crank shaft and adapted to give motion to a governor and the brake lever, substantially in the manner and for the purposes set forth. 3rd. The socket K and tail K₁ having brake L and sector gear O fastened thereto or cast integral therewith, in combination with the sector gear O, lever P having weight R and arm Q, chain or cable *r*, arm M₂ and pulley M₃, substantially in the manner and for the purpose set forth. 4th. The combination, with the uprights C, C, of the hollow cap C₁ in which are inserted a series of vertical rollers *c*, *c*, substantially as and for the purposes set forth. 5th. The wind wheel B made up of sections and having its outer circumference dished forward, substantially in the manner and for the purposes herein set forth. 6th. The wind wheel B made up of sections, the blades of which are mortised, or otherwise securely fastened, in the rims V and W, the rim V being connected to the stays or spokes U by means of stays *u* and the outer rim W by means of the clamps or stays W₁, W₁ and bolts W₂, W₂, W₃, W₃, in combination with the said stays or spokes U and spider T, substantially in the manner and for the purposes described. 7th. The spider T having an annular flange *u* and extended arms T₁ formed with recesses *t* and dished forward, and in which the stays or spokes U are bolted,

in combination with the rims V and W in which are securely fastened the blades *a* of the wheel B, the whole being connected together, substantially in the manner and for the purpose described. 8th. The combination, with the hollow piston S₁ and piston rod *s*, of the clamp *s*, substantially as described. 9th. The combination, with the wind wheel B, of the adjustable weight U₁ adapted to grip the spoke or other suitable support, substantially in the manner and for the purposes described.

No. 20,371. Skating Sail. (*Vile à Patineur.*)

Cornelius H. Nelson, Sheppardtown, Miss., U.S., 11th October, 1884; 5 years.

Claim.—1st. In a skating-sail, adapted to be secured to the body of a skater, the folding or collapsible yards, substantially as set forth. 2nd. In a skating-sail, the combination, with the folding yards, of the sail secured thereto and adapted to fold with the same for transportation, substantially as set forth. 3rd. The combination, in a skating sail, of the folding main yard, the top-mast detachably seated upon the same, the folding top-sail yard, and the sail secured to the yards and adapted to fold therewith, substantially as and for the purpose set forth. 4th. In a skating-sail, the combination of the folding main-yard provided with a securing-cord by which it may be secured to the body of the skater, the top-mast removably seated upon the yard, the top-sail yard adapted to fold and connected with the top-mast, the sail secured to the yards and the folding bracing-strips detachably connected to the lower corners of the sail, whereby the same may be compactly folded and secured by the cord upon the main-yard, substantially as set forth. 5th. The combination, in a folding skating-sail, with the yard and with the sail secured upon the same and adapted to fold therewith, of the cord secured to the main yard and normally fastening the device upon the skater, said cord also serving to secure the device after it is folded, substantially as set forth. 6th. The combination, in a skating-sail, with the main-yard, the top-mast supported upon the same, and the top-sail yard connected with the top-mast, of the sail secured to the yards and comprising the main-sail and top-sail portions in one piece, substantially as set forth. 7th. The combination, in a skating-sail, with the corners of the sail and governing strips or rods secured to the lower corners of the sail and projecting up in front of the skater, substantially as and for the purpose set forth. 8th. The combination, in a skating-sail, of the main-yard provided with a central fastening-cord by which it is adapted to be fastened to the body of the skater, the sail secured to the yard and bracing-strips or rods secured to the lower corners of the sail and projecting up so as to be within reach of the skater, substantially as set forth. 9th. A skating-sail comprising a cross-yard having means for securing it to the body of the skater and a sail secured to the yard, substantially as set forth. 10th. The combination, in a skating-sail, of the mast, the yard connected thereby by a halyard, and the sail provided with a series of eyelets or perforations through which the halyard is passed at each revolution of the yard in reefing, substantially as set forth. 11th. The combination, in a skating-sail, of the main-yard, the mast supported upon the same and provided with the eye at its top, the top-said yard, the halyard secured to the latter yard and passing through the eye upon the mast, and the sail secured to the yards and provided with strips or rods connected to its lower corners by which it may be governed when in position upon the body of the skater, substantially as set forth. 12th. In a skating-sail, the combination with the joined yards carrying the sail, of the sliding sleeves upon the yards, the sleeves being adapted to brace the joints when the sail is set, substantially as set forth.

No. 20,372. Shoe Last. (*Forme à Chaussure.*)

George S. Nethercut, Geneva, Wis., U.S., 11th October, 1884; 5 years.

Claim.—1st. The combination, with the last-body, of the ball-sections secured to the said body about midway their ends by a pivotal connection and adapted to be rocked horizontally on said pivots, whereby the last may be adjusted to either rights or lefts, substantially as set forth. 2nd. The combination of the last-body, the toggled arms, the operating-screw and the ball-sections pivoted midway their ends on the toggled arms, whereby the said sections may be adjusted laterally or rocked horizontally on said pivots, substantially as and for the purposes set forth. 3rd. The combination, with the last-body provided with suitable threaded screw-support, of the operating-screw, the toggled arms swivelled at their meeting ends on the operating-screw, and the ball-sections provided with elongated openings near their opposite ends and pivoted midway their ends on the other ends of the toggled arms and adapted to be rocked horizontally, and suitable fastening-bolts passed through the openings in the ball-sections and connecting the latter to the last-body, whereby the said last may be adjusted to any width desired and adapted to rights or lefts, substantially as described and for the purposes specified. 4th. In a counter-last, the combination, with the last-body and the ball-sections secured thereto and adjustable, as described, of a toe-piece projected laterally from the toe end of the one of the sections at the inner edge of the latter, and adapted to rest on the other section and cover the intervening space when the sections are separated, substantially as and for the purposes set forth. 5th. The counter-last, substantially as described and shown, composed of the body, the operating-screw, the toggled arms, the ball-section having slots and secured to the body by bolts passed through the slots into the said body and pivoted on the ends of the toggled arms, one of said ball-sections being provided with a plate extended from its meeting edge over the space between the two sections and rested on the opposite section and forming a bearing-plate over the space between the sections at the toe of the last, all as and for the purposes specified.

No. 20,373. Machine for Holding Bags.(*Mechane pour Accrocher les Sacs.*)

Philip E. Ward, Kingston, Ont., 11th October, 1884; 5 years

Claim.—1st. The expanding frame K provided with lock device W, and sliding hinges *o*, *o*, substantially as and for the purpose hereinbefore set forth. 2nd. The frame K and carriage G, in combination

with the lever bouncing and bag settling movement, substantially as and for the purpose hereinbefore set forth. 3rd. A bag-holder consisting of the bag-holding frame K, carriage G, upright guide B, lever C and rope passing over the pulleys D and F, substantially as and for the purpose hereinbefore set forth.

No. 20,374. Harvester. (*Moissonneuse.*)

Jean B. Laporte and Hermase Larose, Verchères, Que., 11th October 1884; 5 years.

Reclame.—1o. Dans une moissonneuse mécanique, la roue a chaîne C attachée à la roue de traction A, et reliée par la chaîne c à la poulie à chaîne D arrangées de façon à mettre en opération un ascenseur pour emporter le grain abattu en dehors de l'action du couteau, tel que représenté et décrit. 2o. Dans une moissonneuse mécanique, le joint flexible ou poignet B qui sert d'accompagnement pour relier le cadre de l'engrenage avec la table à grain ou ascenseur A supporté par la roue mobile L, tel que décrit. 3o. Dans une moissonneuse mécanique, la courroie sans fins J de l'ascenseur bordée de petites chaînes à la bague ou arrangée de manière à passer sur les hérissons g et les poulies h, tel que décrit. 4o. Dans une moissonneuse mécanique, un ascenseur à chaîne A ayant un essieu E la poulie à chaîne D et le manchon d'embrayage d et son levier c, afin de pouvoir embrayer ou desembrayer la poulie à chaîne, tel que décrit. 5o. Dans une moissonneuse mécanique, l'essieu E sur lequel sont posés à demeure les hérissons g pour faire marcher la courroie sans fin J de l'ascenseur tel que décrit. 6o. Dans une moissonneuse mécanique, l'essieu E ayant la roue à chaîne F arrangée de manière à faire mouvoir par l'entremise de la chaîne f, la poulie à chaîne G sur l'essieu H et par celui-ci au moyen des hérissons j la courroie sans fin K du tablier latéral I, tel que décrit. 7o. La combinaison, avec un cadre d'engrenage d'une moissonneuse mécanique d'un ascenseur pour emporter le grain après qu'il a été coupé et d'un tablier pour le transporter de l'ascenseur à l'arrière de la machine tel que décrit et représenté.

No. 20,375. Machinery for the Manufacture of Screws, &c. (*Machine pour Fabriquer les Vis, &c.*)

John Sheldon, Birmingham, Eng., 13th October, 1884; 5 years.

Claim.—1st. In machinery for forming metallic screws and screw bolts, and other metallic articles having screw threads upon them, a pair of rolls rotating in the same direction and having on different portions of their acting surfaces projecting ribs or threads of the kind, and arranged as hereinbefore described and represented in the drawings, by the successive action of which projecting ribs or threads, a screw thread is formed on the blank or article in such a way that the displaced metal travels longitudinally and the screw thread made has a diameter not exceeding that of the blank or article operated upon. 2nd. The combination of a pair of impressing rolls, claimed in the first claim, with a spindle carrying the blank holding jaws or clams having an independent rotation in a direction contrary to that in which the rolls rotate, the said rolls and blank, or article, carried by the jaws or clams, rotating with the same surface velocity, substantially as hereinbefore described and illustrated in the accompanying drawings.

No. 20,376. Bird Cage. (*Cage d'Oiseau.*)

James W. Gregory, Ames, Iowa, U.S., 13th October, 1884; 5 years.

Claim.—1st. The combination, with the front lower edge of the case, of the series of teeth or serrations a adapted to perforate the floor-covering material, substantially as described. 2nd. The combination, with the door having a trough secured thereto and suitable opening or openings formed therein for access to said trough, of the slides arranged to open and close said opening or openings, substantially as described. 3rd. The combination, with the door and the slides secured thereto, of the spring having one end fixed to a permanent support, and the other end secured to the slides, said spring being arranged to close the door and draw the slides, substantially as described. 4th. In combination with a bird-cage, the guide-bars p for the feed-cup slide secured to the wall of the cage and having an opening formed between them in said wall, of a slide arranged to play between said bars and a shelf projecting from the slide for the support of the feed-cup and a recessed cleat p₁ for engaging with the upper end of the feed-cup, and a spring attached to the cleat and shelf, substantially as shown and for the purpose set forth.

No. 20,377. Cleaner for Gun Barrels.

(*Nettoyeur pour Canons de Fusils.*)

Joseph C. Petmerky, Austin, Texas, U.S., 13th October, 1884; 5 years.

Claim.—1st. A gun cleaner, consisting of two metallic tubes placed one inside the other and firmly united, and a circle of spring-scrapers having one end inserted between the tubes and held there. 2nd. A gun cleaner provided with spring-scrapers formed to fit the interior of the gun barrel, in combination with a sheath or case being provided with a ledge on its upper end which rests on the outer or muzzle end of the gun-barrel and holds the sheath while the cleaner is passed down the barrel. 3rd. A gun-cleaner having spring-scrapers for cleaning the inside of the barrel and provided with an extension near its upper end, in combination with a sheath or case provided with an exterior ledge for resting on the muzzle of the gun, and an interior ledge for engagement with the extension on the cleaner whereby the sheath is held at the muzzle of the gun while the cleaner is thrust into the barrel, and both cleaner and sheath are removed together, as and for the purpose set forth.

No. 20,378. Basket Splint Machine.

(*Machine à Eclisse de Vannerie.*)

Samuel Oakman, Melrose, Mass., U.S., 13th October, 1884; 5 years.

Claim.—In a machine for making wood splints, the combination of

the revolving cutter-head F₁ provided with knives having at their cutting edges a series of moulding members separated by intervening cutting through members, and the bed-plate H with the feed rolls N, B₃, and drag rolls X₁, B₁, all operating together substantially as described and for the purpose set forth.

No. 20,379. Sled. (*Trainau.*)

Emil Wagner and John Brandstetter, Cincinnati, Ohio, U.S., 13th October, 1884; 5 years.

Claim.—1st. In a sled, the combination of longitudinally-movable pushers projecting in rear of the sled, and locks to guide the pushers, arranged substantially as shown and described. 2nd. The combination, in a sled, of longitudinally movable pushers, locks and concave bearings R in which the pushers work, substantially as and for the purpose set forth. 3rd. The strap or spring S and hook h, arranged on each side of a sled for the purpose described. 4th. In combination with a sled A, rock-shaft E provided with weighted detents D cord d wound upon said shaft and provided with a ring and hook G adapted to receive the ring, as shown.

No. 20,380. Convertible Carriage.

(*Voiture Convertible.*)

Anthony K. Felton, Stayestown, Pa., U.S., 13th October, 1884; 5 years.

Claim.—1st. The combination, substantially as shown and described, of the front springs connected more or less immediately with the front axle, longitudinally movable timbers connected to a fixed carriage-body and carrying the said springs, fixed rear springs, and means to lock the parts in position, as and for the purpose set forth. 2nd. The springs C, C, clipped more or less directly over the front axle, and the springs E, E attached beneath the fifth-wheel, the transverse braces F, G, connecting springs C, C, the brace H, connecting springs E, E, the irons T, connecting springs C, C and E, E and the movable timbers J, J to which said irons are attached, combined with fixed rear springs and a convertible or extension body, substantially as described. 3rd. The combination, with longitudinally moving timbers borne by and supporting a fixed extensible body, of the fixed rear springs the independent front springs connected and moving with the timbers and front axle, and locking-rods to engage and hold the springs and body in proper relative position, substantially as shown and described. 4th. The combination, with an extension-body and longitudinally-moving timbers borne by and supporting such body, the fixed rear springs, the independent front springs connected and moving with the timbers and front axle, the cross-bar resting upon the lowermost of the rear springs and the irons on the timbers engaging therewith when the carriage is extended, and means substantially as described to lock the springs and body in proper relative position, as and for the purpose set forth. 5th. The combination, with an extension body, fixed rear springs movable front springs and a longitudinally-moving coupling member to which the front springs are attached, of pulleys bearing upon the upper and lower faces of such coupling member and eccentric or cranked rods for holding the body and coupling member in proper relative position to each other and to the springs, substantially as described. 6th. The combination, with an extension running-gear, of an extension-body composed of a fixed body and seat and a movable body and seat hinged within the fixed body and movable body into and from the fixed body substantially as described and for the purpose specified. 7th. The combination with the fixed body of the angle-irons r, j hinge I to the said body and to a seat and body made movable thereby in said body to cover or uncover the body and seat of said fixed body to convert the carriage into a single or double seat vehicle, substantially as described. 8th. The upholstered rear seat, provided with depressions in its back to receive the irons of the front seat substantially as described. 9th. The combination, with the fixed seat and body of a seat and body in one, hinged to and movable within the fixed seat and body to make of the carriage a single seat vehicle and movable forwardly from the same to bring the seat and body into the horizontal planes of the fixed seat and body respectively to make a two seat vehicle, substantially as described. 10th. The combination, with an extension running gear and extension-body of a falling top composed of folding sections substantially as shown and described. 11th. The combination, with the top sections, of the movable curtain-guards o, p, substantially as shown and described. 12th. The combination, with the top sections of the flexible curtain guards o, p, and weather curtains arranged inside the carriage-top and arranged to pass down the guards to cover the sides of the carriage, substantially as described.

No. 20,381. Broiler. (*Gril.*)

William Hailes, Albany, N. Y., U. S., 15th October, 1884; 5 years.

Claim.—1st. A broiler which has a flat web or bottom A, which is slightly inclined and provided with a series of perforations a, arranged uniformly in rows, and having a series of meat supporting projections G extended upward from said web, and having a depending skirt B, for the support of the perforated web from the top plate of the stove, substantially as and for the purposes set forth. 2nd. A broiler which has a flat web or bottom A, provided with several rows of perforations a and meat-supporting perforations G, and having reservoir C located at the side towards which the perforated web inclines, and a depending skirt having its lower marginal edge on a horizontal plane with the lower side of the wall of said reservoir, all for united operation for closing the broiler with the stove top and causing the juices to flow from the meat down the projections and over the intersecting channels of the perforated web to the reservoir, substantially as and for the purposes set forth. 3rd. A broiler which has an inclined flat web made with a series of intersecting channels, and provided with a series of meat-supporting projections alternating with said perforations and arranged in rows, and with a reservoir located at the side of the web inclines to, substantially as and for the purposes set forth. 4th. A broiler which has an inclined flat web, provided with a series of perforations a arranged uniformly in rows, and a second series of perforations a also arranged uniformly in rows and alternating with the perforations a, with meat-

supporting projections G spanning the perforation α , and a depending skirt supporting said web from the top plate of a stove, substantially as and for the purposes set forth. 5th. In a broiler, a perforated web or bottom in which perforations α are spanned by meat-supporting projections G, and the said openings are surrounded by an upwardly projected flange c , substantially as and for the purposes set forth. 6th. In a broiler, an inclined flat web made with a series of intersecting channels and provided with a series of perforations α , which are each spanned by a meat-supporting projection G, and having a depending skirt for the support of the perforated web from the top plate of the stove, substantially as and for the purposes set forth. 7th. In a broiler, an inclined flat web made with a series of perforations α arranged uniformly in rows, and a second series of perforations also uniformly arranged in rows, and each of the same, having a meat-supporting perforation G, substantially as and for the purposes set forth. 8th. A broiler which has a flat inclined web or bottom provided with two series of perforations α and α' , the latter alternating with the former and having extended above them meat-supporting projections G, and having the perforations of both series bounded by upwardly-projected flanges, and provided with a skirt B and reservoir located at the sides of the web inclines to, substantially as and for the purposes set forth. 9th. The combination, with a broiler which has a perforated web or bottom through which the hot gases pass from the fire, meat-supporting projections situated at intervals apart and adapted to hold the meat from closing the perforations in the web, an outer wall provided with cover seats and having portions thereof projected outwardly pass the lines of the cover seats, of a cover which will be supported from the broiler from two or more seats or points, all for operations as set forth.

No. 20,382. Paint Compound. (*Peinture.*)

Henry C. Petty, Los Angeles, Cal., U.S., 15th October, 1884; 5 years.

Claim.—The herein-described paint compound consisting of coal tar, asphaltum, varnish, japan drier, carbolic acid, lime water solution, sul-soda, venetian red, india-rubber, arsenic, solution salt water, brimstone, corrosive sublimate, solution of alum, benzine and turpentine in or about the proportions stated, as set forth.

No. 20,383. Apparatus for Wintering Bees.

(*Appareil pour Hiverner les Abeilles.*)

Alexander Marshall, Glanford, Ont., 15th October, 1884; 5 years.

Claim.—1st. The combination, in an apparatus for wintering bees, of the shell A, its bottom opening b , the hive g and its opening h at or near its top, substantially as specified. 2nd. The combination, in an apparatus for wintering bees, of the shell A provided with a bottom opening b , the hive g with a top-opening and spout h , the box c with packing f , and packing l between hive and shell A, substantially as specified. 3rd. The combination, in an apparatus for wintering bees, of a downwardly-inclined spout h connecting the hive at or near its top, with the outside of a shell A, and terminating in a lighting board i , substantially as specified.

No. 20,384. Feed Mechanism for Circular Knitting Machines. (*Appareil d'Alimentation pour Machines à Tricots Circulaires.*)

Henry Clarke, Leicester, Eng., 15th October, 1884; 5 years.

Claim.—1st. The bracket D, or D¹, secured to the revolving ring of a circular knitting machine, to carry a feed mechanism. 2nd. The reversible cam plate J carrying two studs J¹, J², which take into holes formed in the bed of the circular knitting machine, to which feed mechanism is applied. 3rd. The removable thread guide M, detachable from bracket arm D, to make room for the feed mechanism, as described. 4th. The hooked catch E₂, which holds back the lever F, when a splicing is not required to be made. 5th. The sliding and rocking thread guide G and guide G¹.

No. 20,385. Hydraulic Elevator.

(*Ascenseur Hydraulique.*)

Harry W. Kerle, Sydney, N.S.W., 15th October, 1884; 5 years

Claim.—1st. Supplying pressure to support or overcome the difference of weight in the hoisting chain or cable, and attachments on either side of the suspending sheave or pulley, substantially as herein described and explained. 2nd. Filling the cylinder behind the advancing ram or rams, or piston, or pistons, from a reservoir of water (preferably the waste or exhaust water) ready for the application of pressure, or to act as a cushion, substantially as herein described and explained. 3rd. The combination and arrangement, with the cylinder or cylinders, of a tank or reservoir, of a capacity not less than the capacity of the cylinder, or of the united cylinders at a higher level than said cylinders, substantially as herein described and explained. 4th. The combination and arrangement of parts, with or without the supply and cut-off valves, substantially as herein described, and explained, and as illustrated in Fig. 1, 2, 3 and 4, and the modifications thereof illustrated in Fig. 9, 10 and 11 and 16 to 18 of the drawings. 5th. The combination arrangement of parts, with or without the supply and cut-off valve, substantially as herein described and explained, and as illustrated in Fig. 5, 6, 7 and 8 and the modifications thereof illustrated in Fig. 14 and 15 of the drawings. 6th. The special combination and arrangement of parts marked F, C₂, C₃, C₄, D₂, D₃, D₄, and F₂, with the parts marked G, G¹, H, H¹, H², H³ and H₄, forming my quadruple piston valve, substantially as herein described and explained and as illustrated in Fig. 1 to 4 of the drawings. 7th. The special combination and arrangement of parts marked C₂, C₃, D₂, D₃, F, F₁ and F₂, with the parts marked G, G¹, H, H¹, H² and H₃, forming my triple piston valve, substantially as herein described and explained and as illustrated in Fig. 5 to 8 of the drawings. 8th. The combination and arrangement of the parts marked B₂, B₃, B₄, D and A₂, with the quadruple piston valve and the exhaust or waste water tank, substantially as herein

described and explained and as illustrated in Fig. 22 of the drawings. 9th. The combination and arrangement of the parts marked B₁, B₂, D, A₂, and the chain or cord, with the quadruple piston valve and the exhaust or waste water tank, substantially as herein described and explained, and as illustrated in Fig. 13 of the drawings. 10th. The combination and arrangement of parts, substantially as herein described and explained and as illustrated in Fig. 16A of the drawings.

No. 20,386. Apparatus for Elevating, Drying and Purifying Grain, &c. (*Appareil pour Monter, Sécher et Nettoyer les Grains, &c.*)

Frederick W. Friesbroek, New York, N.Y., U.S., 15 October, 1884; 5 years.

Claim.—1st. In a pneumatic elevator, a telescopic joint surrounded by a collapsible drum or chamber, substantially as and for the purpose specified. 2nd. In a pneumatic elevator, a telescopic joint surrounded by a collapsible drum provided with counterweights, substantially as set forth. 3rd. In a pneumatic elevator, the tubes A and C forming a telescopic joint surrounded by a collapsible drum operated by a vacuum and connected to an expansion chamber, as and for the purpose specified. 4th. A series of blowers connected and communicating with each other and with an elevator tube, substantially as specified. 5th. The combination of a telescopic elevator tube having a collapsible drum with an expansion chamber and a series of blowers, arranged as and for the purpose specified. 6th. The combination of a telescopic elevator tube, made automatically extensible by creating a vacuum in a surrounding drum above a receptacle containing the material to be elevated, and blowers arranged as specified. 7th. The combination of a telescopic elevator tube having a collapsible drum and connected to an expansion chamber provided with a series of hoppers and two or more blowers, arranged substantially as set forth. 8th. The pneumatic elevator herein described, consisting of a telescopic tube having a collapsible drum, and communicating with an expansion chamber provided with partitioned hoppers and a screen over its outlet and connected by a pipe with two or more blowers, in the manner and for the purpose specified. 9th. The method, herein described, of elevating and separating grain or other material, consisting in drawing it through a telescopic tube operating automatically by means of a collapsible drum into an expansion chamber, separating it therein and finally carrying off the refuse by a pipe connected to a series of blowers, as specified. 10th. The method, herein described, of elevating, drying and purifying grain or other material, substantially in the manner and by the means herein shown and for the purpose specified. 11th. The combination of a pneumatic automatically extensible elevator tube connected to an expansion chamber and a series of blowers with an air heating apparatus, as specified. 12th. The combined pneumatic elevating, drying and separating apparatus herein shown and for the purpose described.

No. 20,387. Lock Hinge. (*Penture à Montennet.*)

David H. Fitzgerald, Reading, Pa., U.S., 15th October, 1884; 5 years.

Claim.—In a lock-hinge, the combination, with the leaf C having a pintle C₁, and the leaf D having an eye D₁ formed with the cam α and shoulder β , and also having the shoulder γ , of the latch E pivoted to the leaf C and offset laterally, substantially as and for the purpose described.

No. 20,388. Knitting Machine.

(*Machine à Tricoter.*)

Walter Roberts, Canton, Mass., U.S., 15th October, 1884; 5 years.

Claim.—1st. In a machine for making knit fabrics, the combination of the following instrumentalities, to wit: a needle-bed, a series of needles, a thread carrier, a shifter or shifters adapted to automatically change the loops or stitches from one needle or series of needles to another, and operative mechanism, substantially as set forth. 2nd. In a machine for making knit fabrics, the combination of the following instrumentalities, to wit: a needle-bed, a series of needles, two independent thread carriers, a shifter or shifters adapted to automatically shift or change the loops or stitches from the needle or series of needles to another, means for automatically transposing the thread-carriers, and operative mechanism, substantially as described. 3rd. In a machine for making knit fabrics, the combination of the following instrumentalities, to wit: a needle-bed, a series of needles, two independent thread-carriers, a shifter or shifters adapted to automatically shift or change the loops or stitches from one needle or series of needles to another, means for automatically controlling the thread-carriers, a jacquard device for automatically controlling the shifters, and operative mechanism, substantially as set forth. 4th. In a machine for making knit fabrics, the combination of the following instrumentalities, to wit: a needle-bed, a series of needles, a thread-carrier, a shifter or shifters adapted to automatically shift or change the loops or stitches from one needle or series of needles to another, and operative mechanism, substantially as described. 5th. In a machine for making knit fabrics, the combination of the following instrumentalities, to wit: a needle-bed, a series of needles, a thread-carrier, a shifter or shifters adapted to automatically shift or change the loops or stitches from one needle or series of needles to another, a switch-guard or device for keeping the shifter or shifters out of action when desired, and operative mechanism, substantially as set forth. 6th. In a machine for making knit fabrics, the shifter x having the slot or eye α and provided with the groove ν , substantially as and for the purposes set forth. 7th. In a machine for making knit fabrics, the jack Y carrying the shifter x and provided with the stud α , or means for engaging a cam adapted to impart longitudinal movements to the jack, substantially as described. 8th. In a machine for making knit fabrics, the jack Y carrying the shifter x , and provided for the slot α for receiving the rod 2, substantially as set forth. 9th. In a machine for making knit fabrics, the jack Y carrying the shifter

2. and provided with the stud 3 or means for engaging the jacquard lever 1, substantially as described. 10th. In a machine for making knit fabrics, a bed for the shifter jacks Y composed of a series of wide and narrow metallic bars or strips 5 and 6, alternately arranged and suitably connected, substantially as and for the purpose set forth. 11th. In a machine for making knit fabrics, the plates 7 provided with the clamps 8, in combination with the ways T, for keeping the shifter bed on said ways, substantially as described. 12th. In a machine for making knit fabrics, the cam bar W, provided with the grooves 28 and 29, arranged as shown, in combination with the shifter jacks Y carrying the shifters *x*, and with mechanism for giving said bar regular reciprocating longitudinal movements, substantially as set forth. 13th. In a machine for making knit fabrics, the plate 25, in combination with the bar W, said plate being disposed between the inner ends of the grooves 28 and 29, and adapted to hold the studs *x* when not in said grooves, substantially as described. 14th. In a machine for making knit fabrics, the cam-carrier W provided with the arms C, in combination with the jacks Y, shifters *x*, ways V, bars 6, clamps C, slide 22 and mechanism for actuating said slide, substantially as set forth. 15th. In a machine for making knit fabrics, the combination of the following instrumentalities and operative mechanism, to wit: a needle-bed, a series of needles, a thread-carrier, a shifter or shifters for shifting or changing the loops or stitches from one needle or series of needles to another, said shifter or shifters being adapted to automatically engage the needles and draw the same through their loops or stitches, and the needles being adapted to be drawn thereby through their loops or stitches, said shifter or shifters being also adapted to pass automatically with the needles back through the loops or stitches, receive the loops or stitches from the needles and cast them off into adjacent needles, substantially as described. 16th. In a machine for making knit fabrics, the combination of the following instrumentalities, to wit: a needle-bed, a series of needles, a thread-carrier, a carriage on which the thread-carrier is mounted, said carriage being adapted to traverse the needle-bed with regular reciprocating movement, and a shifter or shifters adapted to automatically shift or change the loops or stitches from one needle or series of needles to another, in combination with means for withdrawing the shifter or shifters from the path of the carriage in season to prevent injurious contact therewith as the carriage traverses back and forth, and operative mechanism, substantially as set forth. 17th. In a machine for making knit fabrics, a shifter for changing a loop or stitch from one needle to another, in combination with mechanism for raising said shifter above the plane of the hook of the needle, advancing it over the needle, dropping or bringing it into engagement with the needle, withdrawing the shifter and pulling the needle through its loop, again advancing the shifter over the needle, again elevating it above the plane of the hook of the needle, slightly withdrawing it to pull up its pendant loop, racking or moving it laterally to an adjacent needle, advancing it over said adjacent needle, dropping it into engagement with the hook of said adjacent needle, withdrawing the shifter, and pulling said adjacent needle through its loop, casting off the loop from the shifter on to said adjacent needle, again advancing the shifter to disengage it from the hook of said adjacent needle, and then withdrawing the shifter, substantially as described. 18th. The standards B carrying the arms or brackets R for supporting the shifters *x*, and their immediately connected operative mechanism, in combination with the frame or standards A, substantially as set forth. 19th. The adjustable bars S, in combination with the brace *es* or arms R, and means for regulating the incline or angle of the shifters *x* in respect to the needles, substantially as and for the purpose set forth. 20th. In a machine for making knit fabrics, the shaft F provided with the worm *f* and pulley H, in combination with the shaft *h* provided with the worm-gear *l* and gear *k*, and the shaft X provided with the gear *l* and cam *m*, substantially as described. 21st. In a machine for making knit fabrics, the pivoted lever 31, pivoted cam-lever or handle 33, spring 35 and guard 37, in combination with the cam-bar W and jacks Y, substantially as and for the purpose set forth. 22nd. In a machine for making knit fabrics, the guard 37 provided with the lip or flange 38, in combination with the cam-bar W having the groove 28, and with means for depressing and raising said guard to close or open the inner end of said groove as required, substantially as described. 23rd. In a machine for making knit fabrics, the pivoted lever *r* adapted to engage the shifter jack Y and withdraw its shifter *x* from action, in combination with mechanism for actuating said lever, substantially as set forth. 24th. In a machine for making knit fabrics, a series of pivoted levers *r*, in combination with a series of shifter jacks Y carrying the shifters *x*, and means for automatically causing certain of said levers to engage certain of said jacks and withdraw their shifters from action in accordance with a fixed or predetermined pattern or plan, whereby figured or ornamental fabrics may be produced in great variety, substantially as described. 25th. In a machine for making knit fabrics, the pivoted lever *r* provided with the spring 60 and pin *n*, in combination with the jack Y carrying the shifter *x*, and with a series of perforated jacquard cards adapted to withdraw said shifter from action whenever desired, or in accordance with the arrangement of the perforations in the card, substantially as set forth. 26th. In a machine for making knit fabrics, the cylinder 43 provided with the perforations 45, in combination with the pivoted levers *r*, perforated cards 46, shifter jacks Y, means for intermittently revolving said cylinder, and means for causing the *n* of said levers, substantially as and for the purpose set forth. 27th. In a machine for making knit fabrics, the ratchet wheel 53, pawl 54, notched wheel 52 and locking pawl 51, in combination with the cylinder 43, pivoted arms 40, spring 50, shaft X and cam 50 for moving said cylinder laterally out of and into contact with the levers *r* and causing it to revolve on its axis, substantially as described. 28th. In a machine for making knit fabrics, the cylinder 43 provided with the slots 45, in combination with the cards 46, and means for moving said cylinder out of and into contact with the levers *r* and revolving it intermittently, substantially as set forth. 29th. In a machine for making knit fabrics, the latch opener and closer 83, in combination with the groove B₂, needles, shifters, carriage E and operative mechanism, substantially as and for the purpose set forth. 30th. In a machine for making knit fabrics, the latch opener and closer 83, in combination with the groove O₂, needles, shifters, carriage E and op-

erative mechanism, substantially as described. 31st. In a machine for making knit fabrics, the latch openers 83 and 89, in combination with the grooves B₂, O₂, needles, shifters, carriage E and operative mechanism, substantially as set forth. 32nd. In a machine for making knit fabrics, the auxiliary latch-opener 87, in combination with the needles shifters carriage E and operative mechanism, substantially as described. 33rd. In a machine for making knit fabrics, the auxiliary latch opener 88, in combination with the needles, shifters, carriage E and operative mechanism, substantially as set forth. 34th. In a machine for making knit fabrics, the auxiliary latch openers 87 and 88, in combination with the needles, shifters, carriage E and operative mechanism, substantially as described. 35th. In a machine for making knit fabrics, the carriage E provided with the wire guards 86, substantially as and for the purpose set forth. 36th. In a machine for making knit fabrics, the wire guard 86 mounted on or stretched between the openers 83 and 87, in combination with the carriage E and needles and operative mechanism, substantially as described. 37th. In a machine for making knit fabrics, the wire guard 86 mounted on, or stretched between the openers 88 and 89, in combination with the carriage E, needles and operative mechanism, substantially as set forth. 38th. In a machine for making knit fabrics, the latch openers and closers 83 and 89, openers 87 and 88, wires 86, carriage E, needles and operative mechanism, substantially as described. 39th. In a machine for making knit fabrics, the carriage E provided with the wire guards 91 and 92, in combination with the needles and operative mechanism, substantially as set forth. 40th. In a machine for making knit fabrics, the carriage E having the extension plate 98, provided with the cam plates 100 and A₂, in combination with the needles, shifters and operative mechanism, substantially as described. 41st. In a machine for making knit fabrics, the carriage E having the extension plate L₂, provided with the cam plates M₂, N₂, in combination with the needles, shifters and operative mechanism, substantially as set forth. 42nd. In a machine for making knit fabrics, the carriage E having the extension plates 99, and L₂ and cam-plates 100, A₂, M₂, N₂, in combination with the needles, shifters and operative mechanism, substantially as described. 43rd. In a machine for making knit fabrics, the carriage E provided with the cam-grooves B₂, and O₂, in combination with the needle shifters and operative mechanism, substantially as set forth. 44th. In a machine for making knit fabrics, the carriage E provided with the guards 96, substantially as and for the purpose specified. 45th. In a machine for making knit fabrics, the carriage E provided with the guards C₂, substantially as and for the purpose set forth. 46th. In a machine for making knit fabrics, the chain belts 14 and 19, wheels 17, 18 and 20, slide 22 and lever 103, in combination with the shaft F, cam-plate W, ways for said slide and operative mechanism, substantially as described. 47th. In a machine for making knit fabrics, the jacks Y provided with the slots 4, studs 3₂ and shifters *x* having the grooves *n* and slots or eyes *m*, in combination with the rod 2, suitable beds for the jacks levers *r*, cam-bars 66 and 67 and operative mechanism, substantially as set forth. 48th. In a machine for making knit fabrics, the flanges K₂, J₂, in combination with the tilting-bar 74, bar 76, stops 72, 62, carriage E and operative mechanism, substantially as described. 49th. In a machine for making knit fabrics, a series of independent loop-shifters mounted in a bed or suitable ways and operating automatically, said shifters being adapted to be advanced to engage the loops on the needles and transfer them to the adjacent needles, in combination with means for withdrawing one or more of said shifters from action, substantially as set forth. 50th. In an organized mechanism for producing knit fabrics, the combination of the following instrumentalities, to wit: a knitting machine proper or device for producing ordinary or plain work, a device for transposing the threads, a device for shifting or changing the loops or stitches from one needle or series of needles to another, a jacquard mechanism or device for automatically controlling the shifting of the stitches and suitable supporting, connecting and operating mechanism, substantially as described. 51st. In a knitting machine, the following instrumentalities, in combination with operative mechanism, to wit: a carriage adapted to traverse back and forth over the needle bed, and two thread carriers adapted to traverse with the carriage, one of said carriers being adapted to be thrown back or tilted and to remain stationary while the other passes it, substantially as set forth. 52nd. In a knitting machine, the following instrumentalities, in combination with operative mechanism, to wit: a needle bed, a series of needles, a carriage adapted to traverse back and forth over the needle bed, a thread-carrier adapted to traverse with the carriage but not to start at the same time, and a thread-carrier adapted to traverse with the carriage to start at the same time and to be tilted or thrown back to pass the other carrier, substantially as described. 53rd. In a knitting machine, in combination with operative mechanism, the following instrumentalities, to wit: a needle bed, a series of needles, a carriage adapted to traverse back and forth over the needle bed, a thread-carrier adapted to traverse with the carriage and stop at the same time, but not to start until after the carriage starts, and a thread-carrier adapted to traverse with the carriage, start at the same time, stop before the carriage stops and be tilted or thrown back out of the path of the other carrier to enable the carriers to pass, substantially as set forth. 54th. In a knitting machine, in combination with operative mechanism, the following instrumentalities, to wit: a needle bed, a series of needles, a carriage adapted to traverse back and forth over the needle bed, a thread-carrier adapted to traverse with the carriage and stop at the same time, but not to start until after the carriage starts, means for holding said thread-carrier stationary until forced to move forward by the carriage, a thread-carrier adapted to traverse with the carriage to start at the same time, stop before the carriage stops and be tilted or thrown back out of the path of the other carrier to enable the carriers to pass, and means for tilting said last named carrier and stopping the same before the carriage stops, substantially as described. 55th. In a knitting machine, the arm or lever 74 carrying an eye or girdle for the thread near its inner end and pivoted or jointed to the carriage E near its outer end, in combination with means for tilting and stopping said lever, substantially as and for the purpose set forth. 56th. In a knitting machine, the arm or lever 74 provided with an eye or guide for the thread near its inner end, and pivoted or jointed to the carriage E near its outer end, in combination with means for tilting or throwing back the inner end of said arm, means for preventing its traverse

with the carriage during a portion of its journey, means for locking or coupling it to the carriage and causing it to traverse therewith at the end of the route of the carriage, or at each reverse movement of the carriage and operative mechanism, substantially as described. 55th. In a knitting machine, the arm or lever 74 provided with a eye or guide for the thread near its inner end, in combination with the carriage E, pivoted bar 76, rods 72 and 73, spring catches 78 and 79 and operative mechanism, substantially as set forth. 58th. In a knitting machine, the arm or lever 74 provided with a guide or eye for the thread near its inner end, and adapted to slide laterally on the bar 76, in combination with means for tilting or throwing out said arm, and means for detachably locking or holding it at each end of said bar, substantially as described. 59th. In a knitting machine, the arm or lever 74 provided with an eye or guide for the thread near its inner end, in combination with the rocking bar 76, rods 72 and 73, arms 75 and 77, flanges J₂, K₂, spring 82 and carriage E, substantially as set forth. 60th. In a knitting machine, the rod or stop 72, in combination with the arm 74 and carriage E, substantially as and for the purpose set forth. 61st. In a knitting machine, the rod 73 in combination with the arm 77, bar 76, arm 74 and carriage E, substantially as described. 62nd. In a knitting machine, the arm or lever 95 carrying an eye or guide for the thread near its inner end, in combination with the rod 98, friction block U₂ and carriage E, substantially as set forth. 63rd. In a knitting machine, the slide or rib H₂ mounted on the bar 76 and carrying the arm or lever 74, said slide being provided with the notches K₂, in combination with the carriage E, catches 78 and 79, and means for detaching the slide from said catches, substantially as described. 64th. In a knitting machine, the stop or bar 97 in combination with the arm or lever 74 and carriage E, substantially as set forth. 65th. In a knitting machine, the combination of the following instrumentalities to wit: a series of needles, a needle-bed adapted to receive and hold the needles, a carriage adapted to traverse back and forth over the needle-bed, two thread carriers mounted on the carriage and adapted to be transposed in such manner as to enable one and the same carrier to lead at all times, while passing over the working needles and the other to trail, means for keeping the latches of the needles in position and causing them to operate properly in the vicinity of the thread-carriers, mechanism for automatically transposing the thread-carriers at each traverse of the carriage over the needle-bed, guards for preventing the threads from being caught as the thread-carriers pass each other, and operative mechanism, substantially as described.

No. 20,389. Pneumatic Tool.

(*Outil Pneumatique.*)

James S. McCoy, Brooklyn, N. Y., U. S., 15th October, 1884; 15 years.

Claim.—1st. The pneumatic device, constructed as described and shown in the drawings. 2nd. The striker A formed with its passages and provided with a valve, combined with a casing having air inlet and exhaust passages, arranged as described. 3rd. The casing C formed with air ports and grooves or passages, and surrounded by a shell, as described. 4th. The striker A arranged to be reciprocated by air or steam pressure, combined with the tool-carrying spindle with an enlarged head, as set forth. 5th. The striker having slots or recesses at its lower end to facilitate exhaust, as set forth. 6th. The striker A having air inlet and outlet ports or passages k, k₁, l, m and n, and a transversely arranged valve I, arranged to operate as set forth. 7th. The countersink G and spindle E formed with enlarged head I, combined with striker A adapted to be reciprocated by air pressure, as set forth. 8th. The striker A arranged to be reciprocated by air pressure and grooved and recessed at its lower end, combined with the enlarged head I of the spindle E, as and for the purposes set forth.

No. 20,390. Pulp Barrel. (*Baril de Papier.*)

William Mears, Cleveland, Ohio, U. S., 15th October, 1884; 5 years.

Claim.—A barrel formed in two or more longitudinal sections, each section having head-portion integral with the body-portion, substantially as set forth.

No. 20,391. Spring Leg Frame for Horses and Men. (*Appareil Orthopedique pour les Chevaux et les Hommes.*)

Aiphonse Co é, Galway, N. Y., U. S., 15th October, 1884; 5 years.

Claim.—1st. A spring leg frame for horses and animals, consisting of a spring wire bent to fit against the top of the hoof or foot and the front of the leg, substantially as herein shown and described. 2nd. A spring leg frame for horses and men, consisting of a spring wire bent to fit against the hoof or foot and the front of the leg, and of a pad held on the top of the said frame, substantially as herein shown and described. 3rd. In a spring leg frame, the combination, with a spring wire frame bent to fit against the foot or hoof and the leg, of the pad or cushion G at the top of the frame, and of the band or strap H held on the frame, substantially as herein shown and described. 4th. In a spring leg frame, the combination, with a spring wire frame bent to fit against the foot or hoof, of the cushion or pad G, the strap H and the band F, substantially as herein shown and described. 5th. The combination, with a horse shoe, of a frame provided with L-shaped shanks, the ends of which are passed through the rear calks of the shoes, and of the nuts E screwed on the end of the shanks, substantially as herein shown and described.

No. 20,392. Hand Grenade Fire-Extinguisher. (*Grenade à Main Extincteur d'Incendie.*)

Rufus P. Pattison, (assignee of N. Gray Bartlett,) Chicago, Ill., U. S., 16th October, 1884; 5 years.

Claim.—1st. A fire-extinguishing grenade consisting of a frangible vessel in which is, hermetically sealed, the extinguishing solution, said solution being adapted to remain liquid at temperatures much

below the freezing point of water, substantially as described. 2nd. A fire-extinguishing grenade consisting of a glass vessel in which is, hermetically sealed, free carbonic acid in solution, adapted to remain liquid at temperatures much below the freezing point of water, substantially as described. 3rd. A fire-extinguishing grenade, hermetically sealed, and containing free carbonic acid gas and an alkaline bi-carbonate in solution therein, substantially as set forth. 4th. A fire-extinguishing grenade, hermetically sealed, containing free carbonic acid gas together with the alkaline chlorides in solution therein, substantially as described. 5th. The method of preparing fire-extinguishing grenades, which consists in admixing the salts of the anti-freezing addition in acidulated solution, stirring in the carbonate so that the gas will be developed and absorbed in the cold solution, and then charging the vessel and sealing the same, substantially as described.

No. 20,393. Hand Grenade Fire-Extinguisher. (*Grenade à Main Extincteur d'Incendie.*)

Rufus P. Pattison, (assignee of N. Gray Bartlett,) Chicago, Ill., U. S., 16th October, 1884; 5 years.

Claim.—1st. A fire-extinguishing grenade, hermetically sealed, and containing free carbonic acid gas in solution with chlorides of the alkaline earths, or equivalent salts, substantially as described. 2nd. A fire-extinguishing grenade, hermetically sealed, and containing chlorides of the alkaline earths, or equivalent salts, as the basis of the anti-freezing liquid, substantially as described.

No. 20,394. Wire Strainer.

(*Appareil pour Tendre le Fil de Fer.*)

Joseph E. Pounds, Lockinge House, Kew, (assignee of Charles O. Walker, Coolart, Balnaring, Victoria, 16th October, 1884; 5 years.

Claim.—Wire strainers consisting of a roller, hollow or solid, and having a recess in the centre on which to wind the wire, and enlarged ends in which are holes to receive the ends of levers, whereby to strain the wire and afterwards to receive a retaining pin, substantially as herein described and explained.

No. 20,395. Floor Clamp.

(*Mordache à Parquetage.*)

Hiram E. Hatch, Dexter, and William H. Stevens, Portland, Me., U. S., 16th October, 1884; 5 years.

Claim.—1st. The combination of the block c provided with teeth, as described, the sliding block e, lever g and straps f, f, substantially as described. 2nd. The combination of the block c provided with teeth, as described, the sliding block e, lever g, straps f, f, ratchet j and spring K, substantially as described. 3rd. The combination of the block c provided with teeth, as described, the sliding block d, lever g, straps f, f and rods i, i, substantially as described. 4th. The combination, substantially as herein set forth, of the block c provided with teeth adapted to hold it in position, the sliding block d, the rods i, i, secured to said block and sliding in openings in the block c, the lever g pivoted to the block d, the straps f, f, pivoted to both the block c and lever g, the ratchet j operating to hold the lever in position, and the spring K serving to hold said ratchet in place.

No. 20,396. Carburetted Air Engine.

(*Machin à Air Carburé.*)

Eugene Etéve and Jean A. de Braam, Paris, France, 18th October, 1884; 5 years.

Claim.—1st. Generating and storing under pressure, in a reservoir separate from the driving cylinder or cylinders a and b, of an explosive mixture produced partly by vaporization of a hydro-carburet petroleum, or some equivalent, under pressure in a jet of air, also under pressure, and partly of a volume of air under pressure directed simultaneously to the recipient in which the explosive mixture is stored, the whole immediately before its completion for each stroke of the piston, the formation of the explosive mixture is effected by vaporization producing more or less infinitesimal globules of hydro-carburet, whether the latter is or is not previously mixed or charged with oxygen. 2nd. The tap shown in detail, Fig. 5, with special port or opening for regulating the delivery of the hydro-carburet according to whether it is required to make a mixture more or less rich in the hydro-carburet, or whether it is desired to increase the speed of the engine, or if the resistance becomes more or less important. 3rd. The two-way starting tap for the subsequent mixture of the air and the hydro-carburet, both under pressure, which mixture is effected on entering the storage reservoir by means of one, two or more jets, vaporizing the hydro-carburet in the midst of the compressed air. 4th. The previous filtration of the hydro-carburet under pressure, which prevents obstruction of the vaporizing jets by solid matters, which it always contains, unless this operation is performed. 5th. The separation of the driving cylinders and the storage reservoir by the interposition of metal gauze, or some equivalent preservative of flame and heat. 6th. The combination of two air pumps, single or double acting, compressing the air taken from the atmosphere at varied pressures, the one that produces the greatest pressure directing the air to the hydro-carburet reservoir, and the other at an inferior pressure supplying the reservoir with the explosive mixture, and the jets vaporizing the hydro-carburet in the reservoir.

No. 20,397. Manufacture of Spring Balances. (*Fabrication des Balances à Ressort.*)

Thomas B. Salter and John Hughes, West Bromwick, Eng., 18th October, 1884; 5 years.

Claim.—1st. The combination of a spring balance, with a case or frame made from one piece of sheet metal, substantially as described and

shown in the accompanying drawings. 2nd. The combination of a spring balance, with the loop *c* at the bottom of the tongue *f*, which said loop is made without brazing, substantially as described and shown in the accompanying drawings. 3rd. The combination of a spring balance, with the improved tongue *f* and pointer *z*, whereby tongue and pointer are made from one piece of metal, substantially as described and shown in the accompanying drawings.

No. 20,398. Harvester. (*Moissonneur*.)

Samuel D. Maddin, Miamisburgh, Ohio, U. S., 20th October, 1884; 5 years.

Claim.—1st. The combination, in a harvester, of a frame supported by the driving wheel, a cutter frame supported at the outer end by a wheel *B* and joined to the inner end of the frame *A*, and a lever and connections, whereby the inner ends of both frames may be lifted or depressed, substantially as and for the purpose set forth. 2nd. The frame *A* and the driving wheel supporting the same, in combination with the cutter frame and with a reel supported thereby, and with reel driving appliances connected to be driven from a shaft coinciding with the pivotal connection of the frames, substantially as described. 3rd. The combination, with the tilting frame *A* supported by the driving wheel, the cutter frame *A* joined to the inner end of the frame *A*, adjusting lever and connections, and wheel *B* supporting the outer end of frame *A*, and adjusting devices between the wheel and the lever, whereby the movement of the latter to move the inner end of the frame *A* is also made the means of simultaneously lifting the outer end thereof, substantially as described. 4th. The combination of the tilting frame *A*, frame *A* joined thereto, lever *D* connected to a bracket upon the frame *A*, lever *E* carrying the outer bearing wheel of the frame *A*, and connections between the levers, substantially as and for the purpose set forth. 5th. The combination of the frames *A* and *A* joined together, adjusting devices and driving wheel having its shaft in bearings moving with the frame *A*, substantially as set forth. 6th. The combination, with the pivoted frames *A* and *A*, elevators, binder platform *x*, shield extending over the driving wheel, and carrier belts provided with teeth and extending between the elevators and the platform *x* on a level with the shield, substantially as specified. 7th. The combination, with the elevator belt *G*, of the elevator belt *H* carried by a frame connected by links to the main frame, substantially as for the purpose set forth. 8th. A harvester provided with a tilting frame carried by the drive-wheel, a cutter frame pivoted to the tilting frame at one end thereof, and with a binder carried by the tilting frame at the opposite end, for the purpose set forth. 9th. The combination of the cutter frame and binder frame pivoted together, and the driver's seat arranged upon the binder frame outside the driving wheel, substantially as described. 10th. The combination of the joined frames *A*, *A*, a reel carried by the frame *A* and driven from a shaft coinciding with the pivotal point of the frames, substantially as set forth. 11th. The combination of the pivoted frames, reel carried by the cutter frame, shaft coinciding with the pivot of the frames and carrying a bevelled wheel *W*, and shaft *P* geared with the wheel *W* and with the reel shaft, substantially as set forth. 12th. The combination, with the reel shaft, of a vertical shaft geared thereto, and a frame or bracket *R* carrying said shaft and pivoted to swing back and forth, and connected by a universal joint opposite the pivot points to the driving shaft, substantially as specified. 13th. The combination, with the reel, of a vertical shaft connected to the driving shaft by a universal joint, a support swinging upon trunnions opposite said joint, and an adjusting lever *Q* connected to the swinging frame of the reel, substantially as specified. 14th. The combination, with the reel shaft, of a bracket supporting the same, and means for adjusting the bracket vertically, substantially as described. 15th. The combination, with the reel shaft, of a supporting bracket and means for adjusting the same vertically and horizontally, substantially as described. 16th. The combination of the shaft *P*, bracket *N* carrying the reel shaft, and levers connected to swing the shaft *P* back and forth and raise and lower the bracket, substantially as described. 17th. The combination, with the reel, of a swinging supporting frame and means for adjusting it, and connections whereby the reel is revolved by power applied at the pivot point, substantially as described. 18th. The combination of the swinging support, reel carried by a bracket vertically adjustable on said support, and means for swinging the support and adjusting the bracket from the driver's seat, substantially as described. 19th. The combination of the frame *A* supported by a drive wheel and provided with a bearing wheel, and a cutter frame pivoted to the main frame, substantially as described.

No. 20,399 Pleating Board. (*Table à Plisser*.)

Thomas Dodds, Stratford, Ont., 20th October, 1884; 5 years.

Claim.—The combination board, with the stationary bar *F* and the movable bars *G*, *H*, and the elastic bands *B*, *B*, and tapes *C*, *C*, and *D*, *D*, together with the tongs *E*, substantially as and for the purpose hereinbefore set forth.

No. 20,400. Book. (*Livre*.)

Edward L. Burwell, Chelsea, Mass., U. S., 20th October, 1884; 5 years.

Claim.—1st. A book or block composed of a number of sets of leaves, each set being composed of a bottom thick leaf *a*, a superposed carbon or transfer leaf *b* and a top writing paper leaf *c*, connected together substantially as shown and described. 2nd. The series of sets of leaves *a*, *b*, *c*, made up in book form and separable as sets, the thick member *a* of the set having the extension *a*¹, as shown and described and for the purpose set forth.

No. 20,401. Shaft Coupling.

(*Embrayage des Arbres*.)

Abraham Faust, Alleghany, Penn., U. S., 20th October, 1884; 5 years.

Claim.—1st. A shaft-coupling consisting of two sections provided respectively with a dove-tailed projection and a dovetailed mortise, one of said sections having cast thereon a suitable feather or key,

substantially as and for the purposes set forth. 2nd. The combination, with sections of shafting provided with mortises extending longitudinally thereof, of a coupling consisting of two sections, each provided respectively with a dove-tail mortise and a dove-tail groove, one of the sections being cast with a suitable key or feather, substantially as and for the purpose set forth. 3rd. The combination, with sections of shafting having inclined mortises near their ends, of a coupling consisting of a section having a dove-tail groove and a section having a dove-tail projection, one of said sections having an inclined feather or key extending a portion of its length to form shoulders at each end thereof, substantially as and for the purpose specified. 4th. A shaft-coupling, consisting of two sections adapted to be dove-tailed one to the other, one of said sections being formed with a key or feather inclined upwardly from its centre towards each end, in combination with sections of shafting having their ends provided with mortises inclined relatively with said key or feather, substantially as and for the purpose set forth. 5th. The sections herein described, and constituting a shaft-coupling, one of said sections being provided with a spring catch, and the other with a notch or notches with which said catch engages, when the sections are joined together around the shafting, this latter section having an orifice in which to insert a suitable implement for depressing the catch when uncoupling the sections, substantially as and for the purpose described.

No. 20,402. Buck Saw Stretcher.

(*Monture de Scie de Travers*.)

Jerome C. Dietrich, Galt, Ont., 20th October, 1884; 5 years.

Claim.—The looped wires *A* fitted over the saw-frame *B*, each wire having its ends rigidly fastened to a nut *C*, one nut having a right hand thread and the other a left hand thread cut in it, in combination with a double-ended thumb-screw *D*, one end having a right-hand thread and the other a left-hand thread cut on it to correspond with the particular nut it is intended to screw into, substantially as and for the purpose specified.

No. 20,403. Ditching Hoe. (*Houe pour Fossayer*.)

Henry Iwan and Louis Iwan, Sreator, Ill., U. S., 20th October, 1884; 5 years.

Claim.—A ditching-hoe having, connected thereto, a bifurcated shank formed in sections, the upper or free end thereof terminating in clamps and formed with mortises, and one of said clamps having a ratchet-face, in combination with a handle provided with a suitable head cast with tenons extending from its sides, and a ratchet-face to engage with that on the clamp, said mortises and tenons forming a pivotal centre and a bolt passing through the clamps and heads, substantially as and for the purposes set forth.

No. 20,404. Buckle. (*Boucle*.)

Hiram Kimball, Cleveland, Ohio, U. S., 20th October, 1884; 5 years.

Claim.—1st. The process of forging turn-buckles, swivel-links or analogous articles, substantially as herein described, consisting in forming the sockets on the connecting arms of the turn-buckles by means of dies, in which the metal to be operated upon is enclosed and forged into shape by a plunger die entering and closing an aperture in the enclosing dies, and forcing the metal into a cavity formed in the dies for the purpose. 2nd. The combination, with the dies *A*, *A*¹, having cavities for receiving the metal to be forged and an opening for receiving a plunger die, of one plunger die so arranged that it may be driven into the enclosing die for the purpose of pressing the metal into the desired form, substantially as described, for forging turn-buckles and analogous shapes one end at a time. 3rd. The combination, with the dies *A*, *A*¹ having cavities for receiving the metal to be forged and openings for the plunger dies, of two plunger dies *P*, *P* so arranged, substantially as described, that both may be simultaneously driven forward for the purpose of forging both ends of a turn-buckle at the same time, substantially as described. 4th. A plunger die *P* of such form as to enter and close an opening in enclosing dies, and having a projecting punch or centre, substantially as and for the purposes described. 5th. The mechanism for manufacturing turn-buckles, swivel links or analogous articles, the combination, with any convenient form of enclosing dies, of any convenient form of plunger dies fitting an opening in the enclosing dies, and so arranged that the plunger dies may be driven forward against the metal for the purpose of forcing it into cavities formed in the dies for the purpose, substantially as described. 6th. A turn-buckle swivel link or analogous article made by the method herein described, of enclosing the metal to be forged in dies and forging the ends or sockets into shape by driving a plunger die into an opening in the enclosing dies, so as to force the metal into cavities formed in the dies for the purpose, substantially as described.

No. 20,405. Belt Carrier. (*Embrayage à Courroie*.)

Charles P. Peterson, Richmond, Ind., U. S., 20th October, 1884; 5 years.

Claim.—1st. In a belt-holder, a series of movable spherical bearings supported in close proximity to the belt pulley, and adapted to support the belt as the latter is shifted from the pulley. 2nd. In a belt-carrier, the combination, with a series of arms supported in close proximity to the rim of a pulley, of balls secured in sockets in said arms and adapted to receive a belt from the pulley, substantially as set forth. 3rd. In a belt-carrier, the combination, with a disk provided with laterally-extending arms, of bearings secured in the arms, said bearings being susceptible of both lateral and forward rotary motion, substantially as set forth. 4th. In a belt-carrier, the combination, with a disk provided with arms having radial adjustment, of ball-bearings secured in the arms and adapted to receive a belt from a revolving pulley, substantially as set forth. 5th. In a belt-carrier, the combination, with a disk provided with an opening to admit a shaft to a central perforation, of arms secured to the disk in radial adjustment, and ball-bearings secured in the arms for receiving a belt

from a revolving pulley, substantially as set forth. 6th. In a belt-carrier, the combination, with a disk supported in vertical adjustment about a shaft and provided with laterally-extending arms, of series, of balls loosely secured in the arms and adapted to receive the belt from a driving pulley, substantially as set forth.

No. 20,406. Tilt Hammer.

(*Marteau à Bascule.*)

John B. Armstrong, (assignee of Augustus R. Woodyatt), Guelph, Ont., 22nd October, 1884; 5 years.

Claim.—1st. The combination, with the hammer helve B, of a base A₁, two or more spirally coiled springs A seated thereon, and carrying a buffer beam H, as set forth for the purpose described. 2nd. In combination with the hammer bed, the guides C, C having webs C₁ and bolted to the hammer bed and intermediately receiving the hammer helve B, as set forth for the purpose described.

No. 20,407. Vehicle Spring.

(*Ressort de Voiture.*)

Ruth J. Cook, (assignee of Charles A. Behlen,) Cincinnati, Ohio, U. S., 22nd October, 1884; 15 years.

Claim.—1st. The vehicle-spring consisting of the combination of the branch, having the construction set forth, with the branch 2, the branch 2 being rigidly attached to the end of the branch, as set forth, and having its other end free to slide in a suitable bearing in a bracket attached to the spring bar or body, and the connected ends of the said two spring branches being hinged to a bracket projecting from the bottom of the vehicle body and being free to oscillate on the hinge bolt, as set forth. 2nd. The vehicle spring consisting of the combination of the branch 1 having the construction set forth, with the branch 2 having the construction set forth, and with the strip 3 having a hinge eye and secured to the connected ends of the branches 1 and 2 as set forth, and with a bracket attached to the under side of the vehicle body, and having downward projections with eyes and a hinge bolt for hinging the connected ends of the spring branches 1 and 2 to the said bracket, and with a bracket attached to the bottom of the vehicle body and provided with a slot for guiding the free end of the spring branch 2.

No. 20,408. Kiln for Burning Brick, &c.

(*Four pour Cuire la Brique, &c.*)

David Laemmle and Samuel R. Alden, Fortwayne, Ind., U. S., 22nd October, 1884; 5 years.

Claim.—1st. In a kiln, perforated inlet flues closed at the top, substantially as specified. 2nd. In a kiln, perforated side flues for the admission of the heating medium into the kiln chamber closed at the top, substantially as described. 3rd. In a kiln, a double wall with an air space between the two divisions thereof, in combination with chimney flues built partly in the inner, and entirely free from the outer division of such double wall from a main outlet flue in the base of the kiln, substantially as specified. 4th. In a kiln, perforated side flues for the admission of the heating medium abutting against the interior of the kiln wall only and not fastened to it, substantially as described. 5th. In a kiln, perforated fire brick arches built across the lower portion of the fire boxes in the place of and for fire grates, substantially as specified. 6th. In a kiln, a perforated floor of brick laid in rows with the ends of consecutive brick in every row as far apart as the length of the desired perforations, which are in every case opposite the centre of the brick in the adjoining row on either side, substantially as described. 7th. The combination, in a kiln, of perforated side flues closed at the top for the admission, and a series of base flues for the exit of the heating medium, substantially as described. 8th. The method of burning articles made of carth in a kiln by forcing the heating medium into the kiln chamber through perforated side flues closed at the top, and out through a perforated floor and series of base flues, substantially as described.

No. 20,409. Railroad Switch.

(*Aiguille de Railroute.*)

Gilbert Marcotte and John B. Carrière, Beacom, Mich., U. S., 22nd October, 1884; 5 years.

Claim.—1st. The combination of the rails *e* and *f* having formed in them the notches *p, p*, with the inner rails *a* and *b*, joined as shewn, and the switch rail *g* pivoted at one end and tapered at the other end, substantially as shewn and for the purpose specified. 2nd. The combination of the pivoted switch rail *g*, with the bar *h* having the rack *i*, the brackets *j*, spur wheel *k*, crank *l*, indicator *m* and stay pin, substantially as set forth. 3rd. The combination, with the pivoted switch rail *g* and the mechanism for moving the same, herein shewn and described, of the bed plates *a* and stop blocks *o*, substantially as described.

No. 20,410. Varnish. (*Vernis.*)

John A. Shepard, Wooster, Ohio, U. S., 22nd October, 1884; 5 years.

Claim.—1st. A varnish having as its essential ingredient, gum, bee's-wax and linseed oil. 2nd. The varnish consisting of gum, bees-wax, linseed oil and turpentine.

No. 20,411. Trace-Holder. (*Porte-Trait.*)

Bennington R. Hughes, Philadelphia, Penn., U. S., 22nd October, 1884; 5 years.

Claim.—1st. The hinged button, in combination with the shank B, of a trace-holder by means of the pin *b*, substantially as shown and described. 2nd. The button A having the lugs or cheeks *c, c*, in combination with the tongue *d*, of the shank B by means of the pin *b*, whereby the button is adapted to be turned with the broad flat side against the upper side of said shank, for its passage through the slot of a trace, and afterwards brought to the position at right angles to the

shank with the end of the stop *e* of the shank resting against the inner surface of the button, whereby said surface of the button is held fairly against the outer flat surface of the trace, substantially as set forth.

No. 20,412. Fire-Escape. (*Sauveteur d'Incendie.*)

Andrew J. Johnson, Cuyahoga Falls, Ohio, U. S., 22nd October, 1884; 5 years.

Claim.—1st. The reel *a* formed with a toothed annular flange *at*, in combination with case *b*, shaft *i*, toothed wheel *u*, pinion *m*, spider *f*, governor *s* and shoe *e*, substantially as described. 2nd. The reel *a*, formed with a toothed annular flange *at* having an annular V-shaped groove *c*, in combination with case *b*, shaft *i*, toothed wheel *u*, pinion *m*, spider *f*, governor *s* and shoe *e*, substantially as described.

No. 28,413. Stone Dressing Machine.

(*Machine à Tailler la Pierre.*)

James W. Maloy, Somerville, Mass., U. S., 22nd October, 1884; 5 years.

Claim.—1st. In a stone dressing machine, a work supporting carriage provided with supporting mechanism, whereby said carriage travels in different directions in a horizontal plane, and mechanism, substantially as described, for propelling the same from a single source of power, as specified. 2nd. In a stone dressing machine, a work supporting carriage provided with supporting mechanism, whereby said carriage is rotated and moved in different directions in a horizontal plane, and mechanism, substantially as described, for propelling the same from a single source of power. 3rd. In a stone dressing machine, the combination with a work supporting carriage, of travelling supports for the carriage, a main driving shaft, and mechanism, substantially as described, connecting the support, and the carriage with the shaft, the arrangement being such that the work-supporting carriage may be caused to travel in any substantially horizontal direction, as set forth. 4th. In a stone-dressing machine, the combination, with a work-supporting carriage, of a rotary and a reciprocating support for the carriage, and mechanism, substantially as described, for connecting said supports and propelling the same from a single shaft, as set forth. 5th. In a stone-dressing machine, the combination of a primary carriage travelling on fixed tracks, a support rotating on a pivot or centre carried by said primary carriage and a secondary work-supporting carriage travelling on said rotary support, and mechanism, substantially as described, for propelling said supports and carriage from a single shaft. 6th. In a stone-dressing machine, the combination of the primary carriage adapted to travel on fixed tracks B, having rollers bearing on said tracks, and provided with lateral extensions or supports L, L, the rotary support adapted to rotate on a pivot supported by the primary carriage and to bear upon the support L, and the secondary work-supporting carriage adapted to move endwise on tracks on the rotary support, and mechanism for propelling the same from a single source of power, as set forth. 7th. In a stone-dressing machine, the combination of the fixed supporting frame or base having a propelling screw shaft, mechanism for rotating said shaft in either direction, a primary carriage adapted to travel on said fixed support, a rotary support adapted to rotate on the primary carriage, a secondary carriage adapted to travel on the rotary support, and intermediate mechanism, substantially as described, connecting said primary carriage, rotary support and secondary carriage to the shaft, whereby they may be independently connected with and disconnected from a said screw shaft, as set forth. 8th. In a stone-dressing machine, the combination of the fixed supporting frame or base having a screw shaft, mechanism for rotating said shaft in either direction, a primary carriage adapted to travel on said fixed support, a rotary support adapted to rotate on the primary carriage, a secondary carriage adapted to travel on the rotary support, intermediate mechanism, substantially as described, connecting said primary carriage, rotary support and secondary carriage to the shaft, whereby they may be independently connected with and disconnected from the screw shaft, and locking devices, whereby said connecting and disconnecting devices are locked in either of the conditions in which they may be placed, and thus prevented from accidental movement, as set forth. 9th. In a stone-dressing machine, the combination of the fixed supporting frame or base having a screw-shaft, mechanism for rotating said shaft in either direction, a primary carriage adapted to travel on said fixed support, a rotary support adapted to rotate on the primary carriage, a secondary carriage adapted to travel on the rotary support, mechanism, substantially as described, connecting the said primary carriage, rotary support and secondary carriage to the shaft, whereby they may be independently connected with, and disconnected from the screw shaft, and locking devices, whereby the primary and secondary carriages may be prevented from independent motion when disconnected from the screw shaft, as set forth. 10th. In a stone-dressing machine, the combination of the fixed supporting frame or base having flanges or tracks, a screw shaft, operating mechanism for said shaft, the primary carriage adapted to travel on the tracks and having a movable half-nut adapted to engage with the screw shaft, a locking device adapted to prevent the movement of the carriage on its tracks, and mechanism connected therewith, whereby the half-nut may be disengaged from, or engaged with, the screw shaft, and the locking device simultaneously made operative or inoperative, as set forth. 11th. In a stone-dressing machine, the combination of the fixed supporting frame or base having a screw shaft, operating mechanism for said shaft, the primary carriage adapted to travel on said base and provided with mechanism, substantially as described, connected therewith, whereby it may be engaged with, or disengaged from, the screw shaft, the rotary support journalled on an arbor or pivot supported by the primary carriage and supported by said carriage, the worm *l* engaged with the worm-wheel *2* forming a part of the rotary support and intermediate mechanism, substantially as described, connecting said parts, whereby the said worm may be connected with, and disconnected from, the screw shaft, as set forth. 12th. In a stone-dressing machine, the combination of the fixed supporting frame or base having a screw-shaft, operating mechanism for said shaft, the primary carriage adapted to travel on said base and provided with me-

chanism, substantially as described, whereby it may be engaged with or disengaged from the screw-shaft, the arbor E journaled in the primary carriage and provided with the worm-wheel N and pinion P, mechanism, substantially as described, whereby said worm-wheel and arbor may be rotated by the screw-shaft, the rotary support journaled on the arbor, mechanism, substantially as described, whereby said support may be rotated in either direction by the screw-shaft, and the secondary carriage D adapted to travel on and rotate with the rotary support, and provided with a rack R meshing with the pinion P on the arbor E, as set forth. 13th. In a stone-dressing machine, the combination of the fixed base or support, having the screw shaft, the operating mechanism for said shaft, the primary carriage adapted to travel on said base, and the secondary carriage supported by the primary carriage and adapted to move independently thereof, the mechanism connecting the same, whereby either as described, and mechanism connecting the same, whereby either carriage may be put in operative connection with the screw-shaft, the other being at the same time disconnected from the said shaft, and made inoperative, as set forth. 14th. The combination of the screw shaft S, primary carriage D, nut T, engaging with the shaft lever *g* connected to the nut and engaging with the rack *s*, and shaft *e* carrying pinion *u* also engaging with the rack, as set forth. 15th. The combination of the screw-shaft S, primary carriage D, half-nut T engaging with the shaft-lever *g* connected with the nut and engaging rack *s*, shaft *e*, carrying pinion *u* also engaging with the rack *s*, and cam *n* on shaft *e*, operating clamp *x*, as set forth. 16th. The combination of the screw-shaft S, primary carriage D, sliding half-nut T engaging with the shaft, lever *g* connected with the nut, and engaging rack *s*, shaft *e*, carrying pinion *u*, also engaging rack *s*, arbor E having worm-wheel N and pinion P attached thereto, swinging frame *ji* connected with the half-nut by link *h*, the worm O journaled in the frame *ji* and engaging with a gear-wheel on the screw-shaft, and the secondary carriage having a rack engaging with the pinion on the arbor E, as set forth. 17th. The combination, with a reciprocating carriage for carrying a stone to be dressed, of the arbor E having the flanged worm-wheel N, the brake *o* embracing the flange of the worm wheel, the swinging frame *ji* having the worm O, and the dog *et* having an arm engaging with the frame *ji* and adapted to compress the brake, as set forth. 18th. In a stone-dressing machine, the combination, with a horizontally adjustable rotary carriage, of an overhanging rotary cutter adapted to form a molded edge upon a slab of stone placed upon the rotating carriage and connections, substantially as described, whereby both are driven from the same shaft, as set forth. 19th. The combination of the cutter-spindle, the sleeve carrying said spindle, having an arm *ja*, and the turret *ga* journaled on said arm and adapted to hold a series of cutters and present either of them to the spindle, as set forth. 20th. The combination, with a work-supporting carriage having slots, of a clamp composed of a slotted plate having bolts for engagement with the slots in the carriage, a jaw connected with the clamp, and a stop adapted to bear against the edge of a slab on the carriage, as set forth.

No. 20,414. Burial Apparatus.

(Appareil d'Enfouissement.)

Andrew B. Morrison, Litchfield, Ill., U. S., 22nd October, 1884; 5 years.

Claim—1st. A device for lowering coffins into a grave, consisting of a metal frame having foot projections, a lever fulcrumed within said frame near the top of the same, said lever having a foot-ropes at its outer end and a lifting rope, pulley, tackle, blocks and connecting rods, the whole adapted to be placed over an open grave, substantially as set forth. 2nd. The combination of the frame A having four feet *a* and cross pin *e*, with the lever B, projection *ji*, hook *f*, pulley *cz*, eye bolt *ex*, tackle *c* and *cz*, ring *bz*, connecting-rods *b*, box C, rope *dx* and foot rope *g*, all arranged and operated substantially as shown and specified.

No. 20,415. Petroleum Vapour Burners.

(Bec à Gaz de Pétrole.)

Orrin B. Peck, Chicago, Ill., U. S., 22nd October, 1884; 5 years.

Claim—1st. The combination of a vapouring chamber and a feed-pipe thereto for the fluid to be vaporized, with one or more vapour-conducting tubes inclosing the feed-pipe and having nipples or burners communicating therewith, substantially as and for the purpose specified. 2nd. The vapourizing chamber A, feed-pipe B, vapour-supply tube C inclosing the feed-pipe and having nipples or burners communicating therewith, drip-cups F and supply-pipe H, in combination with a wall or housing and supporting-plate J for locating the devices within the fire-pot and the stove, substantially as specified. 3rd. The vapourizing chamber A, feed-pipe B, vapour-supply tube C inclosing the feed-pipe and having nipples or burners communicating therewith, in combination with the drip-cups F and supply-pipe H, all arranged and operated substantially as described. 4th. The vapourizing chamber A, feed-pipe B, vapour-supply pipe C having nipples or burners communicating therewith, drip-cups F, deflector G and supply-pipe H, in combination with the wall or housing I and plate J, substantially as and for the purposes specified.

No. 20,416. Load-Lifter. (L'ou'e-Charge.)

Thomas Ruddell, Eramosa, Ont., 22nd October, 1884; 5 years.

Claim—1st. In a load-lifter, in which the load is lifted by the revolving of shafts journaled near the top of the barn, a flexible strap H arranged to act on the rim G, or its equivalent, in combination with a pivoted lever I operated by the rope J, substantially as and for the purpose specified. 2nd. The pivoted lever I, arranged to engage with the ratchet-teeth *a*, formed on the bull-wheel E and connected to the flexible strap H, arranged to act against the said bull-wheel, in combination with the rope J, a friction-roller *b*, substantially as and for the purpose specified. 3rd. The combination, with a load-lifter, constructed substantially as described, an extension-piece or shaft L, arranged to fit into a socket *d*, substantially as and for the purpose specified.

No. 20,417. Composition of Matter for the Manufacture of Target Balls and Flying Targets. (Composition de Matières pour la Fabrication des Bulles de Cibles et des Cibles Volantes.)

Joseph H. Jenne, Suspension Bridge, and James Brampfield, Niagara Falls, N. Y., U. S., 24th October, 1884; 5 years.

Claim—A compound composed of coal tar reduced by fire to the required consistency, and finely sifted coal ashes or other known equivalents, substantially in the proportions and for the purposes set forth.

No. 20,418. Automatic High and Low Water Alarm for Steam Boilers. (Indicateur d'Eau Automatique à Sifflet pour Chaudières à Vapeur.)

John C. Palmer, Charles R. Snow and Alexander A. Wylie, Hamilton, Ont., 24th October, 1884; 5 years.

Claim—1st. The combination of the chamber A A, steam pipe B, water pipe C and float D, lever F2, valve G and steam whistle Q, substantially as and for the purpose hereinbefore set forth. 2nd. The combination of the chamber A A, the ball float E, lever F1, valve G1 and steam-whistle I, substantially as and for the purpose hereinbefore set forth.

No. 20,419. Circular Knitting Machine.

(Machine à Tricot Circulaire.)

The Byfield Manufacturing Company (assignee of John Byfield), Lowell, Mass., U. S., 24th October, 1884; 5 years.

Claim—1st. The combination, with two or more yarn guides adapted to carry yarns of different colours, of two or more reciprocating cam-bars, mechanism for connecting said cam-bars with the yarn guides, a pattern chain for controlling the movements of said cam bars, and mechanism connecting said pattern chain with said cam bars, substantially as and for the purposes described. 2nd. The combination, with two or more yarn guides, of a suitable yarn severing and holding device, two or more reciprocating cam bars, mechanism for connecting said cam bars with the yarn guides, a single reciprocating cam bar for operating the yarn severing and holding device, and mechanism connecting said cam bars with the pattern chain, substantially as and for the purpose described. 3rd. The combination of two or more cam bars *b*, *b1*, etc., provided with the notches *b2*, *b3* and the pins *b7*, *b7*, the cam bar *e* provided with the plate *ex*, mechanism for connecting said cam bars with the yarn guides, two or more spring actuated pawls *g7*, *g7*, and mechanism for intermittently moving said pawls endwise, substantially as and for the purpose described. 4th. The combination of two or more yarn guiding levers, two or more reciprocating cam bars, mechanism connecting the cam bars with the yarn guides, two or more pawls arranged to engage with, and move said bars, mechanism for reciprocating said pawls, a pattern chain provided with two or more longitudinal rows of holes having set therein pattern determining pins adapted to operate said pawls, and mechanism for operating said pattern chain, substantially as and for the purposes described. 5th. The combination of two or more yarn guides, two or more reciprocating cam bars, mechanism connecting said cam bars with the yarn guides, two or more pawls arranged to engage with, and move said bars, two or more pivoted dogs, each carrying at its free end one of said pawls, two or more springs for pressing the free ends of said pawls upward, mechanism for reciprocating said dogs and pawls, two or more lugs, one to each of said dogs, two or more pins adapted to co-operate with said lugs to raise said dogs, and mechanism for raising and lowering said pins, substantially as and for the purposes described. 6th. The combination of two or more yarn-guides *f*, *f1*, etc., two or more reciprocating cam bars *b* *b1*, etc., mechanism connecting the cam bars with the yarn guides, two or more pins *b7*, *b7*, the cam bar *e* provided with the plate *ex* and bracket *ex1* and the reciprocating bar Q provided with the shoulder *ex5*, substantially as and for the purposes described. 7th. The combination of two or more yarn guiding levers adapted to carry yarns of different colors, two or more pendant rods *d*, *d1*, *d2*, *d3* connected thereto, and each provided with a detent notch *d8*, the latch lever *d7* arranged to automatically engage with each of said detent notches *d8*, when said rods are raised to hold said rod in said elevated positions, mechanism for raising said rods and mechanism for tripping said latch to release the rods, substantially as described. 8th. The combination of two or more yarn guides *f*, *f1*, *f2*, two or more pendant rods *d*, *d1*, *d2*, *d3*, the latch lever *d7*, the spring *d9*, the lever *d6*, the bar *e* having mounted thereon the toe *ex2*, two or more bars *b*, *b1*, *b2*, *b3*, each carrying a cam or wedge *c*, and mechanism for intermittently moving the bars *b*, *b1*, *b2*, *b3* and *e* endwise, substantially as described. 9th. The combination of two or more yarn guides, yarn-severing mechanism, yarn-holding devices, two or more reciprocating cam bars for operating the yarn-guiding levers and a single cam bar for operating the yarn-severing and holding devices, and an arm or shoulder formed upon or secured to said single bar and adapted to engage with and be acted upon by each of the first-named cam bars to move them in one direction, etc., or to move it in the opposite direction substantially as and for the purposes described. 10th. The combination of the bar Q, the cross-piece *g2*, two or more pawls *g7*, *g7* pivoted thereto, two or more reciprocating cam bars *b*, *b1*, two or more yarn guides *f*, *f1*, etc., mechanism connecting the cam bars with the yarn-guides, the forked bracket Q2, the eccentric cam wheel Q1 and the shaft P1, substantially as and for the purposes described. 11th. The combination of two or more yarn-guides *f*, *f1*, etc., two or more reciprocating cam bars *b*, *b1*, etc., mechanism connecting the cam-bars with the yarn guides, two or more pawls *g7*, *g7*, the bar Q for reciprocating said pawls, the forked bracket Q2, the screws *i*, *i*, the slots *i*, *i*, the eccentric cam wheel Q1 and mechanism for rotating said cam wheel, substantially as and for the purposes described. 12th. The combination of two or more yarn guides *f*, *f1*, etc., two or more reciprocating cam-bars *b*, *b1*, etc., me-

chanism connecting said cam bars with the yarn guides, two or more reciprocating pawls *g7, g7*, two or more pins *h, h*, the stand *R*, the shelves *j1*, the pins *j2, j2*, the springs *j3, j3* and mechanism for raising said pins, substantially as and for the purposes described. 13th. The combination of a pattern chain provided with two or more series of holes, each series consisting of two or more longitudinal rows, two or more series of removable pins *l, l* set therein, one or more pins or rods *h* arranged above said chain, one or more pawls *g4*, means for reciprocating said pawl, one or more cam bars arranged to be acted upon and moved by said pawls, a series of ratchet teeth formed upon the outer surface of said chain, a reciprocating pawl arranged to act upon said teeth to impart to said chain an intermittent longitudinal motion, and mechanism for intermittently moving said chain transversely, all arranged and adapted to operate substantially as and for the purposes described. 14th. The combination of the pattern chain *S4 S5*, the pin *T2* moving therewith, the toothed wheel *T*, the elevations *u, u1* and *u2* thereon, the carriage *S3*, the toe *m* secured thereto and adapted to be pressed against the elevations *u, u1* and *u2*, and means of moving the pattern chain lengthwise, substantially as and for the purposes described. 15th. The combination of the intermittently moving pattern chain *S4 S5*, the carriage *S3*, the toe *m*, the spring *m2*, the cam wheel *T* provided with the elevations *u, u1* and *u2*, and means of moving said cam wheel *T* a given distance about its axis with every revolution of the pattern chain, substantially as and for the purposes described. 16th. The combination of the reciprocating bar *e*, the cam plate *N* provided with the oblique rib *e3* and spring-actuated gate *e4*, the bar *N2* provided with the cutter blade *e7* and the roll *e8* and the fixed, hooked-shaped cutter-blade *e6*, all arranged and adapted to operate, substantially as described. 17th. The combination of the reciprocating bar *N2* having secured thereto the cutter blade *e7* and the push blade *e11*, the fixed, hooked-shaped cutter-blade *e6* and the spring-pressed clamping jaw *e10*, all arranged and adapted to operate, substantially as and for the purposes described. 18th. The combination of the reciprocating bar *N2* carrying the cutter-blade *e7*, the stationary hooked-shaped cutter-blade *e6*, the pivotal lever *N5* provided with the cam slot *f4*, the pin *f5* and the wire hook *f7* attached to the movable end of said lever *N5*, and arranged and adapted to be moved at right angles, or nearly so, to the movement of the bar *N2*, substantially as described. 19th. The combination of the bar *N2* carrying the cutter-blade *e7*, means for reciprocating said bar, the pivotal lever *N5* provided with the cam slot *f4*, the pin *f5*, the wire hook *f7* attached to the movable end of said lever *N5*, the push-back *L* and the plate *f8* secured to said push-back and projecting over the needles, substantially as and for the purposes described. 20th. The combination of the bevel gear wheel *O*, the driving shaft *C*, the bevel gear wheel *P* provided with the groove *P8*, the bracket *P7*, the collar *P5*, the pins *q, q, q1, q1*, the spring *P6* adapted to cause the engagement of said pins *q, q* and *q1, q1* when disengaged, and the rod or plunger *W2*, all arranged and adapted to operate, substantially as and for the purpose described. 21st. On combination with a circular series of needles arranged to be moved about a common axis and a knocking-over wheel, the brush *Y* mounted upon the spring or yielding support *Y1* in position, in contact with said needles at a point in close proximity to the knocking-over wheel and adapted to brush the ends of the yarns away from the needles, and prevent them from being knit into work, substantially as described. 22nd. The push-back *L* provided with the guard-plate *f8* constructed and arranged, substantially as and for the purposes described.

No. 20,420. Door Lock. (*Serrure de Porte*)

William F. Morgan and Robert Hughes, Collingwood, Ont., 24th October, 1884; 5 years.

Claim.—1st. The bolt *D* attached to the end of the pivoted lever *F*, and arranged to protrude above the plate *H*, the spring *I* located, as specified, in combination with the door *A* having a hole *E* made in its bottom, substantially as and for the purpose specified. 2nd. The pivoted lever *F* actuated by the spring *I* and having the bolt *D* attached to it, in combination with a pivoted lever *J* connected to the lever *F*, and actuated by the bar *K*, substantially as and for the purpose specified. 3rd. The pivoted lever *F* actuated by the spring *I*, and having attached to it at one end the bolt *D*, and at its other end the lever *J*, in combination with the bar *K* having a rounded end *b* and actuated by the bar *L*, substantially as and for the purpose specified. 4th. The bolt *N* attached to the lever *O* and arranged to extend below the bottom of the door *A*, in combination with a bolt *P* attached to the other end of the pivoted lever *O*, and located below a hole made in the bottom of the closed door *B*, substantially as and for the purpose specified.

No. 20,421. Street Indicator for Cars.

(*Indicateur des Rues pour Chars*.)

Thomas Beaver and William G. Jewett, Toronto, Ont., 24th October, 1884; 5 years.

Claim.—1st. In a street-indicator for cars, two rollers *B* and *C* connected by means of a ratchet and pawl to a cap *F*, the said cap having a spring connection with a disc *H*, as shown and for the purpose specified. 2nd. In a street-indicator for cars, the disc *H* of the shape shown, in combination with the spring *a* and cap *F* containing a pawl working on the ratchet boss *E*, the whole being journalled by means of the spindle *D* in bearings in the frame *A*. 3rd. In a street-indicator for cars, the vertical rod *J* actuating the straps *i*, in combination with the cap *F*, as shown and for the purpose specified. 4th. In a street-indicator for cars, the rollers *B* and *C*, in combination with the ratchet-boss *E*, cap *F* and pawl *a*, spring *h* and disc *H*, the whole journalled, as aforesaid, in the frame *A* and operated by the vertical rod *J* which actuates the lever of a bell, as shown.

No. 20,422. Radiator. (*Radiateur*.)

William Kirkwood, Guelph, Ont., 24th October, 1884; 5 years.

Claim.—1st. A tube *A* open at both ends, suspended within the jacket *C*, as specified, in combination with the supply or connecting pipe *D*, substantially as and for the purpose specified. 2nd. A tube *A* open at both ends and having collars *a* fixed to its ends, and placed

within the jacket *C* to which it is connected, as specified, in combination with an annular enlargement, *b* arranged to receive the supply or connecting pipe *D*, substantially as and for the purpose specified. 3rd. A radiator composed of a series of tubes *A* open at their ends, each one suspended within a jacket *B*, the space between the tube and jacket being hermetically sealed, and the series of jackets thus formed connected by the pipes *D*, substantially as and for the purpose specified.

No. 20,423. Snow Plough for Clearing Highways. (*Charrue à Neige pour Déblayer les Grands Chemins*.)

Thomas S. Chapman, Marbleton, Que., 25th October, 1884; 15 years.

Claim.—The sides *A*, the mould board *B*, in combination with the wings *F, F*, the lever *D* and the adjustable guide boards *c, c*, with the foundation planks *u, u*, the cutters *H* and oval bolt holes *L*, and the wedges *s, s*, with the iron clamps *T, T*, in combination for the purposes set forth and described.

No. 20,424. Apparatus for Raising Cream.

(*Appareil pour faire Elever la Crème*.)

Archibald Scott, Carriek, Ont., 25th October, 1884; 5 years.

Claim.—1st. As an improved cream-raising apparatus, a box *A* having a partition formed in its interior with holes to receive the milk-cans *E* which are placed on ice, arranged not to extend above the partition, substantially as and for the purpose specified. 2nd. A box or chamber *A*, provided with a detachable cover *B*, and having a partition formed in its interior by the sections *D*, in combination with the milk cans *E*, arranged to sit within and between the sections *D*, substantially as and for the purpose specified. 3rd. The milk cans *E*, having perforated rings *F1*, formed around the bottom of each, to retain broken ice against the bottom of each can, when they are placed with the box *A*, which is arranged to contain ice and water, substantially as and for the purpose specified.

No. 20,425. Art of Knitting Stockings.

(*Art de Tricoter les Bas*.)

William Esty, Laconia, N.H., U.S., 27th October, 1884; 5 years.

Claim.—The process of forming full-fashioned stockings which consists in taking up the full number of stitches required to form the top of the leg, knitting a few courses, dropping a portion of the stitches, knitting a few circular courses upon the remaining needles, then throwing out of action one-half of the remaining needles, knitting a toe-bulge by knitting a given number of courses back and forth and narrowing, and then a corresponding number of like courses and widening at the same time, uniting the widened portion to the narrowed portion, then throwing into action the needles last thrown out of action, then knitting a sufficient number of circular courses to form the greater portion of the foot, then widening for several courses to form a gusset or gore in the bottom of the foot, then knitting the heel-bulge in the same manner as the toe-bulge, and upon the same side of the tube as the gusset or gore, then knitting a series of circular courses to form the ankle, then widening upon the same side of the tube as the heel bulge till all the needles first thrown out of action are again in operation, then knitting a series of circular courses using the whole number of needles to complete the desired length of the leg, then throwing out of action and dropping the stitches from the same needles that were first thrown out, repeating the foregoing operations as many times as there are stockings required, and then severing the sections and uniting by seaming the disconnected side of the toe-bulge to the foot portion, substantially as describe.

No. 20,426. Belt Fastener. (*Joint de Courroie*.)

John W. Pugh, Grand Rapids, Mich., U.S., 25th October, 1884; 5 years.

Claim.—1st. A belt-fastener consisting of two pieces of metal, each slotted so as to form on one side of it a series of tongues adapted to be bent into U-loops, the two parts being hinged together so that the free ends of the loops will project in opposite directions from the sides of the fastener, substantially as and for the purpose specified. 2nd. A hinged belt-fastener consisting of two series of U-loop formed integral with and connected by cross pieces, the series of loops on one of the two pieces forming the fastener being bent in a direction opposite to that on the other, substantially as and for the purpose specified. 3rd. A belt fastener consisting of two parts, each part being a piece of metal having on it tongues projecting in opposite directions, one series adapted to be bent into loops for the reception of a hinge-bolt, and the other into U-loops adapted to pass through, and embrace the ends of the belt, substantially as and in the manner specified.

No. 20,427. Art of Knitting Widened Tubular Fabrics. (*Art de Tricoter les Tricots Circulaires Elargis*.)

William Esty, Laconia, N.H., U.S., 25th October, 1884; 5 years.

Claim.—The improvement in the art of knitting a widened tubular fabric with two yarns on two distinct sets of needles, which consists in simultaneously knitting a course on each set upon all of the needles in operation with a different yarn on each set, then at the end of such a course crossing the yarn from one set of needles to the other and knitting back another course on each set of all of the needles in operation, then bringing an additional needle at the end of each set of needles into operation, feeding yarns thereto, and then dropping such additional needles with the yarn thereon out of action, then crossing and twisting the yarn from each set of needles to the other, and knitting one or more courses on each set of all of the needles in operation as before, then bringing into action the additional needles previously dropped with yarn thereon and completing the stitches

previously begun but not completed, and after knitting any desired number of courses on all of the needles in operation repeating the steps before described as often as desired, substantially as set forth.

No. 20,428. Feed Water Regulator and Alarm for Steam Boilers. (*Régulateur et Indicateur à Sifflet de l'Eau d'Alimentation des Chaudières à Vapeur.*)

Patrick Brown, Chesnut Hill, and Charles W. Johnston, Germantown, Penn., U.S., 25th October, 1884; 5 years.

Claim.—1st. In a feed-water regulator for steam boilers, the combination, with mechanism for opening and shutting off the supply of feed-water to the boiler, of unequally preponderating water cylinders or vessels, on opposite ends or arms of a rocking beam, and flexibly jointed pipes connecting the upper and lower portions of said cylinders or vessels with the steam and water space of the boiler at different altitudes, substantially as specified. 2nd. In a combined feed-water regulator and low water alarm for steam boilers, the combination, with mechanism for opening and shutting off the supply of feed-water to the boiler, and with a steam whistle or alarm and connections for opening it, of unequally preponderating water cylinders or vessels on opposite sides or arms of a rocking beam, flexibly jointed pipes connecting the upper and lower portions of said cylinders or vessels with the steam and water space of the boiler at different altitudes, and a weighted rock beam on the one arm of which the beam carrying said cylinders or vessels has its fulcrum, essentially as and for the purpose herein set forth. 3rd. The combination, with the steam and water receptacle G arranged to connect with the steam and water spaces of a boiler, of the flexibly-jointed pipes *m, n, o, p*, the unequally-preponderating water cylinders or vessels B, C, the beam D with connections on opposite sides of its fulcrum for carrying said cylinders or vessels, the weighted beam E having a fixed fulcrum *h*, and supporting on its lighter end or arm the beam D, and mechanism or devices connected with said beams D and E, for opening and shutting off the supply of feed-water to the boiler for operating a whistle or alarm, substantially as specified. 4th. The bracket I and attached fulcrum *h*, in combination with the weighted beam E, the beam D arranged to rock on said beam E, and the unequally-preponderating water cylinders or vessels B, C attached to the beam D, for operation in connection with a steam boiler, essentially as and for the purposes described. 5th. The rest *g* on the weighted beam E, having a fixed fulcrum, in combination with the rocking beam D mounted on said beam E, and the unequally-preponderating water cylinders or vessels B, C, essentially as and for the purposes herein described.

No. 20,429. Corn Cultivator.

(*Cultivateur à Blé d'Inde.*)

John H. Young, Coneseon, Ont., 25th October, 1884; 5 years.

Claim.—1st. In a sulky corn-hoe or cultivator, the use of the self-locking levers *g*, substantially as and for the purpose hereinbefore set forth. 2nd. In a corn cultivator, the combination of the arched axle-tree A with the adjustable gang, of hoes D, D', substantially as and for the purpose set forth. 3rd. In a corn cultivator, the combination of the universal joint *e* and hoes *d*, with the gangs of hoes D, D', and cross piece E, substantially as and for the purpose specified. 4th. In a corn cultivator, the combination of the adjustable chain *l*, with the gangs D, D', as and for the purpose set forth. 5th. In a corn cultivator, the combination of the foot plates *k* with the gangs D, D', substantially as and for the purpose set forth. 6th. In a corn cultivator, the combination of the self-locking levers *g, g'*, with the chains *h, h'* and the adjustable gangs of hoes D, D', substantially as and for the purpose hereinbefore set forth.

No. 20,430. Roller Mill. (*Moulin à Cylindres.*)

John Stevens, Neenah, Wis., U.S., 27th October, 1884; 5 years.

Claim.—1st. The combination, with the bearings of the movable roller, of adjusting mechanism, whereby each bearing can be separately and horizontally adjusted toward or from the opposing roll, mechanism whereby both bearings can be simultaneously and co-ordinately adjusted to regulate the distance between the working faces of the rolls for grinding, and mechanism whereby both bearings can be simultaneously moved to separate the rolls without disturbing the grinding adjustment, substantially as set forth. 2nd. The combination, with the bearings of the movable roller, of adjusting levers G, G', mechanism whereby said levers are connected with said bearings, mechanism whereby both levers can be simultaneously and co-ordinately adjusted to regulate the distance between the working faces of the rolls for grinding, and mechanism whereby both levers can be simultaneously moved to separate the rolls without disturbing the grinding adjustment, substantially as set forth. 3rd. The combination, substantially as hereinbefore set forth, of the yielding roll bearings in movable bearings, the converging levers acting upon the bearings at each end, to move the yielding roll away from or let it in toward the other, and means common to both of said levers, whereby they are caused to act in unison to adjust the roll co-ordinately throughout its length. 4th. The combination, substantially as hereinbefore set forth, of the yielding roll mounted in movable bearings, the converging levers acting upon the bearings at each end, to move the yielding roll away from or let it in toward the other, and the central screw acting upon the power-arms of said levers at their point of meeting to operate them co-ordinately. 5th. The combination, substantially as hereinbefore set forth, of the yielding roll mounted in movable bearings, the converging levers acting upon the bearings at each end, to move the yielding roll away from or let it in toward the other, the central screw acting upon the power-arms of said levers at their point of meeting, and the adjustable stop to bar the action of said screw and determine the space between the rolls. 6th. The combination, substantially as hereinbefore described, of the yielding roll mounted in movable bearings, means for adjusting said bearings independently to carry the roll towards or away from the other, and the converging levers and their central controlling device acting upon the bearings at each end to adjust them simultaneously and co-ordi-

nately. 7th. The combination, substantially as described, with the bearings of the yielding roll, of the long adjusting screws, their co-acting springs and levers arranged to act upon the heads of hubs of said screws to retract them, and the bearings into which they take against the force of the springs. 8th. The combination, substantially as described, with the bearings of the yielding roll, of the long adjusting screws, their co-acting springs, levers arranged to act upon the heads or hubs of said screws, and extending to a central meeting point, and a common controlling device for moving the ends of said levers to retract or let in the yielding roll, simultaneously at each end. 9th. The combination, substantially as hereinbefore described, with the bearings of the yielding roll, of the long adjusting screws, their co-acting springs, levers arranged to act upon the heads or hubs of said screws, and extending therefrom to a central meeting point, a common controlling device for moving said levers to throw the yielding roll out or let it in, and an adjustable stop barring the action of said controlling device, whenever in its inward movement the yielding roll reaches its predetermined proximity to the other. 10th. The combination, substantially as hereinbefore described, with the bearings of the yielding roll, of the long-adjusting screws, their co-acting springs, levers arranged to act upon the heads or hubs of said screws to retract them, and the bearings into which they take against the stress of the springs, and the hollow or tubular screws affording in their heads a fulcrum for said levers. 11th. The combination, substantially as hereinbefore described, with the bearings of the yielding roll, of the long adjusting screws, their co-acting springs, levers arranged to act upon the heads or hubs of said screws, and extending therefrom to a central meeting point, a screw rod at said point over which the ends of the levers take, and a hand-nut working upon said rod to actuate the levers. 12th. The combination, substantially as hereinbefore described, with the bearings of the yielding roll, of the long adjusting screws, the springs, the levers for throwing in and out the central screw-rod common to both levers, the hand-nut and an adjustable stop to bar the revolution of said nut in that direction calculated to bring the rolls together. 13th. The combination, substantially as hereinbefore described, with the two yielding rolls in a double mill, of the levers at each end of the machine, and the single screw rod taking through the inner ends of both sets of levers. 14th. In combination with the adjusting devices at each end of the rolls, the levers formed with cupped or yoke-shaped ends which take over the shank of the long screw or equivalent bolt, and over the spindle of the screw-rod respectively, whereby said levers are supported in the machine.

No. 20,431. Journal Bearing.

(*Coussinet de Tourillon.*)

David A. Hopkins, Park Ridge, N. J., U. S., 27th October, 1884; 15 years.

Claim.—A journal bearing made of two different metals, one of a soft or yielding nature, and the other of a hard or unyielding nature, the soft or yielding presenting ridges or spurs which receive the initial pressure of the journal, and by the rolling action of the same, and the load pressure upon the bearing, becoming crushed down and spread in conformity with the contour thereof, as described, whereby the surfaces in wearing contact are adjusted to each other, substantially as specified.

No. 20,432. Carpet Stretcher. (*Tendoir de Tapis.*)

Sheldon Merchant, Hobart, N. Y., U. S., 27th October, 1884; 5 years.

Claim.—1st. The combination, in a carpet stretcher, of rollers *i*, straps *l*, hook bar *k* and an anchor spike *e*, said roller being mounted in a supporting frame arranged to rest on the hook bar, and the hook bar extended under and beyond the side bars of the frame, substantially as described. 2nd. The roller *i*, located near the end of the supporting frame, having the anchor spike attached to it also located low down in the frame, to draw in about the plane of the carpet by a direct connection with the hook bar, in combination with the hook bar *k*, arranged under the frame, connecting strap *l*, lever handle *o* and the slide bolt *p*, substantially as described. 3rd. The combination, with the frame of a carpet stretcher having means, substantially as described, for stretching the carpet, of an anchor spike *e* connected to said frame by a rod *d* extended beyond the frame for maintaining free space between the frame and the base board, to facilitate the adjusting and taking of the carpet between the machine and the said base, substantially as herein set forth.

No. 20,433. Journal Bearing.

(*Coussinet de Tourillon.*)

William A. Hardy, Fitchburg, Mass., U. S., 27th October, 1884; 5 years.

Claim.—1st. A journal bearings provided with grooves, which extend from side to side of the bearing, the portions of said grooves intersecting the longitudinal centre of the bearing being farther from the transverse centre of said bearing than the ends of said grooves, whereby the lubricant is distributed over the wearing surface and is thrown away from the ends and towards the middle of the bearing, substantially as set forth. 2nd. A car journal bearing provided with two series of grooves, which extend from side to side of the bearing, each series being arranged between the transverse centre line of the bearing and one of its ends, the portion of each groove of the two series that intersect the longitudinal centre of the bearing being further from the transverse centre line of said bearing than the ends of such groove, whereby the lubricant is distributed over the wearing surface and is thrown away from the ends and towards the middle of the bearings, substantially as described.

No. 20,434. Machine for Drying Malt and Hops. (*Machine pour Sécher le Malt et le Houblon.*)

Percival Platt and James M. Aitchison, Adolphustown, Ont., 27th October, 1884; 5 years.

Claim.—1st. In a malt or hop dryer, the combination, with a furnace or other means for supplying heat, of a distributing apparatus having radial arms for conducting and discharging heated air, and the mass of malt or hops on top. 2nd. The right of drying the malt or hops on the top, whether the heat is taken from the furnace underneath or from any source external to the kiln, or otherwise soever. 3rd. A malt or hop dryer, consisting of a distributing apparatus, consisting of a receiving section suspended from the bed of the kiln, and having a flaring mouth, a middle or conducting section having a sheath, and an upper section having means for directing the heated air, and the top of the mass of malt or hops, as herein described.

No. 20,435. Rotary Sprinkler.

(*Arrosoir Tournant.*)

Adolph Weber, Detroit, Mich., U.S., 27th October, 1884; 5 years.

Claim.—A rotary sprinkler consisting of a tapering pipe B, a rose or sprinkler C secured to said pipe B, a tube D sleeved on said pipe, branch pipes E screwed into said pipe D, and rose sprinklers screwed on to said branch pipes, one sprinkler on each of said branch pipes, and on opposite sides of the tube D, as described.

No. 20,436. Fountain Tip. (*Jet de Fontaine.*)

Adolph Weber, Detroit, Mich., U.S., 27th October, 1884; 5 years.

Claim.—1st. In a fountain tip, the coupling A having the inclined water ways *c* through its top, in combination with the turbine wheel C having a closely spaced series of wings, operated upon by the jets issuing from the water ways *c*, all combined and arranged substantially as described. 2nd. In combination with the coupling A, having the bridge *b*, the delivery pipe B centrally secured into the same and provided with the conical flange *e*, having spiral water ways *e* and turbine wheel C, substantially as described. 3rd. In combination with the nozzle E, having water way *i*, the plug F provided with inclined or spiral water ways K, and a central nozzle G passing through the water way *i*, substantially as described. 4th. In combination, with the nozzle E having water way *i*, the plug F, provided with inclined or spiral water ways K, and a central nozzle G passing through the water way *i* and having its discharge end bent to one side, substantially as described. 5th. An improved fountain tip consisting of the coupling A, central delivery pipe B, turbine wheel C, cap D, delivery nozzle E, plug F and nozzle G, all constructed and combined as set forth. 6th. In a fountain tip, the nozzle G having its discharge end bent to one side, in combination with devices, substantially as described, for rotating said nozzle upon its axis, substantially as and for the purposes set forth.

No. 20,437. Broadcast Seed Sower.

(*Semoir à Grain à la Volée.*)

Seid Waddell (executor of the will of John C. Waddell), Union City, Penn., U.S., 27th October, 1884; 5 years.

Claim.—1st. The gear frame and staff of a broadcast sower, consisting of the T, plates *a, b*, step *f* and wood staff *g* bolted together, the plates having step-studs *c, d, k*, also step-stud *e*, and having the pivot bearings of the gear formed in them, substantially as described. 2nd. The step-studs *k* of the parts *b*, of the gear frame plates extended transversely to said parts *b*, to form a handle for holding the machine when in use, substantially as described. 3rd. The combination, in the gear frame and supporting staff of a broadcast sower, of plates *a, b*, handle *k* and the guard *o*, substantially as described. 4th. The combination, in the supporting and driving gear of a broadcast seed sower, of the T plates *a, b*, bearing studs *c, d, e*, step *f*, staff *g*, driving wheel *l*, pinion *n*, bevel wheel *o*, pinion *q* and the shaft *p*, said shaft being arranged in the staff *g* and having the cross-spout attached to it, substantially as described. 5th. The combination, with the revolving cross-spout *s* and nozzle *t*, of the valve *w* and beat lever *x* pivoted to said spout, and having said valve and the counterweight *z* secured directly thereto, the said lever extending through and to the outside of the said spout, essentially as shown and described, and for the purpose set forth.

No. 20,438. Nose Ring for Swine.

(*Anneau pour Mettre au Nez des Pourceaux.*)

Linnæus T. Slye and George W. Beery, Jr., Upper Sandusky, Ohio, U.S., 27th October, 1884; 5 years.

Claim.—1st. An improved nose ring for swine, consisting of the blank *a* provided with the two perforations *c*, said blank being bent over and down upon itself and having the two prongs or tines *o* forming the rings, the ends whereof pass through the perforations, substantially as described.

No. 20,439. Low Pressure Boiler.

(*Chaudière à Basse Pression.*)

Daniel S. Robilliard, Quebec, Que., 29th October, 1884; 5 years.

Claim.—1st. The combination, in a boiler for steam or hot water, of two vertical water sections *a* forming the sides of the fire-box, also three more or less longitudinal water sections *e, f, g*, arranged over the fire space within an enclosing jacket *i, k*, and also circulating tubes, *l, m, o*, and *n* connecting said sections, the top section *g* having the steam pipes *p* and sections *a* having the return pipes *p'*, substantially as described. 2nd. The combination of the vertical *d* and horizontal water sections *a, e, f, g*, and the flue plates *h*, said section *e* being arranged between the sections *a* and flues *h*, and section *f* arranged over the flue plates *h*, having passages *s* arranged to cause the heat currents to impinge on the middle of the bottom of said section *f*, substantially as described. 3rd. The combination of flue plates *t*, with the water sections *f, g* having flues *j* and the smoke pipe *v*, said plates *t* being arranged to project the heat downward on the upper side of section *f* and upward against the bottom of section *g*, substantially as described. 4th. The combination of the vertical and

horizontal water sections *a, e, f, g*, circulating tubes *l, m, o* and *n*, flue plates *h* and *t* and an enclosing jacket *i, k*, substantially as described. 5th. The combination of the base *d* having top plates *c*, and the case *i, k*, with the vertical and horizontal water sections *a, e, f, g*, circulating tubes *l, m, o* and *n* and flue plates *h* and *t*, said water sections being arranged with flues *h* and *j*, substantially as described.

No. 20,440. Burglar Alarm. (*Alarme Voleur.*)

Hudson Ferris, Chicago, Ill., U.S., 23th October, 1884; 5 years.

Claim.—1st. The combination, with a wedge-shaped frame provided with a screw for engagement with a door frame or floor, of a spring actuated arm hinged in the frame and recessed for the reception of a cartridge substantially as and for the purpose set forth. 2nd. The combination, with a wedge-shaped frame provided with a screw hinged in its point, and having a hinged spring actuated arm recessed for receiving a cartridge, and having a cylindrical outer end, of a match-holder adapted to retain a match in position to contact with the hammer as it falls, substantially as and for the purpose set forth.

No. 20,441. Steam Pumping Engine.

(*Pompe de Machine à Vapeur.*)

Clark Sintz, Springfield, Ohio, U.S., 29th October, 1884; 5 years.

Claim.—1st. In a steam pump provided with a supplemental piston adapted to move the main slide valve, the reverse valve *c* provided with the exhaust pocket *h* and adapted to admit steam to both ends of said supplemental piston, except at the moment of changing the position of the main valve, substantially as set forth. 2nd. The reverse valve *c* provided with recess *n*, and lugs *o*, *o'* adapted to engage with lug *at* on the main valve, substantially as and for the purpose specified. 3rd. The combination, with the supplemental piston and the main valve actuated thereby, said main valve being provided with a lug *at*, of the reverse valve adapted to normally admit steam to both ends of said piston, and to exhaust said steam alternately from the ends of said piston, said reverse valve being provided with lugs *o* *o'* adapted to engage with lug *at* on the main valve, in case said main valve fails to move by the action of the said piston, substantially as set forth. 4th. The combination, with the supplemental piston *b* and the main valve *a* adapted to be moved thereby, of the reverse valve *c*, adapted to normally admit steam to both ends of said piston, and to exhaust said steam alternately from the ends of said piston as the pump approaches the limit of its upward or downward stroke, substantially as specified.

No. 20,442. Fence Post. (*Pieu de Clôture.*)

Edward C. Jones, Hamilton, Ont., 29th October, 1884; 5 years.

Claim.—The combination of the iron post A, with flat or concave sides, the rails B and C, the plates D, the wire fastenings *e* and the steadying plate F, also the swivel brace *g* attached or unattached to the post A, substantially as and for the purpose heretofore set forth.

No. 20,443. School Slate. (*Ardoise d'École.*)

George Gray and George W. Berrey, New York, N. Y., U.S., 29th October, 1884; 5 years.

Claim.—1st. As an improved article of manufacture, a school slate consisting of a slate and a surround frame, composed of a channel or U-shaped sheet metal strip enclosed within a continuous tubular muffle, which is confined in position without extraneous fastening devices, substantially as described. 2nd. The combination, with a school slate, of a channelled or U-shaped sheet strip, and a tubular muffle drawn over the metal strip and united at its ends, substantially as described. 3rd. The combination, with a school slate, of a channelled or U-shaped sheet metal strip, and a tubular muffle composed of a piece of noiseless material having its longitudinal edges connected by stitching or sewing and the draw over the metal strip and united at its ends, substantially as described.

No. 20,444. Art of Protecting Eye-Sight.

(*Art de Protéger la Vue.*)

William E. Clegg, Washington, D. C., U.S., 29th October, 1884; 5 years.

Claim.—The herein-described device for producing a colored tint or shade upon reading matter, printed, or engraved, upon white paper, which consists of a colored transparency provided with holding devices, substantially as described, whereby the glass is secured to the page over the subject matter to be read.

No. 20,445. Oiler for Car Wheels.

(*Boîte à Graisse pour Roues de Chars.*)

Howard A. Barrows, Rochester, N. Y., and Robert F. Cummings, Ludrus, Pa., U.S., 29th October, 1884; 5 years.

Claim.—1st. The wheel A, constructed with a hollow hub provided with a box *m*, having openings *f, f'*, to allow passage of oil to the axle, as herein shown and described. 2nd. The combination, with the wheel provided with a hollow hub, and having a box, with openings to a low passage of the oil, of the oil cup set flush into the surface of the cup, and having a pivoted disk, the disk and cup provided with coincident openings, as and for the purpose specified.

No. 20,446. Stamp Mill for the Manufacture of Cellulose. (*Boumbe pour la Fabrication de la Cellulose.*)

Alexander Mitscherlich, Münden, Hanover, 29th October, 1884; 5 years.

Claim.—1st. A stamping apparatus for disintegrating and washing

cellulose, consisting of a trough for containing the pulp, in combination with a series of stamps, so arranged that, as they descend into the mass of pulp they touch neither the bottom nor the walls of the trough, substantially as set forth. 2nd. A stamping apparatus for disintegrating and washing cellulose, consisting of the combination of an inclined trough, a series of stamps therein, and mechanism for dropping them successively in such manner that each drop while its predecessor is still down, and its successor is yet up, whereby the pulp is caused to travel through the trough in one direction while a current of water is allowed to flow through the trough in the other, substantially as set forth.

No. 20,447. Telegraph Insulator.

(*Isoloir Télégraphique*)

Samuel Oakman, Melrose, Mass., U.S., 29th October, 1884; 5 years.

Claim.—1st. A glass insulator having formed within its interior a screw thread D, recess C1, shield E and recess H, all substantially as described and for the purpose set forth. 2nd. A glass insulator having formed within its interior a screw thread D, shield E and recess H, in combination with the screw peg r, all substantially as described and for the purpose set forth.

No. 20,448. Lock Up Pop Safety Valve.

(*Souape de Sûreté Instantanée Sous Clef.*)

Jacob Hettinger, Montreal, Que., 29th October, 1884; 5 years.

Claim.—The perforated disc A with the projecting lip D, in combination with the adjustable ring B, for the purpose as set forth and described in this specification.

No. 20,449. Door Hanger. (*Penture de Porte.*)

Caleb Brinton, Chicago, Ill., U.S., 29th October, 1881; 5 years.

Claim. 1st. In combination, in a door-hanger, a track secured laterally above the door, and bifurcated bracket K having therein the opening *u*1, for the passage of a removable suspension bolt, substantially as and for the purposes described. 2nd. In combination, in a door-hanger, a track secured, as described, and a hanger-bracket provided with wheels or sheaves and having therein an elliptical opening adapted for the passage of a door-suspension bolt or rods, and permitting the latter to swing therein, for the purposes hereinbefore described. 3rd. The combination, in a door-hanger, of the guide-rolls or rollers L, L, with the track and hanger-brackets, the said rolls or rollers being arranged to travel against the outer vertical face of the track and with one roll or roller upon each side of the hanger bracket, substantially as and for the purposes specified. 4th. A door-hanger, in which is a centrally flanged wheel with the centre of its tread or face vertically above the weight of the door below it, whereby the tendency to crimp the axle-bearings of the hanger-wheel or sheave when resting upon a convex bearing of the track will be reduced, substantially as and for the purposes described. 5th. In a door-hanger, the suspension-bolt plate P, with screw holes *d*1 and *d*11, *d*11 therein, arranged for turning one or more screws vertically downward into the tenons, running horizontally in the door-stile, for the purpose of thereby causing the screws to be driven firmly sidewise in the grain of the wood composing the door-rail tenons. 6th. The combination, in a door-hanger, of the sheaves or wheels for suspending the door movably on a track, the brackets K, K and the bolts M, M, depending from the said brackets and swinging therein, substantially as and for the purposes specified. 7th. The combination, in a door-hanger, of the wheels J, J, having a horizontal portion or tread *e*, and the beveled part *e*1, the rail *a* having thereon a correspondingly formed bed for the said wheels, the rectangular brackets K, K, having therein the elliptical or flaring holes or openings *g*, *g* located in vertical planes passing between the centre of the tread *e* and the bevel *e*1, and the door-suspending bolts M, M passing through or hung in the said openings, substantially as and for the purposes specified. 8th. The combination, in a door-hanger, of the track B, consisting of the rail *a* and board *a*1, rigidly connected to each other, and the said board having therein the slots *c*, *c*, the screws D, D, the guide-plates and the track-supporting crews, substantially as and for the purposes set forth. 9th. The combination, in a door-hanger, of the brace-arm S and the pendant *o*1, with the door-suspending bolts and wheel-brackets, substantially as and for the purpose specified.

No. 20,450. Method of Balancing Gears or Pulleys. (*Méthode pour Equilibrer les Palans ou Poulies.*)

Charles Esplin, Minneapolis, Minn., U.S., 30th October, 1884; 5 years.

Claim.—A gear or pulley having separate cavities or pockets *a*, adapted to receive lead or other suitable heavy substance, substantially as and for the purpose set forth.

No. 20,451. Elevator Gearing.

(*Mécanisme d'Ascenseur.*)

Charles Esplin, Minneapolis, Minn., U.S., 30th October, 1884; 5 years.

Claim.—1st. The belt *d*1, in combination with the driving-bolt *b* and tightener *e*1 placed inside of the said belt *d*1, substantially as set forth. 2nd. The combination of the main shaft *a*1 carrying the pulley *e*1, elevator head shaft *a*2 carrying the pulley *e*2, boot-pulley *d*3, bucket-belt *d*1, driving-belt *b* and tightener *e*1, substantially as set forth. 3rd. The combination of the main shaft *a*1, carrying the pulley *e*1, elevator-head shaft *a*2 carrying the elevator-head pulley *e*2, boot-pulley *d*3, bucket belt *d*1, main driving-belt *b*, tightener *e*1, snifter pulley *e*1, and means, substantially as described, whereby the loosening of said driving-pulley will cause said snifter pulley to throw said main driving-belt loose from said main driving-pulley.

No. 20,452. Fire-Escape. (*Sauveur d'Incendie.*)

Mansfield J. Cook, Orange L. Cook and Franklin R. Smith, Syracuse, N.Y., U.S., 30th October, 1884; 5 years.

Claim.—1st. In a fire-escape, the combination, with a reel and a cable wound thereon, of sheaves arranged to guide the cable, a governor actuated by said sheaves, and a brake for controlling the run of the cable actuated by the governor. 2nd. The combination of a reel and cable wound thereon, of a recoil spring applied to the reel sheaves, arranged to guide the cable from the reel, a governor actuated by said sheaves, and a reel brake actuated by the governor, substantially as described and shown. 3rd. In combination with the reel cable and brake, a sheave interposed in the track of the cable, and a governor for transmitting motion from the sheave to the brake, substantially as and for the purpose set forth. 4th. In combination with the reel R and cable C, the counter-pulley A, horizontal sheaves *s*, *s*1 and *s*, the governor G mounted on one of said sheaves and the brake band B connected with the reciprocating stem *a* of the governor, substantially as shown and for the purpose set forth. 5th. In combination with the reel R, cable C and brake B, the sheaves *s*1 provided with the ratchet *r*, and the governor G provided with the pawl *c*, substantially as and for the purpose shown and set forth. 6th. The yoke K composed of two parts, provided on their adjacent sides with the channel *h* and cavity *h*1, in combination with the cable provided with a knob on its end, substantially as described and shown. 7th. The yoke K composed of two parts provided respectively with the channel *h*, cavity *h*1, slot *k* and bow *u*, in combination with the cable C, ring D, pulley *o* and guy line *E*, substantially as described and shown. 8th. The reel F composed of two annular concave plates joined at the centre and provided with interlocking shoulder *t*, hub *v* and peripheral slot *u*, in combination with the pivotal pin *w*, substantially as described and shown.

No. 20,453. Milk-Cooler. (*Garde-Lait*)

Gilmore Spencer, Great Village, N.S., 30th October, 1884; 5 years.

Claim.—1st. The combination of the channel A A, with the ordinary cylinder creamer, substantially as and for the purpose hereinbefore set forth. 2nd. The combination of the secured frame J J J, of view glass F, with the movable frame G, substantially as and for the purpose hereinbefore set forth.

No. 20,454. Store Service Apparatus.

(*Appareil de Service pour Magasins.*)

Harris H. Hayden, New York, N.Y., U.S., 30th October, 1884; 5 years.

Claim.—1st. The combination of the way of a store service apparatus, and a sliding receptacle provided with a detent, and a detent upon the way, and means for operating the detents, substantially as set forth. 2nd. The combination of the way of a store service apparatus, a sliding receptacle provided with a detent, and means for holding the carriers until the receptacle is in position to receive or discharge them, substantially as set forth. 3rd. The combination, with the way and sliding receptacle, and catches, and detents, of a counterbalance, for the purpose set forth. 4th. A detaching device for releasing the carriers from the vertically sliding receptacle, when the latter reaches its lowest position. 5th. The combination, with the main way and switch of a store service apparatus, of a supplemental receiving-way, and a movable receptacle arranged below the receiving-way to receive the carriers passing from the latter, substantially as set forth. 6th. The combination of the main way and switch and a receiving-way having an opening, whereby the carrier may descend vertically, a vertically-inwardly receptacle below the receiving-way, and a detent, whereby the carriers are retained on the receiving-way until the receptacle is at its highest point, substantially as described. 7th. The combination of the main track and switch receiving-way having the tracks spread at the delivery end detent and receptacle arranged below the opening in the track and connected to cords and counterbalanced substantially as specified. 8th. The combination, with the main way and switch of a store service apparatus, of a receiving way arranged below the main way, and a movable receptacle below the receiving-way to receive the carriers passing vertically from the latter, substantially as set forth. 9th. The combination of the main track and switch receiving-way receptacle suspension-cords and one or more spring-drums upon which said cords are wound, substantially as described. 10th. The combination of the main track switch and receiving-way consisting of wires arranged below the main way and provided with a detent, substantially as described. 11th. The combination of the receiving-way, receptacle, detent and locking device, whereby the detent is locked in place until the receptacle is at its highest point, substantially as described. 12th. In a store-service system, a return-way provided with a series of switches and appliances whereby each switch is unlocked at its proper station and a receiving way adjacent to each switch and a movable receptacle and appliances, whereby the carriers on the receiving-ways may be successively carried downward to the operator's station, substantially as specified.

No. 20,455. Store Service Apparatus.

(*Appareil de Service pour Magasins.*)

Harris H. Hayden, New York, N.Y., U.S., 30th October, 1884; 5 years.

Claim.—1st. A system of store service, consisting of a series of tracks or rails, all extending from the cashier's desk and each leading to one of the counters or stations of a store, and each provided with a carrier adapted to be propelled upon the way by a single impulse applied at either end of the way, substantially as set forth. 2nd. The combination, with the counters and desk of a store, of horizontal wires systematically arranged between the desk and said counters, and each provided with a travelling carrier adapted to be propelled between the counter and desk by a single impulse, substantially as described. 3rd. The combination, with the counters and desk of a store of a series, of horizontal wires provided with separate carriers

attached to the wires, and a support at each end of the wires, whereby the same is suspended and secured in an elevated position, substantially as set forth. 4th. The combination of the system of wires, as set forth, the desk and stations of a store, and carriers provided with frames and wheels attached to the wires and receptacles detachably connected to the carrier frames, substantially as described. 5th. The combination, in the carrier, of the frame and wheel, and receptacle detachably connected to the frame, substantially as set forth. 6th. The carrier provided with means arranged to prevent derulment, as set forth. 7th. The combination of the carrier and detachable handle, as set forth. 8th. The combination of the carrier, detachable handle and means for preventing the turning of the handle, substantially as set forth. 9th. A support for the carriers of a store service apparatus, arranged in a position adjacent to the counter or desk of said apparatus, substantially as specified.

No. 20,456. Electro-Magnetic Apparatus.
(*Appareil Electro-Magnétique*)

Charles Cummings, Reno, Nev., U.S., 30th October, 1884; 5 years.

Claim.—1st. In an electro-magnetic apparatus, the combination, with an electro-magnet having one or more cores surrounded by two coils of different resistances, of automatic devices for closing circuit through the coil or coils of least resistance immediately following its being broken-through the coil or coils of higher resistance, substantially as and for the purpose set forth. 2nd. In an electro-magnetic apparatus for use on normally closed circuit, an electro-

magnet having separate energizing coils of different resistances, in combination with an armature lever and circuit-closing and breaking devices operated thereby, the connections being essentially as shown, whereby, when a battery circuit is closed through the coils of higher resistance, the armature lever will be held toward the magnet cores, and the circuit through the coils of less resistance will be broken and, on the breaking of the circuit through the coils of higher resistance, the armature lever will be retarded by its spring and temporarily close the connections through the coil of less resistance, so that the armature will be again attracted when a battery circuit is closed through said low resistance coils. 3rd. In an electro-magnetic instrument, an electro-magnet having its cores respectively wound with concentric coils of widely different resistance, in combination with an automatic circuit closer and breaker arranged to break circuit through the coils of higher resistance, substantially as described. 4th. In an electro-magnetic apparatus, an electro-magnet having its cores each wound with coils of widely different resistances, in combination with a battery circuit including the coils of high resistance and automatic circuit breaker and connections arranged to connect the coils of less resistance in circuit with the battery when the same is closed, after being broken temporarily through the coils of higher resistance, substantially as described. 5th. The herein described sounder, having its magnet cores each wound with coils of low resistance, connected as described, in combination with circuit closing and breaking devices arranged to be operated by the armature lever for closing circuit through the coils of low resistance, immediately after it is broken, through the coils of high resistance, substantially as described.

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

- | | |
|---|---|
| 277. H. RANSFORD, 2nd 5 years of No. 10,506, from the 4th day of October, 1884. Improvements on Apparatus for Evaporating Brine or Saline Solutions. 3rd October, 1884. | 284. H. MORRIS (Assignee), 2nd 5 years of No. 10,578, from the 23rd day of October, 1884. Improvements in Machines for Making Staves. 14th October, 1884. |
| 278. G. WOODS, 3rd 5 years of No. 4,016, from the 7th day of November, 1884. Improvements in Processes for Drying Lumber, &c. 4th October, 1884. | 285. J. W. HANMORE, 3rd 5 years of No. 3,980, from the 26th day of October, 1884. Improvements in jacketing for Steam Boilers. 15th October, 1884. |
| 279. J. A. MATHIEU, 2nd 5 years of No. 10,668, from the 21st day of November, 1884. Improvements in Apparatus for Distilling Wood and Separating the Products of Distillation. 6th October, 1884. | 286. H. MORRIS (Assignee), 2nd 5 years of No. 10,559, from the 18th October, 1884. Improvements on Machines for Cutting and Planing Hoops. 16th October, 1884. |
| 280. C. CLUTHE, 3rd 5 years of No. 4,183, from the 17th day of December, 1884. Improvements on Truss Pads. 7th October, 1884. | 287. M. J. ALTHOUSE (Co-Inventor), 3rd 5 years of No. 4,003, from the 2nd day of November, 1884. Improvements in Wind Wheels. 22nd October, 1884. |
| 281. H. EMPEY, 2nd 5 years of No. 10,539, from the 13th day of October, 1884. Improvements on Continuous Brakes for Railway Trains. 8th October, 1884. | 288. G. GALE, 2nd 5 years of No. 10,637, from the 12th day of November, 1884. Improvements on Spring Mat-trasses. 22nd October, 1884. |
| 282. S. N. SMITH, 2nd 5 years of No. 10,543, from the 13th day of October, 1884. Improvements on Methods of and Machines for Making Lacing Hooks for Shoes. 11th October, 1884. | 289. G. W. DIXON, 2nd 5 years of No. 10,387, from the 27th day of October, 1884. Improvements on valves for Steam Pumps. 23rd October, 1884. |
| 283. H. MORRIS (Assignee), 2nd 5 years of No. 10,634, from the 12th day of November, 1884. Improvements in Machines for Dressing the Ends of Barrel Hoops. 14th October, 1884. | 290. THE PEERLESS SPINDLE CO. (Assignee), 2nd 5 years of No. 10,577, from the 23rd day of October, 1884. Improvements in Fastenings for Door Knobs and Escutcheons. 23rd October, 1884. |
| | 291. C. JOHNSON, 2nd 5 years of No. 10,591, from the 28th day of October, 1884. Improvements in Horse Power Sod Cutters and Cultivators. 23rd October, 1884. |

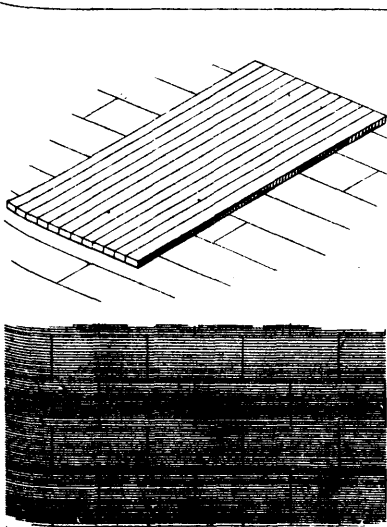
THE
CANADIAN PATENT OFFICE RECORD.

ILLUSTRATIONS.

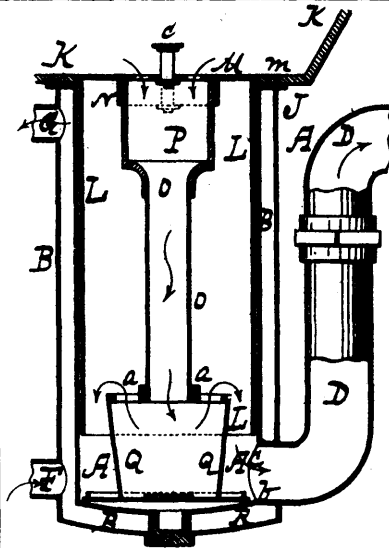
Vol. XII.

NOVEMBER, 1884.

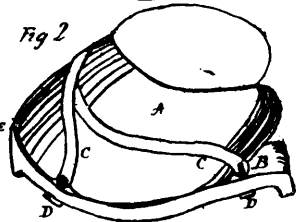
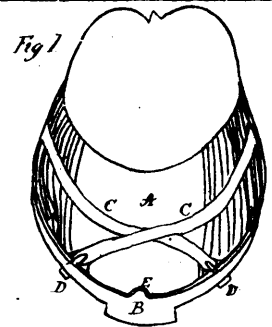
No. 11.



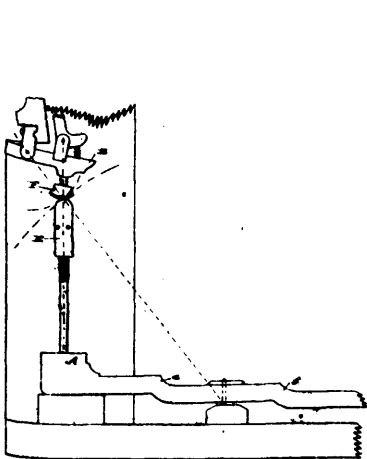
20310 Martindale's Paper Flooring.



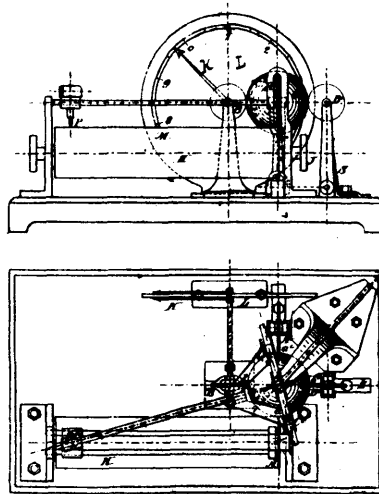
20311 Tucker's Grease Trap for Sinks.



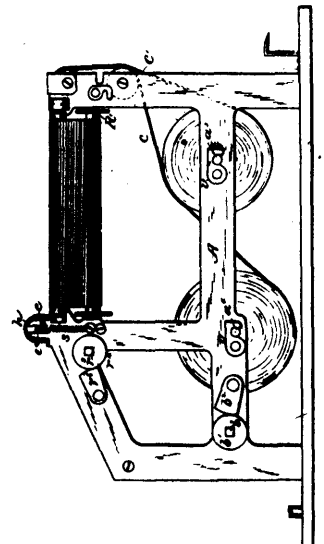
20312 Kiteley's Means of Fastening Shoes on Horses.



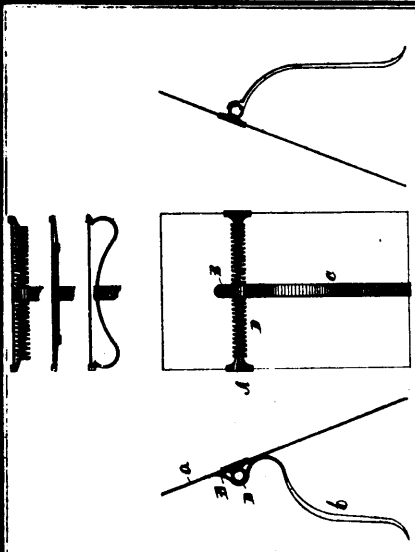
20313 Heintzman's Upright Piano Action.



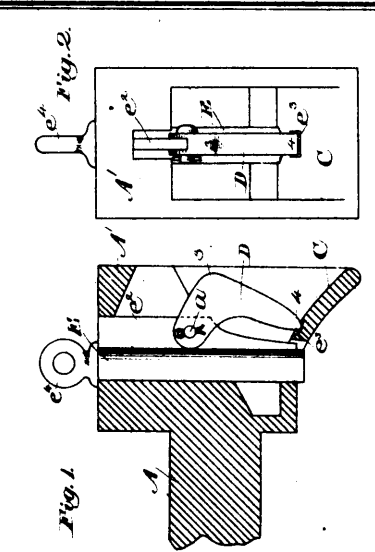
20314 Shaw's Apparatus Whereby the Relative Motion of Bodies may be Varied or Determined.



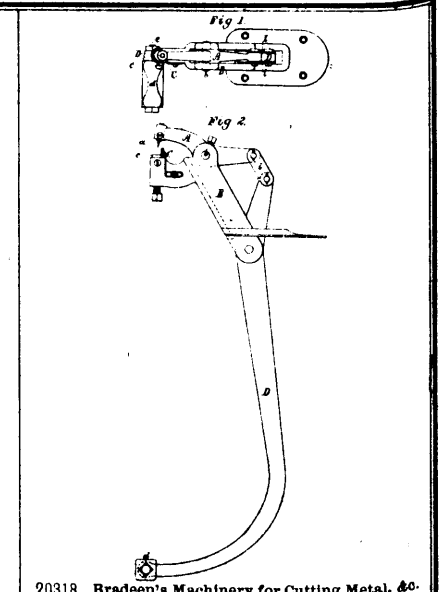
20315 Shoup's Autographic Duplicating Register.



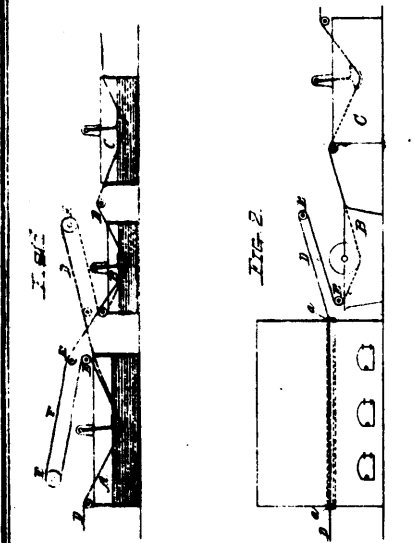
20316 Gatchell's Picture Brace.



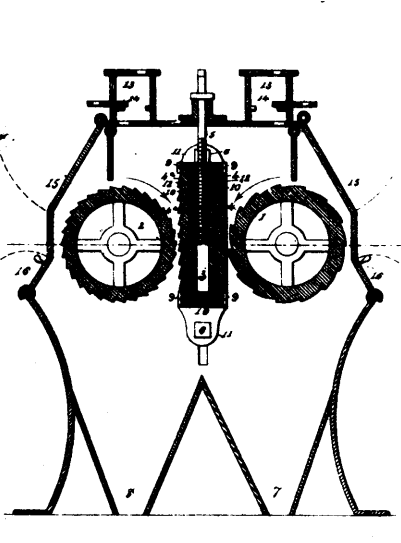
20317 Mitchell's Car-Coupling.



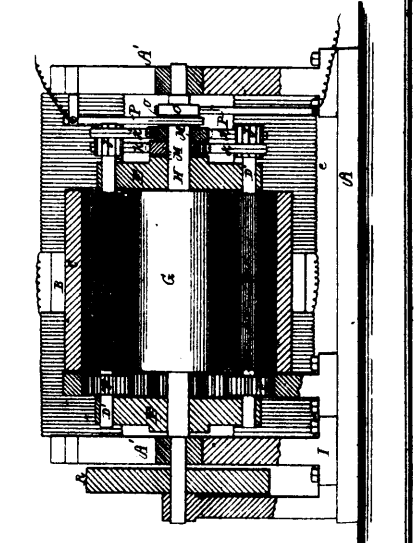
20318 Bradeen's Machinery for Cutting Metal, &c.



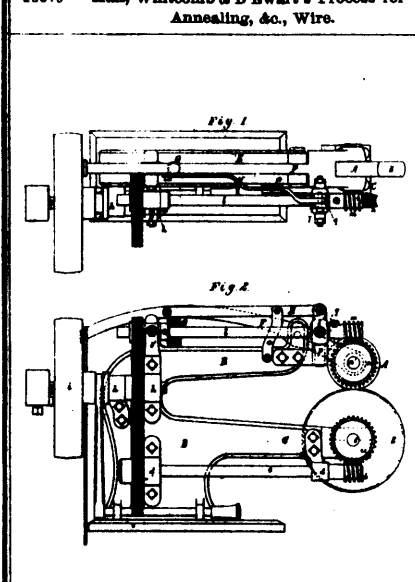
20319 Hall, Whitcomb & D'Ewart's Process for Annealing, &c., Wire.



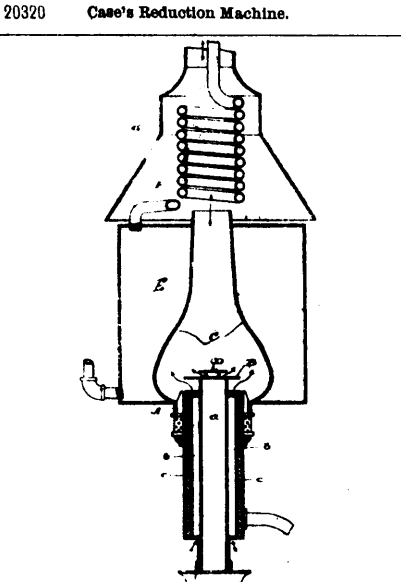
20320 Case's Reduction Machine.



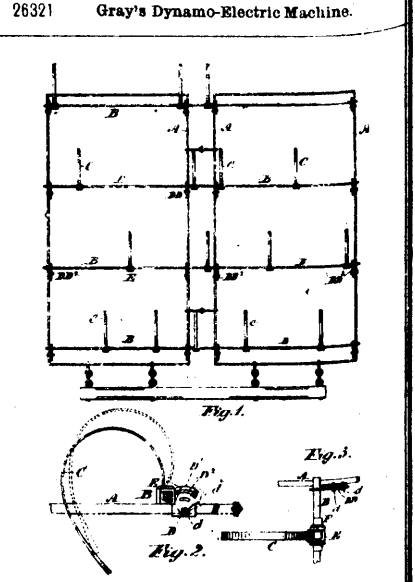
26321 Gray's Dynamo-Electric Machine.



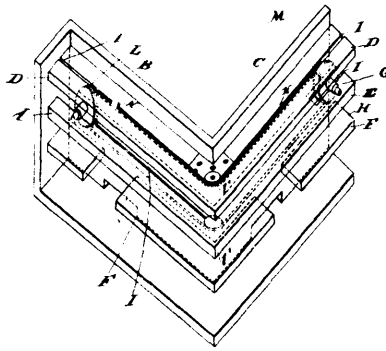
20322 Allen's Machinery for Finishing Boot Legs or other Seams.



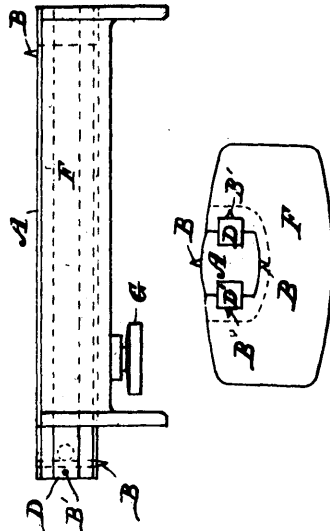
20323 Matthews' Water Heater.



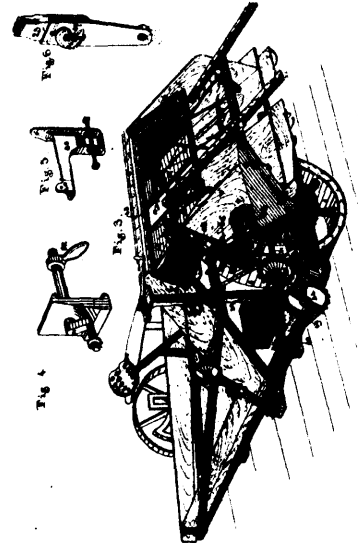
20324 Gray's Spring Tooth Harrow.



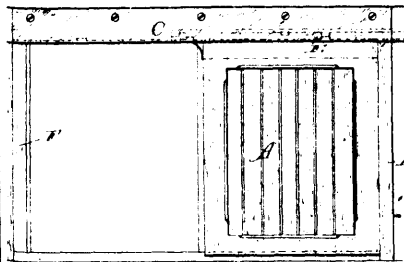
20325 Randle and Jones' Cash and Parcel Carrier.



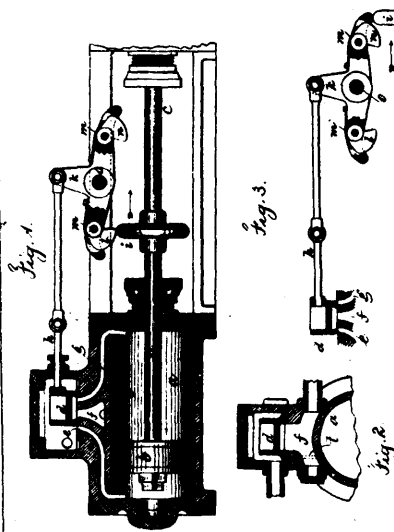
20326 Forrest's Carpenter's Gauge.



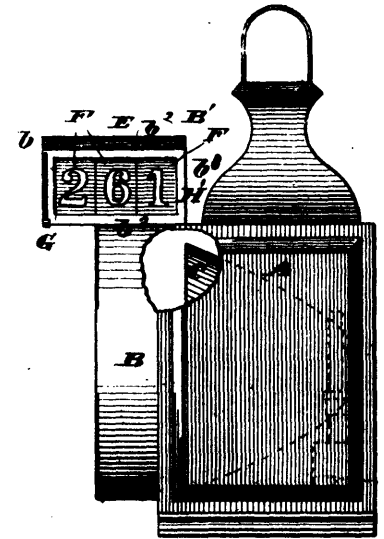
20327 Whiteley's Automatic Grain Binder.



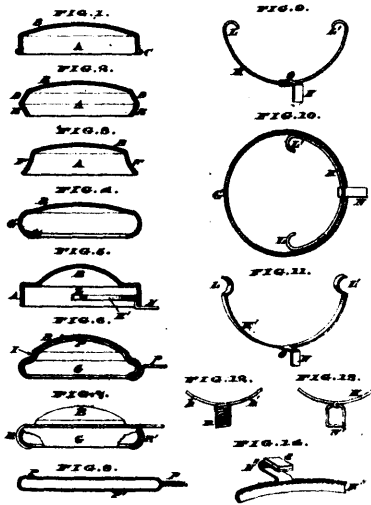
20328 Cloes' Hanger for Sliding Doors.



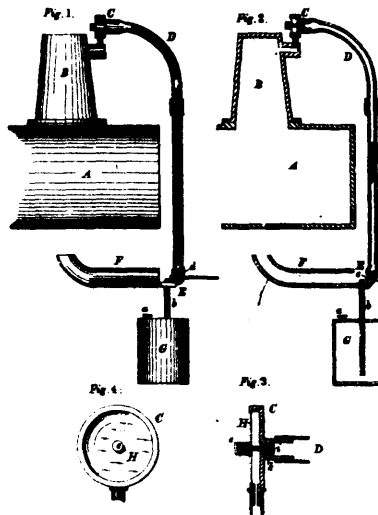
20329 Shipman's Hydro-Carbon Furnace.



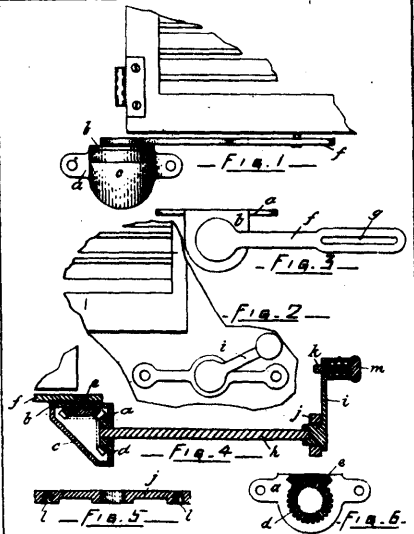
20330 Handlan's Locomotive Head Light.



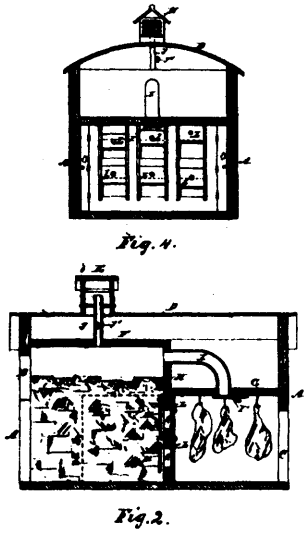
20331 Ligowsky's Clay Pigeon.



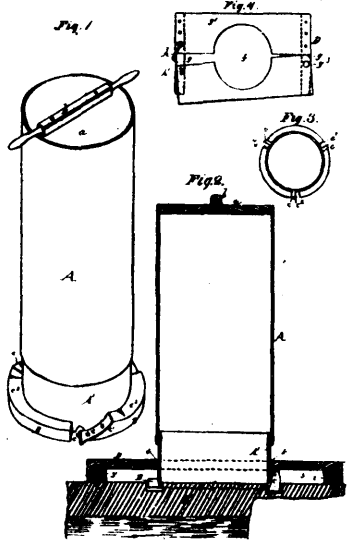
20332 Carricaburn's Valve Gear.



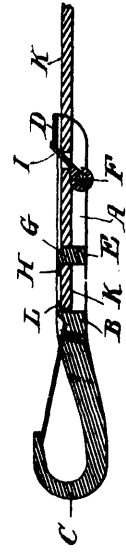
20333 Aubé's Device for Opening and Closing Windows, &c.



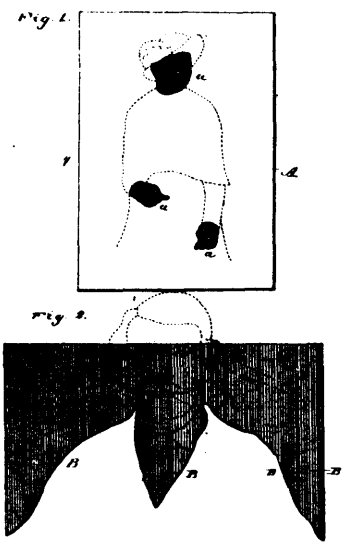
20334 Hanrahan's Refrigerator.



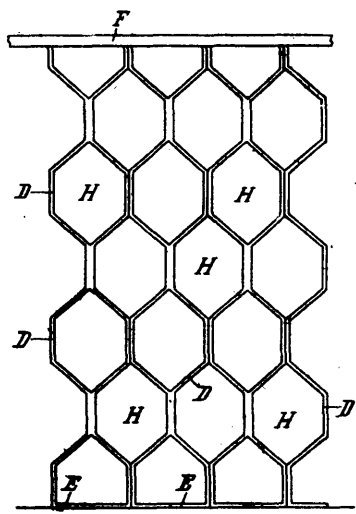
20336 Fitzgerald's Machine for Cutting Holes through Ice.



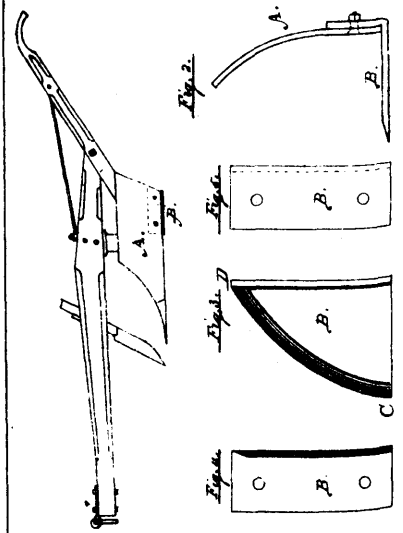
20337 Lepine's Attachment for Reins, &c.



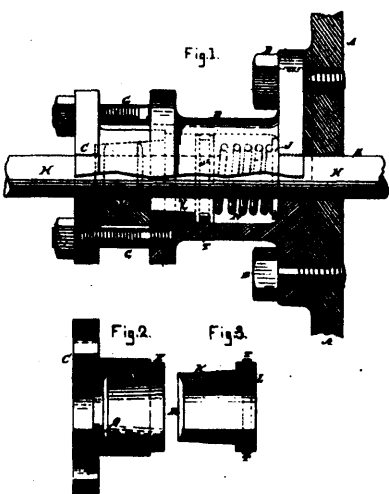
20338 Stone's Finishing Photographic Pictures.



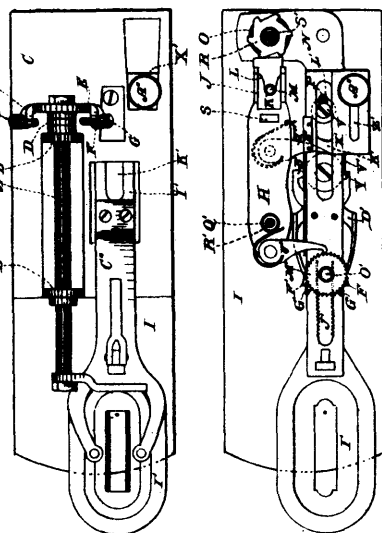
20339 Kinney's Sheet Metal Fabric.



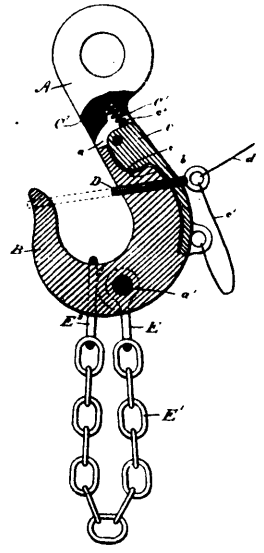
20340 Hull's Attachment for Ploughs.



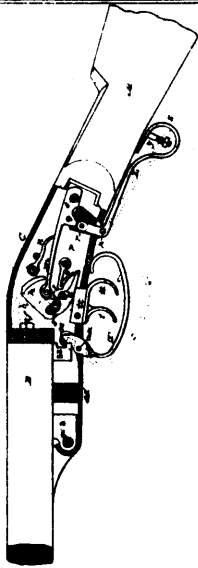
20341 Farmer & Calder's Piston Packing.



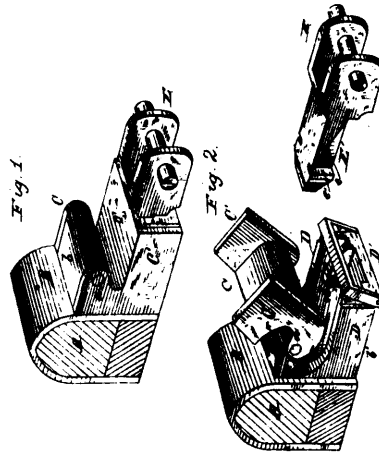
20342 Egge & Sjoberg's Button Hole Attachment for Sewing Machines.



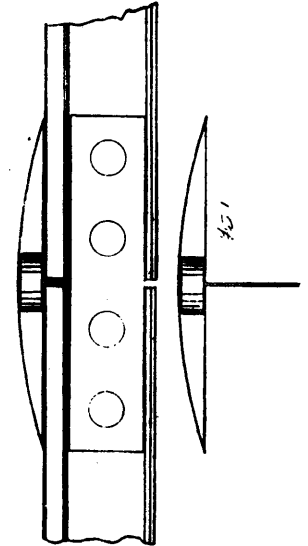
20343 Foster's Detachable Hooks.



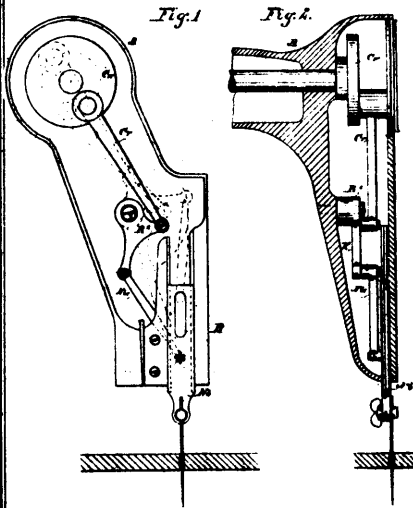
20344 Whitney's Breech Loading Fire Arms.



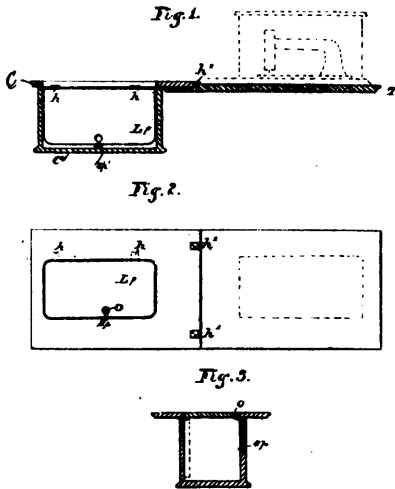
20345. Holiday's Thill and Pole Coupling.



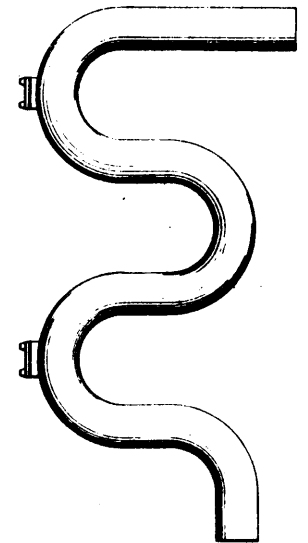
20346 Garfoot's Fog Signal for Railways.



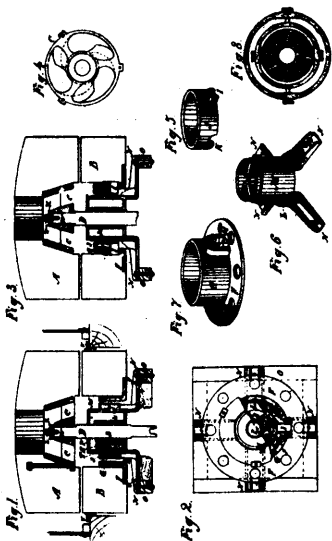
20347 Wheat's Sewing Machine.



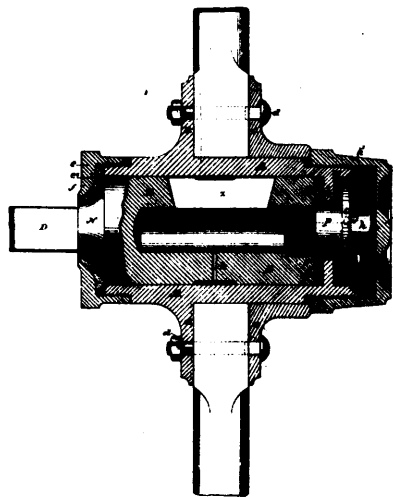
20348 Wheat's Sewing Machine Table.



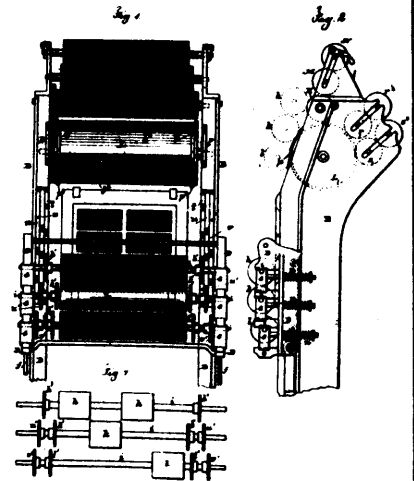
20349 Dubois' Plumber's Trap of Wrought Lead.



20350 Summerton's Millstone Iron.



20351 Jones' Carriage Hub and Axle.



20352 Mack's Press for Printing in Colours.

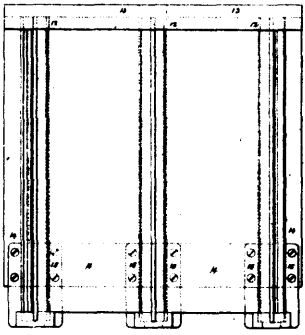


FIG. 1.

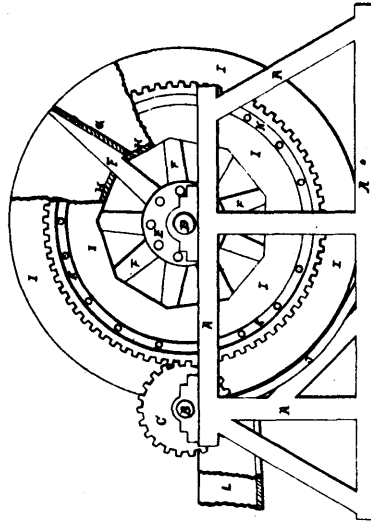


FIG. 2.

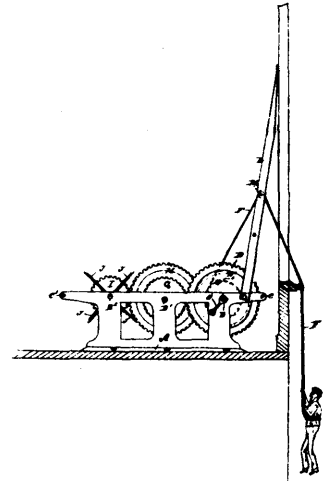
FIG. 3.



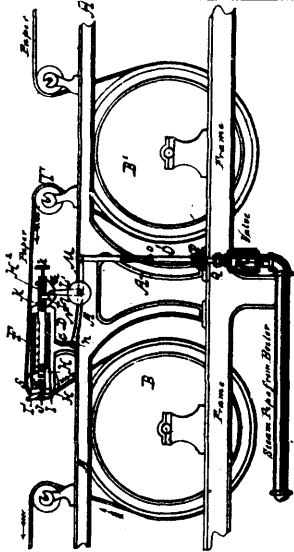
20353 Lester's Astragal for Roof Light and Window Glass.



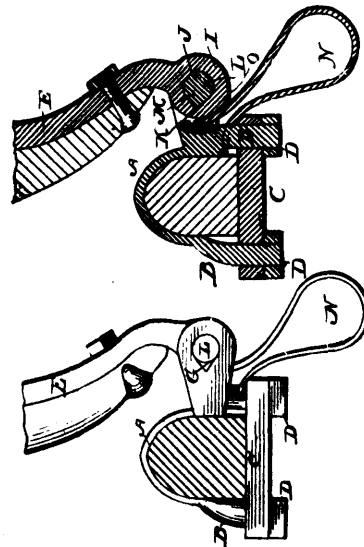
20354 Martin's Scoop Water Wheel.



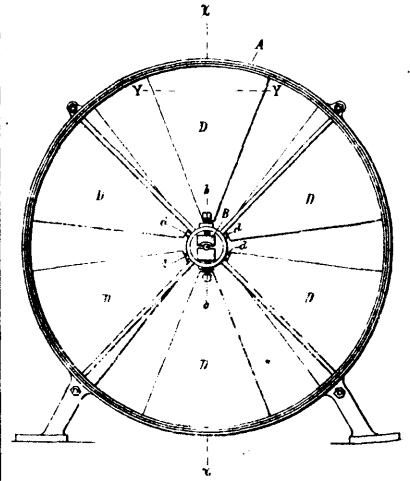
20355 Dittrick's Fire-Escape.



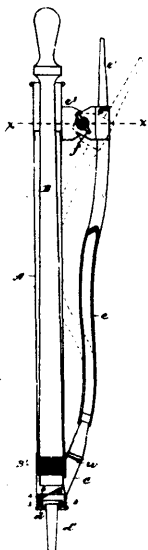
20356 Barry's Paper Machine.



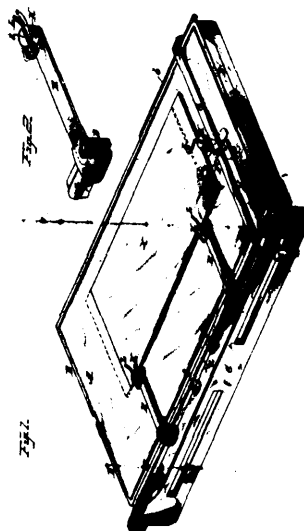
20357 Steven's Thill Coupling.



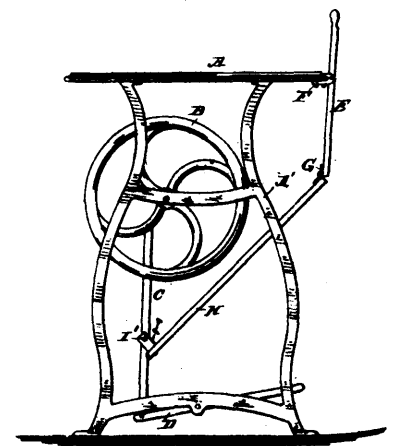
20358 Wing's Ventilating Apparatus.



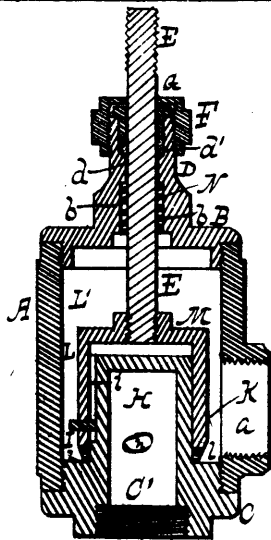
20359 Brook's Pump.



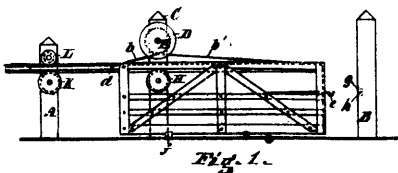
20360 Blocher's Feed Guide for Printing Presses.



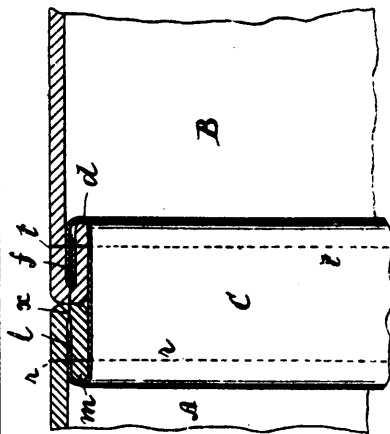
20361 Springstein's Treadle Attachment.



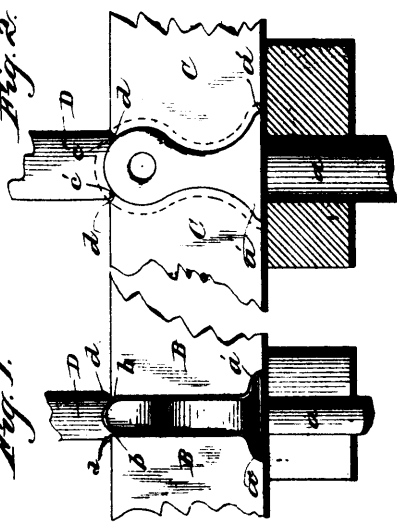
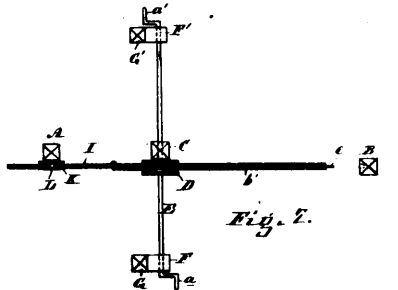
20362 Barry's Steam Valve.



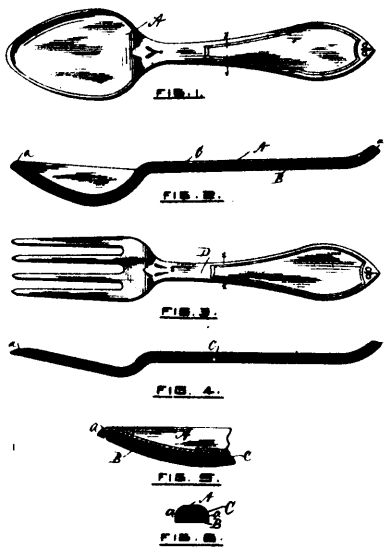
20363 Lund's Device for Opening and Closing Sliding Gates.



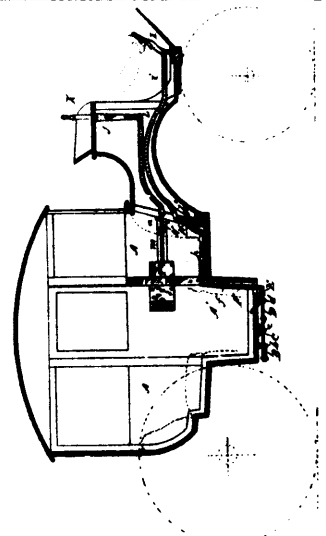
20364 Cobleigh's Seam.



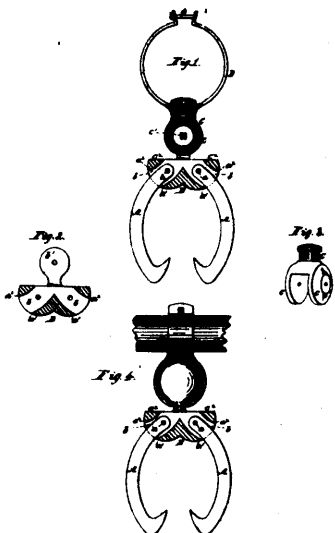
20366 Iddings' Shaping Die.



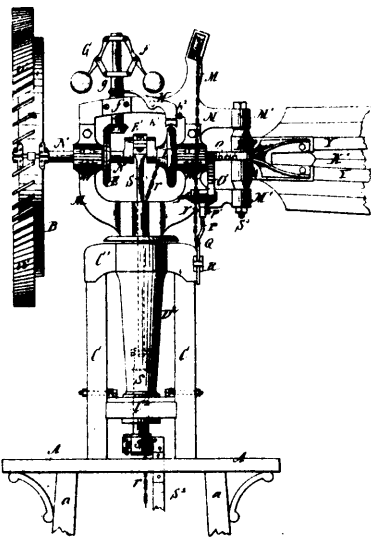
20367 Foster's Table Fork or Spoon.



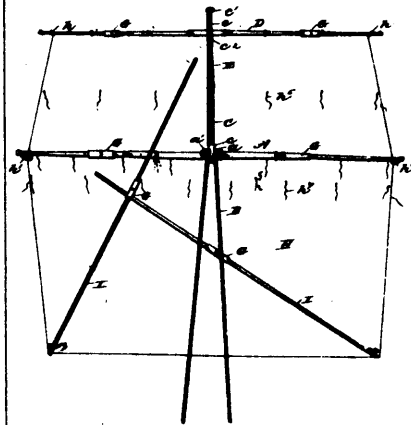
20368 Yonley's Device for Opening and Closing Carriage Doors.



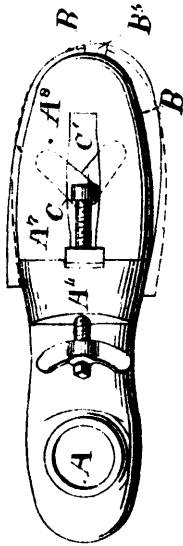
20369 Sanford's Grapple.



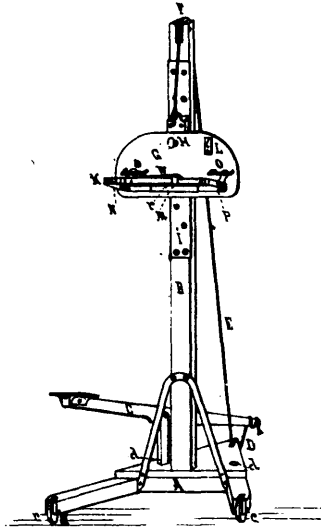
20370 McMartin's Wind Mill.



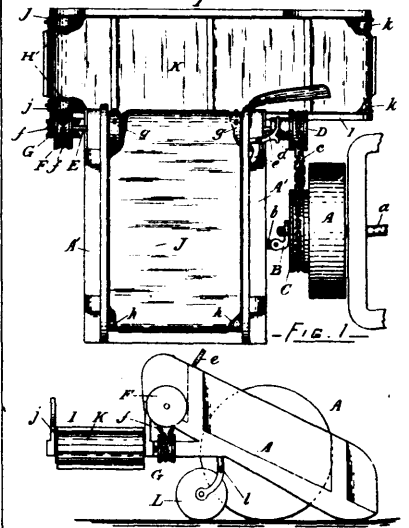
20371 Nelson's Skating Sail.



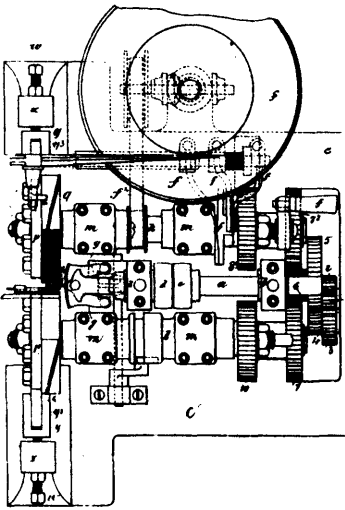
20372 Nethercut's Shoe Last.



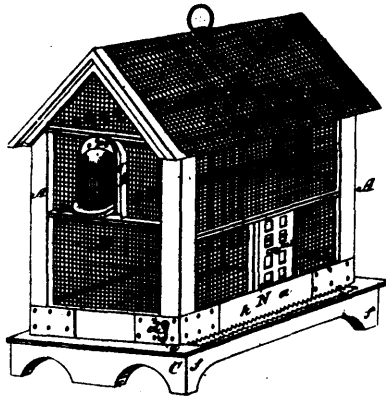
20373 Ward's Machine for Holding Bags.



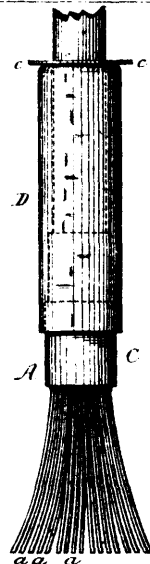
20374 Laporte & Larose's Harvester.



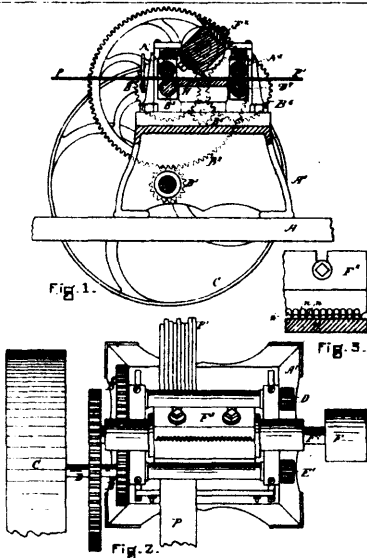
20375 Sheldon's Machinery for the Manufacture of Metallic Screws and Screw Bolts, &c.



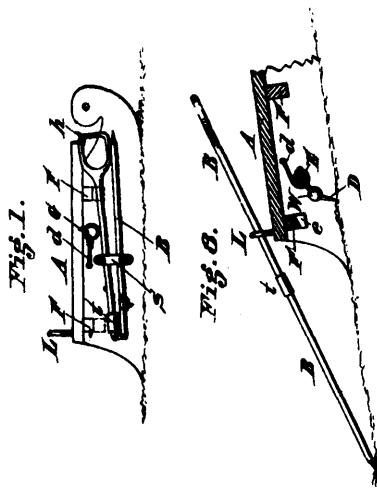
20376 Gregory's Bird Cage.



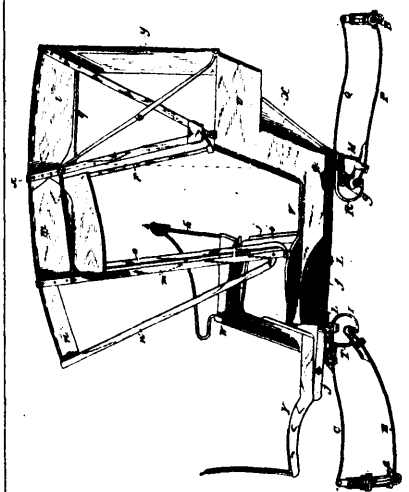
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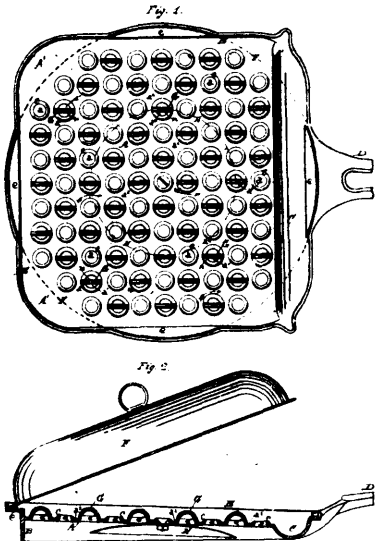
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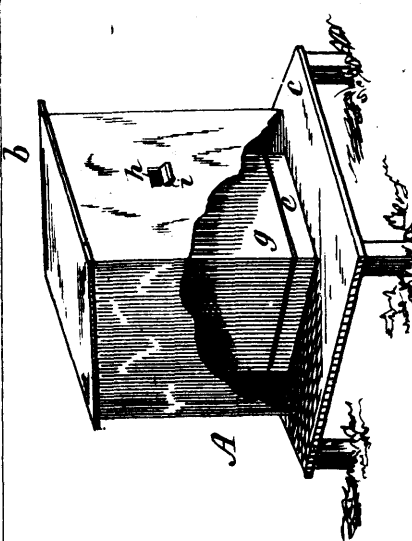
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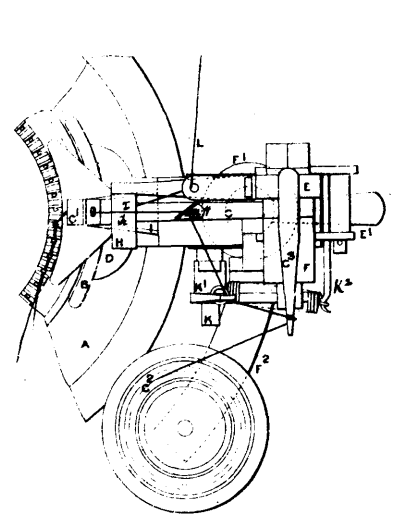
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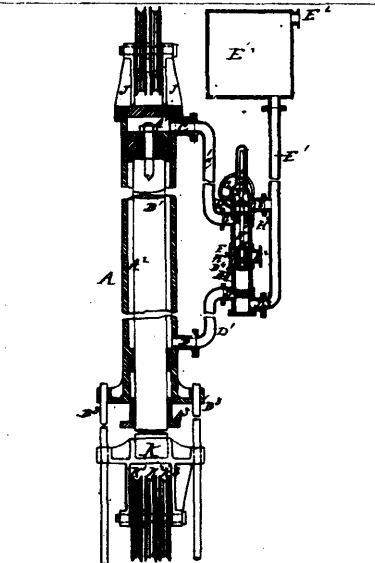
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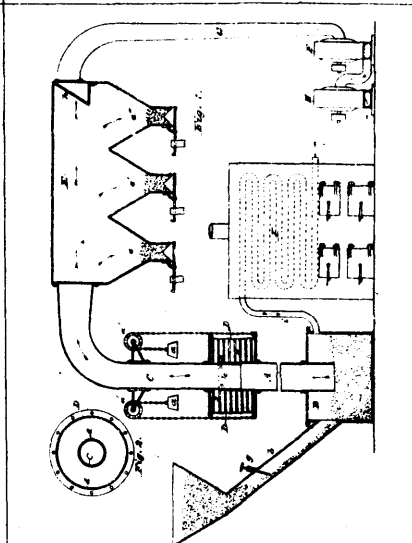
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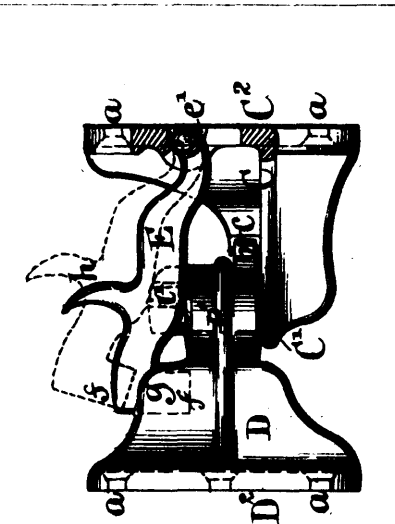
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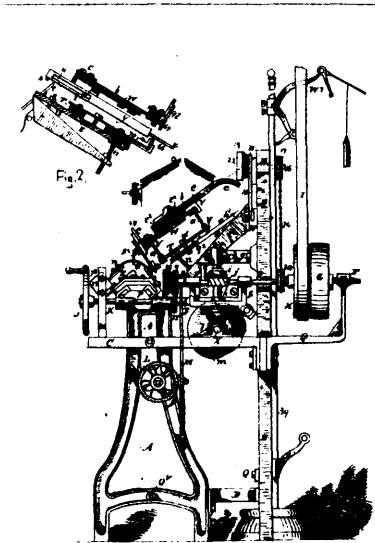
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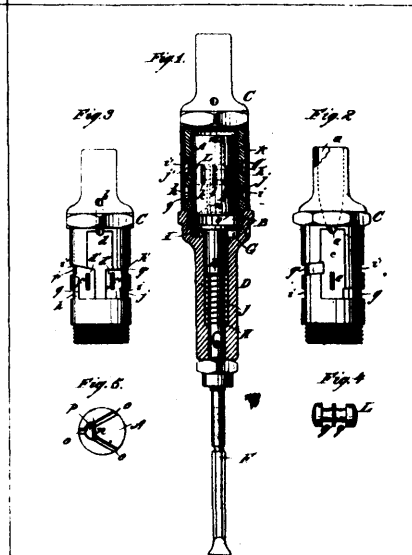
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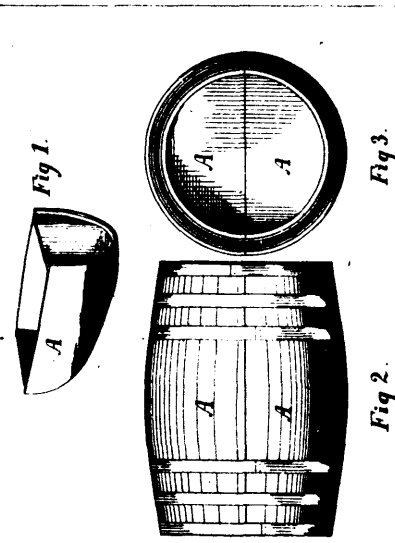
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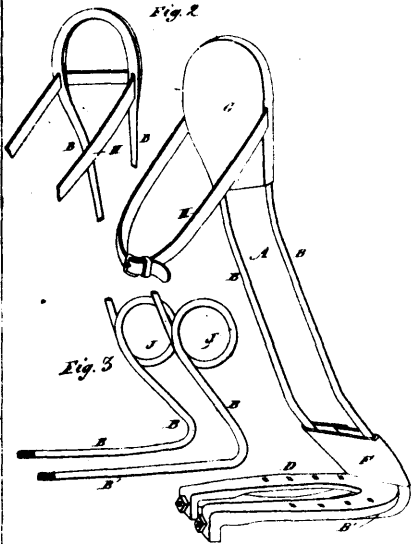
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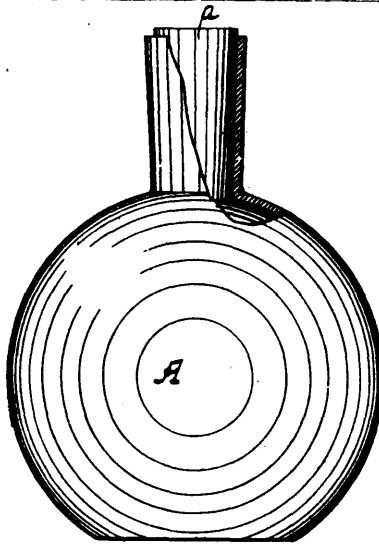
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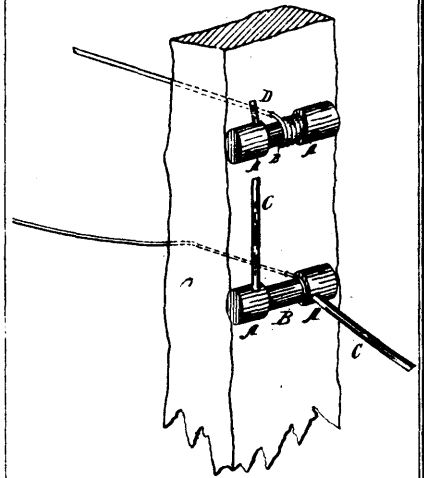
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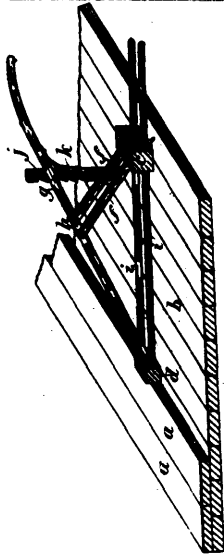
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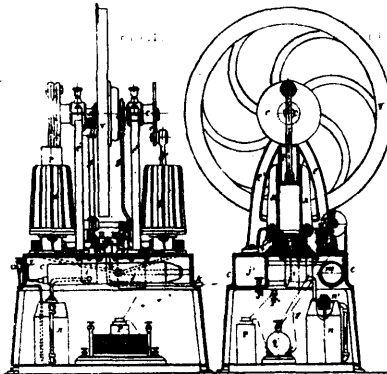
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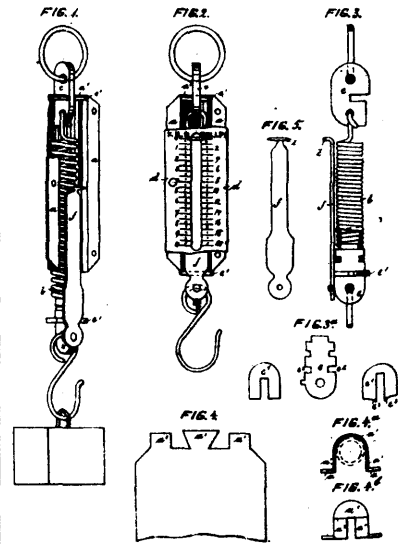
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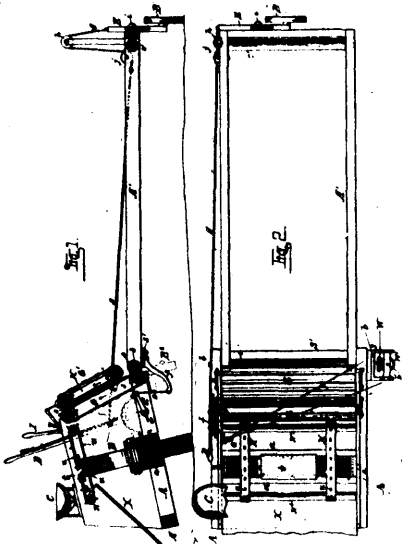
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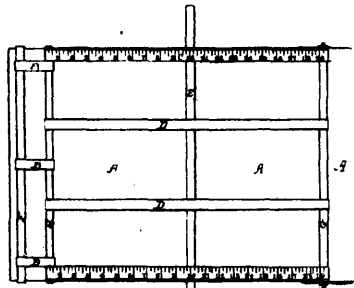


Fig. 1 Plan

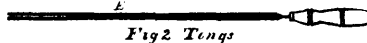


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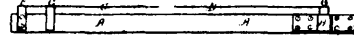
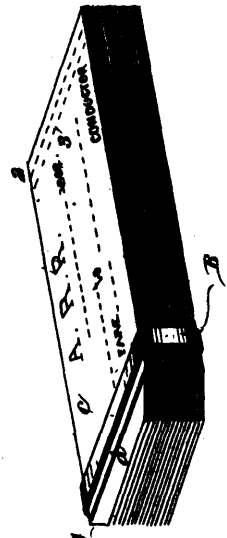
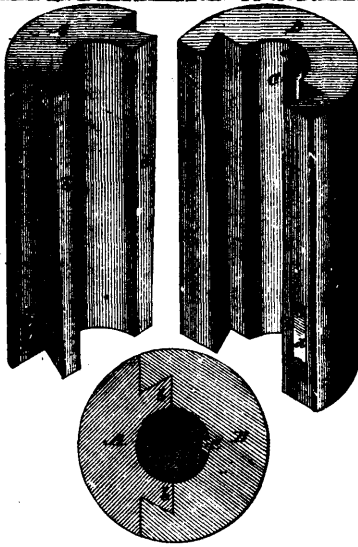


Fig. 3

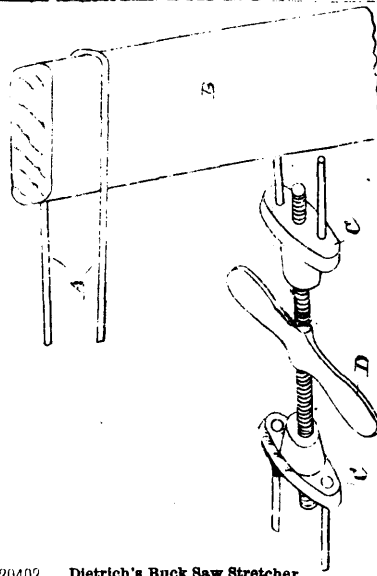
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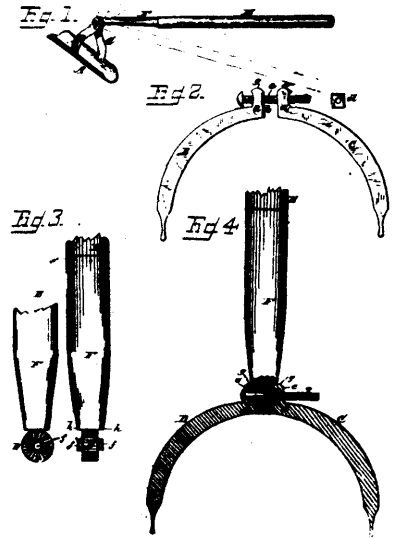
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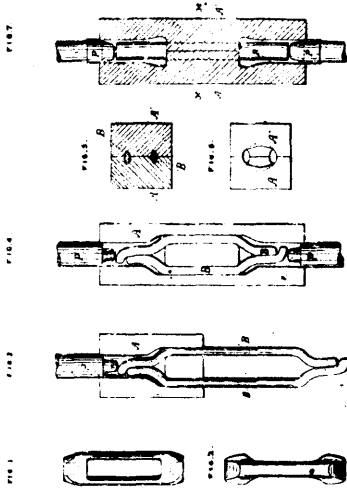
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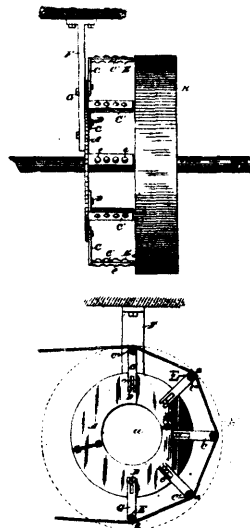
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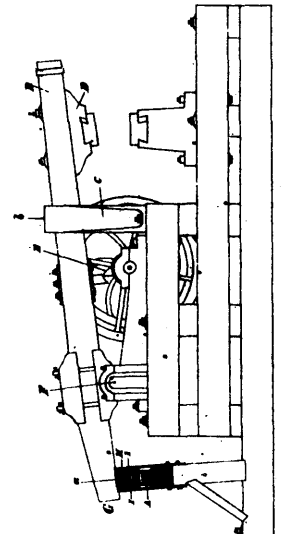
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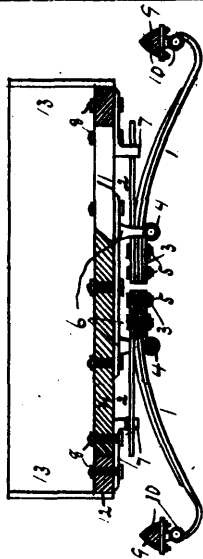
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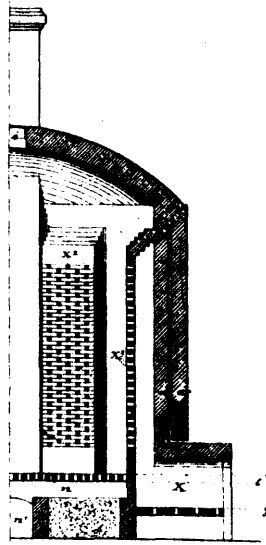
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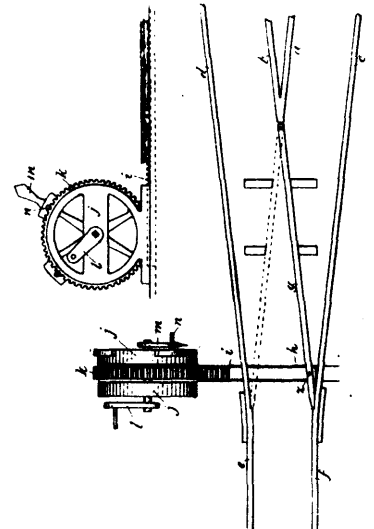
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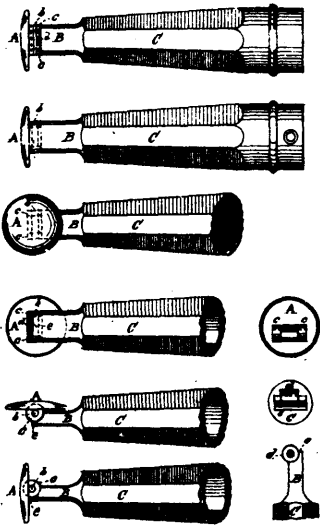
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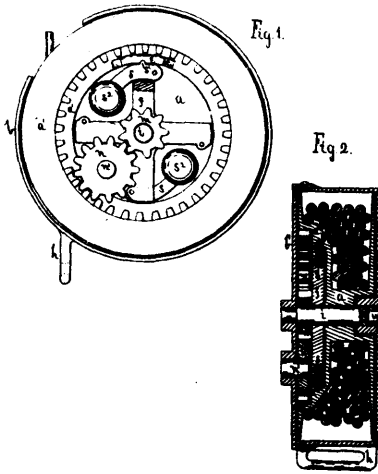
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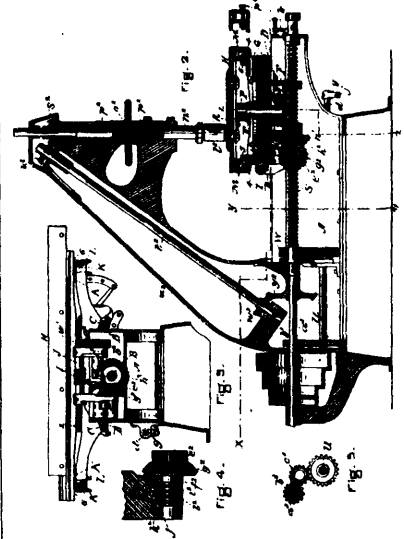
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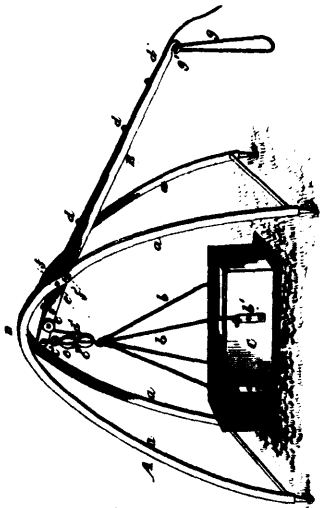
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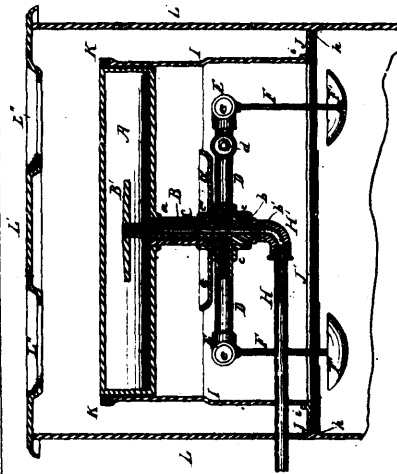
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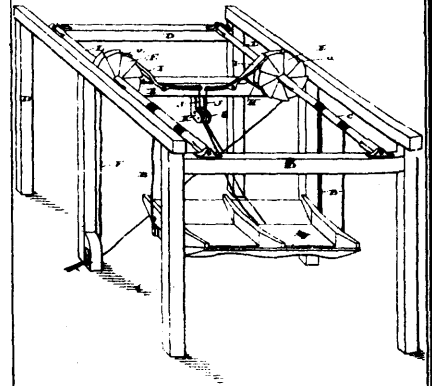
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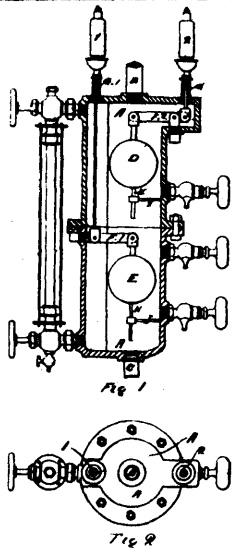
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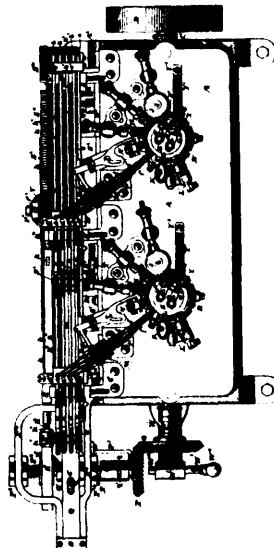
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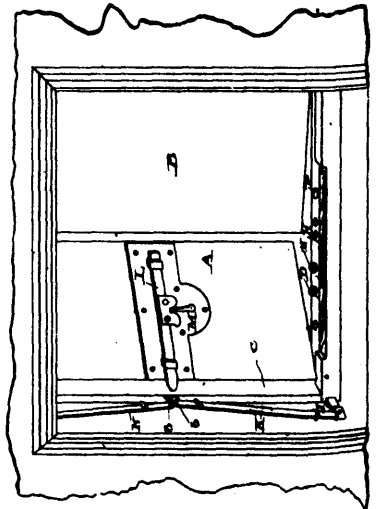
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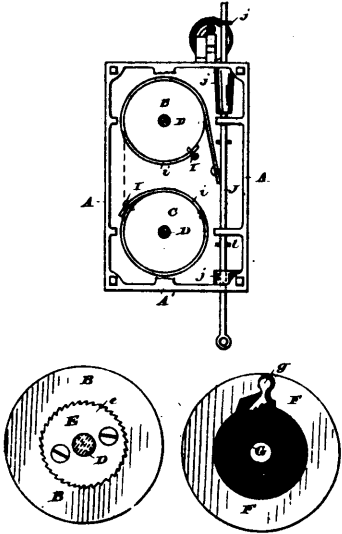
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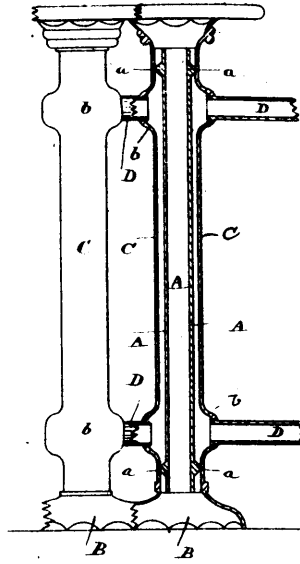
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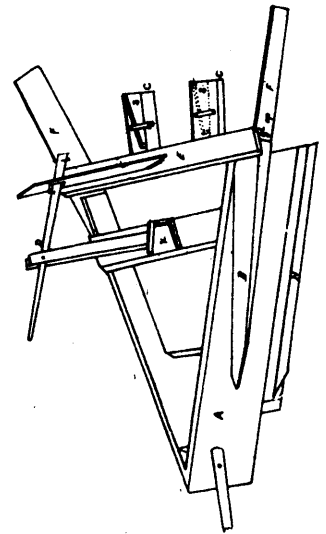
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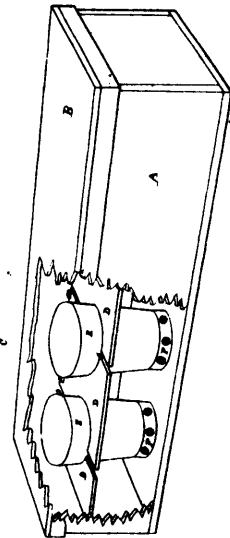
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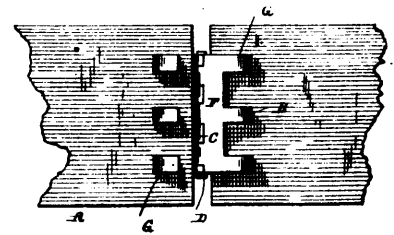
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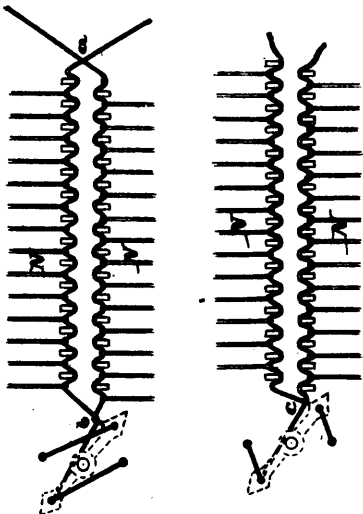
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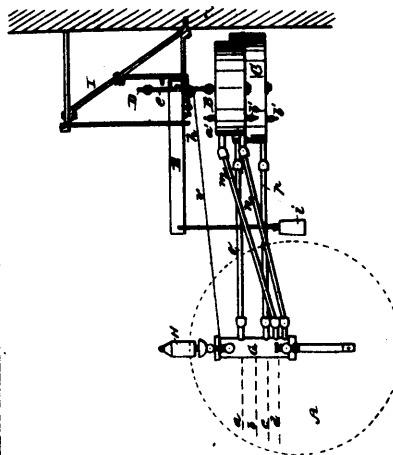
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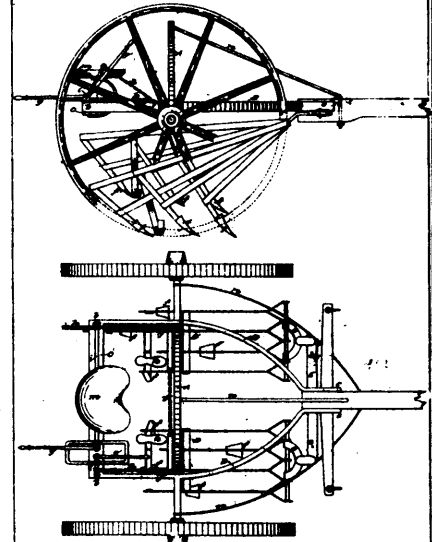
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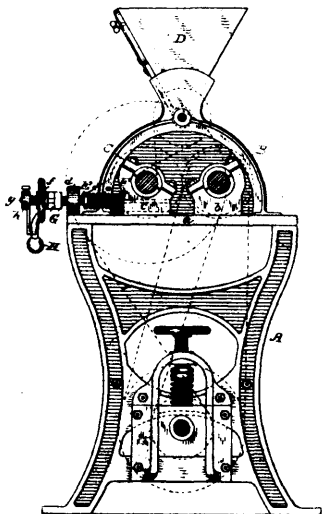
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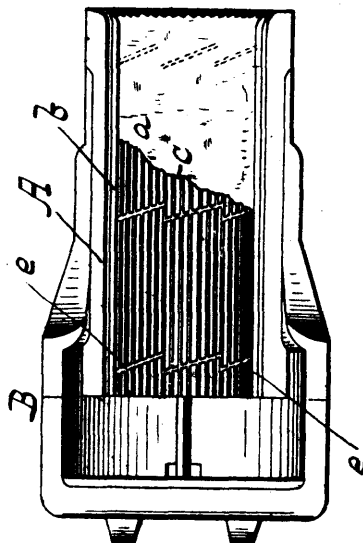
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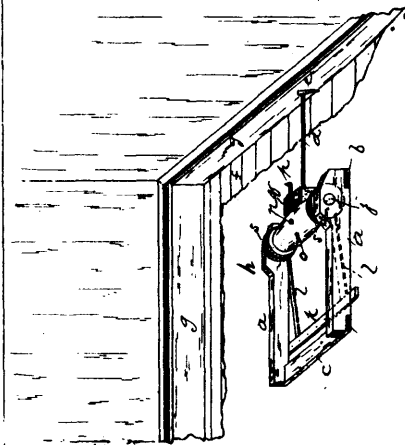
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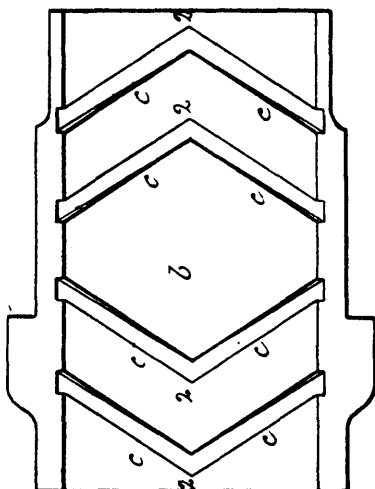
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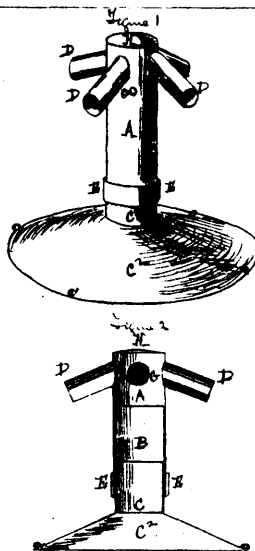
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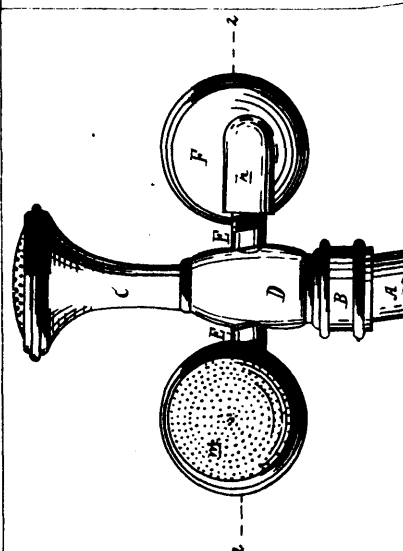
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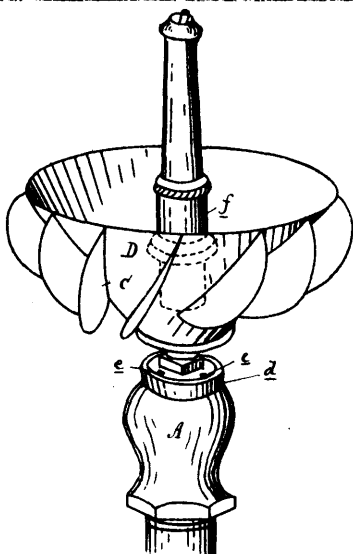
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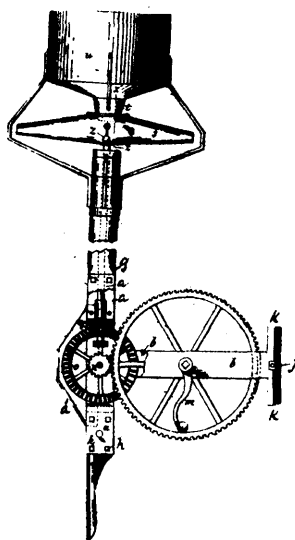
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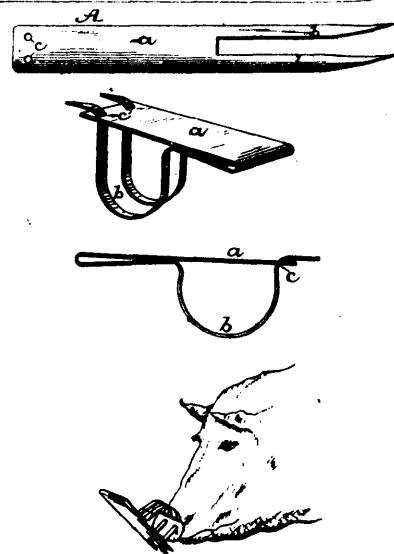
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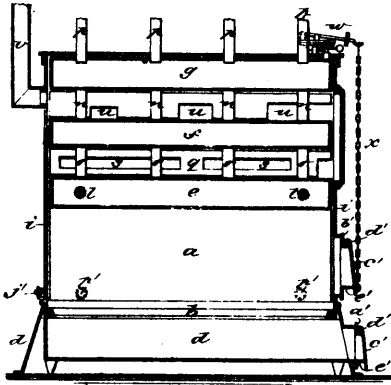
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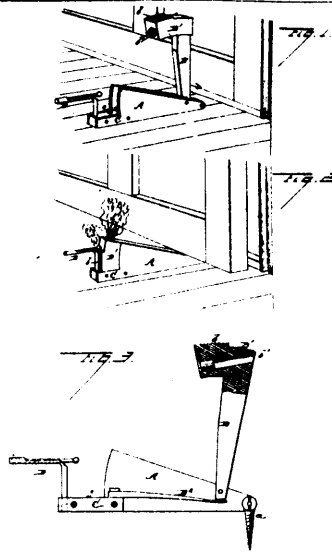
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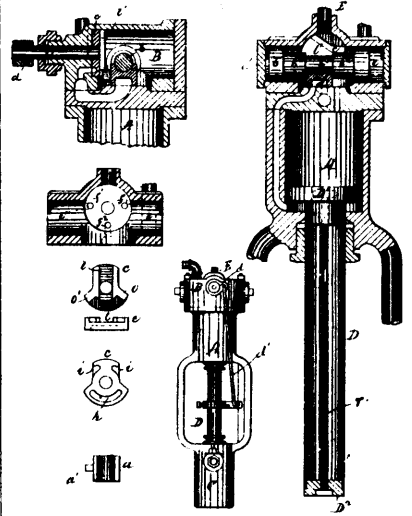
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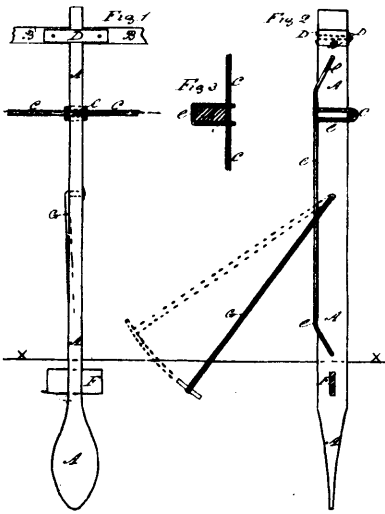
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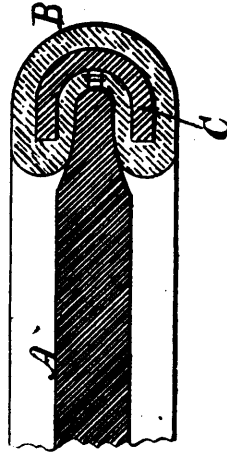
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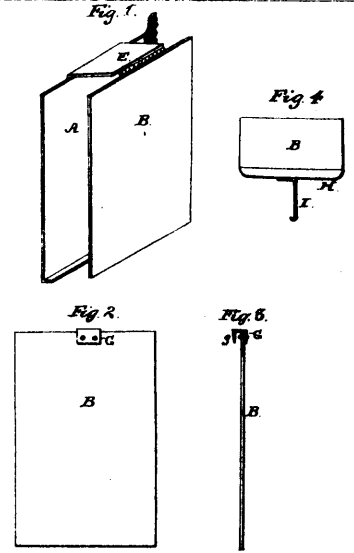
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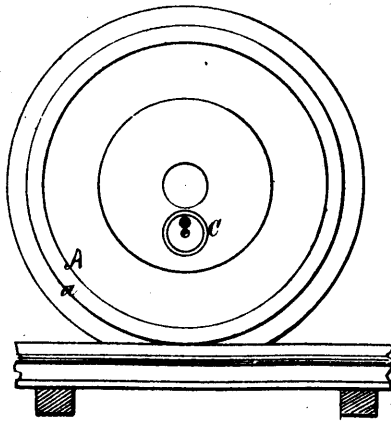
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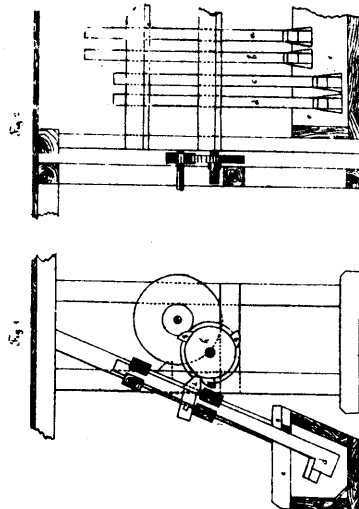
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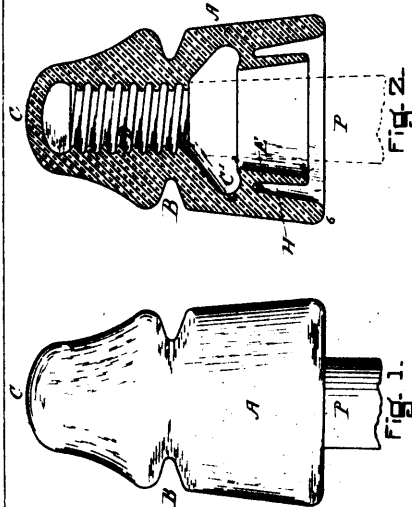
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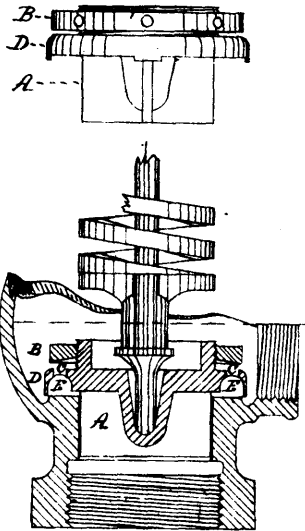
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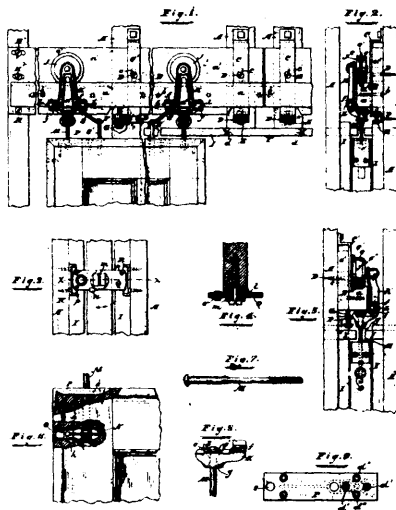
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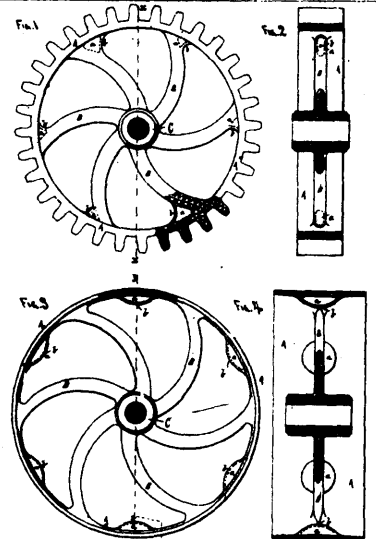
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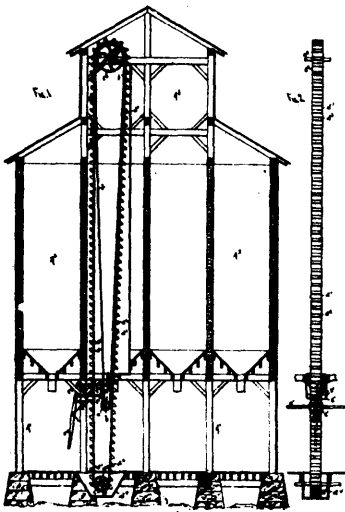
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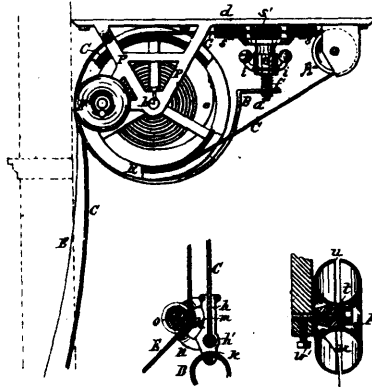
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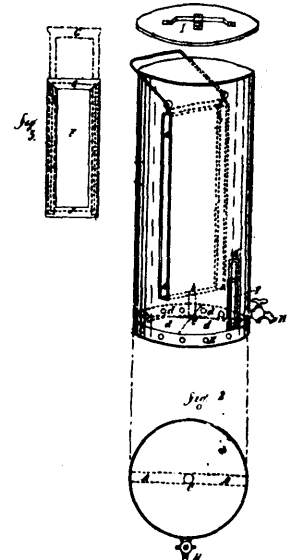
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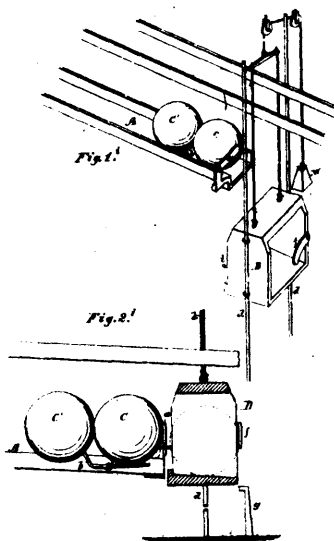
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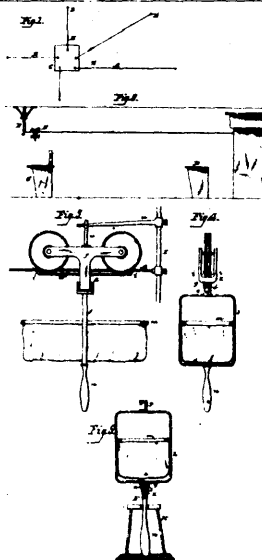
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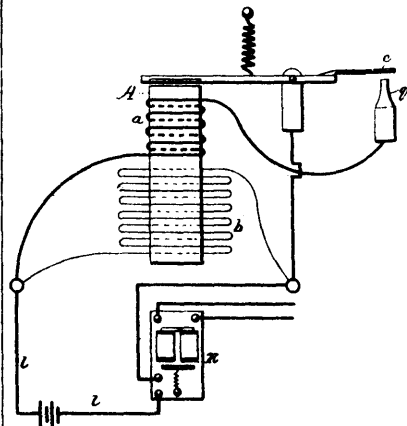
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