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INVENTIONS PATENTED.

No. 16,242. Improvements on Combined Insole and Heel Protectors. (*Perfectionnements aux protecteurs des fausses semelles et des talons.*)

William T. Schenek, Marva, Ill., U. S., 1st February, 1883; for 5 years.

Claim.—A combined insole and heel protector for boots and shoes formed of a single piece of leather having one end cut in the form of a sole A, and the other end in the form of a counter or extension a, with curved slits b between them, and flaps c adapted to be secured to the insole.

No. 16,243. Improvements on Lathes. (*Perfectionnements aux tours à tourner.*)

William H. Lenhart, Defiance, Ohio, U. S., 1st February, 1882; for 5 years.

Claim.—1st. In a lathe for turning irregular forms, the rotating disk D and spindles b revolving in bearings movable radially in said disks, in combination with stationary guideways secured to the lathe frame and cams secured on the spindles and traveling upon said stationary guideways. 2nd. The revolving disk D provided with radial recesses, and the blocks E E reciprocating in said recesses and carrying the revolving spindles F, in combination with cams secured on said spindles and guideways rigidly secured to the stationary lathe frame, whereby the cams moving on the guideways will govern the radial movement of the spindles. 3rd. The combination of spindle F, squaring cam J, guideway L and cutter head O containing expanding and contracting knife stocks K, and mechanism for operating said knife stocks. 4th. In combination with a series of revolving cutter heads, rotary disks carrying independent radially movable spindles around said cutter heads, stationary guideways upon the main frame and cams secured to the spindles travelling on the stationary guideways, whereby the spindles can be moved radially to or from the cutter heads to govern the shape of the object being turned. 5th. The cutter head O provided with radial recesses, the knife-stocks k sliding in said recesses and carrying knives at their outer ends, in combination with the disk n and the wedges p, said wedges being constructed to slide, one in the rear of each knife-stock, and each having tongues to slide in undercut recesses in its knife-stock, whereby they will advance or retract the knife stocks with a positive movement. 6th. As a means for giving motion to the adjustable spindles F, the combination of spur gear H, rotary disk D, feathered shaft I, miter pinions e f a and radially adjustable blocks E. 7th. In a lathe for turning irregular forms, the combination of a series of cutter heads which simultaneously work upon the stick, in combination with two revolving spindles, stationary guideways secured to the lathe frame and exchangeable cams secured upon the spindles, whereby the movement of said cams upon the guideways will automatically and independently adjust the spindles. 8th. In a lathe for cutting spokes, the combination of a series of revolving cutter-heads N O, the radially self-adjusting spindles F F, the oval and squaring cams I and J and involute guideways D and circular guideway L when operating and combined as described. 9th. The cutter head O, knife stock k, wedges p and the grooved disk n carrying said wedges, in combination with the stationary grooved cam R the roller l and the arm m.

No. 16,244. Improvements on Shoemakers' Jacks. (*Perfectionnements aux chevalets des cordonniers.*)

Frank Schipper, Luke Dobel and Anthony Dobel, Aurora, Ind., U. S., 2nd February, 1883; for 5 years.

Claim.—1st. The combination of a supporting stand and a jack supporting head D, adapted to receive the last supporting parts and swivelled to turn in the hinged part of the supporting stand, with the last supporting parts fitted to turn in piece D. 2nd. The combination of the stationary parts B b b' E e and the movable parts C D F G and H.

No. 16,245. Improvements in Combined Car Seals and Nippers. (*Perfectionnements aux fermetures scellées des chars et aux pinces combinées.*)

William E. Power and George W. Dawson, Montreal, Que., 2nd February, 1883; for 5 years.

Claim.—1st. The combination, with a car sealing instrument, of the knives or nippers E F. 2nd. The combination, with the handles A A' and head B, of the dies CD, spring e, cam b' on handles A', and knives or nippers E F.

No. 16,246. Improvements on Saw Benches. (*Perfectionnements aux bancs des scies.*)

Milo Covel, Chicago, Ill., U. S., 2nd February, 1883; for 5 years.

Claim.—1st. The combination of a trunk or main part A with the parts C E removably attached at right angles thereto, with the removable anvil-block. 2nd. The combination, with the traversing slide B, of the adjustable arbor A' pivoted thereto and adapted to hold a saw in either a vertical or horizontal position. 3rd. The combination, with a saw bench, of the guide plates A² A³ having the inner edges projecting slightly beyond the bedding timbers, of the traversing slide B and the adjustable arbor A' pivoted thereto, which is adapted to be converted into either a horizontal or a vertical position. 4th. The combination, with the traversing slide B, of the arbor a', of the vertical adjustable bevelling screws B³ B⁴ and the removable anvil-block A⁴. 5th. The combination, with the arbor a', of the collar a², provided with the sleeve a¹, the collar a³ and the clamping nut a⁵ adapted to engage with the upper threaded end of the sleeve a¹. 6th. The combination, with the guide plates A² A³ and the arbor a', of the bridge A⁶ adapted to form a rest for, and to support the arbor when in a horizontal position. 7th. The combination, with a saw bench, of an adjustable and removable jointing device, consisting of the body C¹ provided with the arms C² C³ having guide screws inserted therein and provided with jaws for holding the files, and a spring inserted between the handles of said jaws, for the purpose of retaining the files in contact with the saw and automatically regulating the pressure on the teeth of the saw when side-dressing the same, and adjusting screws for gauging the width of the teeth at the point.

No. 16,247. Improvements on Pots and Kettles. (*Perfectionnements aux pots et aux bouilloires.*)

David Snyder, Grafton, Mass., U. S., 2nd February, 1882; for 5 years.

Claim.—1st. A pot or kettle provided with the partition D and projection E. 2nd. A pot or kettle provided with one large and two small compartments and having the partition D and projection E. 3rd. A pot or kettle provided with four small compartments and having the partition D and projection E. 4th. The covers C C hinged to the wire d and adapted to be attached to the pot or kettle. 5th. The improved pot or kettle, the same consisting of the body A, partition D, projection E, covers C C and wire d.

No. 16,248. Improvements on Railway Sema-phores. (*Perfectionnements aux sémaphores des chemins de fer.*)

John S. Trites, Moncton, N. B., 2nd February, 1883; for 5 years.

Claim.—1st. The combination of the hand lever A with its attachments for lifting the upper pall F, the ratchet wheel B, pall F, tripping lever G, together with the drum D, pinion E and cord H. 2nd. The combination of the vertical revolving signal board, the bevelled cog wheel M N and their connection with the spindle, or shaft L and lamp K, with the weight arm R, weight S and check chain T together with the wire cord H.

No. 16,249. Improvements on Sewing Machines. (*Perfectionnements aux machines à coudre.*)

Duncan H. Campbell, Pawtucket, R. I., U.S., 2nd February, 1883; for 15 years.

Claim.—1st. The combination, in a wax thread sewing machine, of a main wax cup and an auxiliary wax cup on a level with the main cup adapted to be supplied with wax by flowage from the main cup, and arranged to be traversed by the thread on its way to the work plate. 2nd. The combination of a main wax cup and an auxiliary wax cup connected with the main cup and located between the take-up mechanism and the work plate, and in the straight path of the thread, whereby the thread enters and leaves the auxiliary cup in a direct line. 3rd. In a wax thread sewing machine, a tubular wax cup traversed longitudinally by the thread on its way to the work plate, and provided at top and bottom with perforated plugs, whereby the wax is inclosed and guarded against injurious exposure. 4th. In a wax thread shuttle having a thread chamber, a wax chamber and an aperture provided with packing for stripping the surplus wax from the thread as it leaves the shuttle.

No. 16,250. Improvements on Sewing Machines. (*Perfectionnements aux machines à coudre.*)

Duncan H. Campbell, Pawtucket, R. I., U.S., 2nd February, 1883; for 15 years.

Claim.—1st. The combination of a hook-needle thread delivering and controlling mechanism, a curved shuttle and an arched shuttle race serving as a heating flue. 2nd. The combination of a hook needle, thread delivering and controlling mechanism, a curved shuttle, an arched shuttle race and an arched work plate, said needle shuttle and race being beneath the work plate. 3rd. The combination of the hook needle, the work plate convex laterally and longitudinally, and the shuttle beneath the work plate operating in a race which serves as a heating flue. 4th. The combination of a hook needle, a curved centrally pointed shuttle, an arched shuttle race, a curved shuttle in its course therein and serves as a heating flue, and a shuttle driver mounted on a rock shaft below the centre of the race. 5th. The combination, with a shuttle having a longitudinally recessed web or groove on its upper side, of a race plate grooved on its under side for co-operating with the shuttle, for causing the slack shuttle thread to occupy the recess in the top of the shuttle during its backward movement. 6th. An arched or curved shuttle race serving as a heating flue, upper bearing for the shuttle composed of cork or similar yielding material not injuriously affected by heat. 7th. A curved shuttle provided with a longitudinal thread recess extending from nose to heel on its upper side. 8th. A curved shuttle provided with a longitudinal thread recess on its upper side, and a thread delivery aperture near the nose of the shuttle. 9th. A curved shuttle having a thread groove or recess on its upper side, extending from nose to heel, and a spring for bearing upon the thread within the recess. 10th. A segmental plate integrally affording an arched shuttle rail and bearings for a needle bar. 11th. The combination, with the awl bar, its operating rock shaft and the arm or lever thereon, of the bearing disk on the awl bar, slotted to receive said arm. 12th. The combination, with the feed slide carrying an awl or a needle for feeding its vibrating mechanism and coupling mechanism, of a feed graduating lever for varying the position of said coupling mechanism, whether the feed slide is in motion or at rest, and for supporting said mechanism in position. 13th. The combination of the slide vibrating mechanism, the feed slide having an inclined slot, and the coupling blocks capable of a sliding movement, for varying the vibrations of the feed slide while in active operation. 14th. The combination of the slide vibrating mechanism, the feed slide having the inclined slot, the coupling blocks and means for fixedly adjusting said blocks and thereby varying the vibrations of the feed slide. 15th. The combination of the vibrating slotted arm, the slotted feed slide, the coupling blocks, the lever for moving said blocks in their slots and the graduated scale. 16th. The combination of the feed slide carrying an awl or a needle, the feed graduating lever, the coupling mechanism controlled by said lever, the graduated scale and a locking device for maintaining said lever and supporting the coupling mechanism in any desired position. 17th. The combination, with a hook needle below a work plate and take-up mechanism including a pulley over which thread passes just prior to approaching the needle, of an inclined thread tube which occupies a direct line from the periphery of said pulley to the path of the needle. 18th. The combination, with a hook needle and a presser foot, of a thread eye for carrying thread across the path of the needle and above the presser foot, and a thread arm vibrating in the arc of a circle wholly at one side of the presser foot and the path of the needle, whereby the space above the presser foot less that required by the thread eye is rendered available for the complete elevation of the presser foot. 19th. The combination of a hook needle, a thread arm, a thread eye and operating mechanism for the arm and eye, which causes said eye to first carry and deliver the thread to the arm and thence deliver thread to the needle, and also causes the arm to merely retain and release the thread delivered to it by the eye, whereby said arm is prevented from abrading the thread. 20th. The combination of a hook needle, take-up mechanism, a thread tube in line with the path of the needle, and a thread eye which, when it has delivered thread to the needle, rests in line with the thread tube during the operation of the take-up, for obviating deflection and the consequent abrasion of the thread by the eye. 21st. The combination of the hook needle, the thread eye, its lower and reciprocating slide and the stationary slotted plate, whereby the path traversed by the eye toward and from the needle is laid in a straight line and in a curved line in delivering thread thereto. 22nd. The combination of a hook needle, a presser foot, a vibrating thread eye and a thread measuring arm which is variably adjusted for measuring off thread by the vertical movement of the presser foot. 23rd. The combination of the presser foot and the thread arm pivoted upon an axis, which is varied in its location by raising or lowering the presser foot. 24th. The combination, with the presser foot provided with a rounded projection on its bar, of a thread arm rotatively mounted on a lever, a

vertically inclined lug or web on said lever, and a spring for maintaining the surface of the inclined lug in contact with the projection on the presser foot bar, whereby the position of said thread arm is varied by the vertical adjustment of the presser foot. 25th. The combination of the thread arm mounted on a movable axis, the presser foot controlling the position of said axis, the reciprocating rod and the bell crank lever, and link connecting said rod with the thread arm. 26th. The combination, with the presser foot, its bar and lifting finger, of the vibrating lever which lifts the foot during the feeding operation, and an adjustable seat for the lifting finger on said lever. 27th. The combination of an arched shuttle race, a wax thread shuttle and one or more heating burners located near the lower end of the race, for heating the shuttle and its contents. 28th. The combination, with the parts to be heated in a wax thread machine, of a burner, or burners, remotely located from said parts and intermediate metallic connections for metallically conducting heat from said burners to said parts. 29th. The combination, with a thread tube for heating thread in its passage through said tube, and a heating burner remote from said tube, of a heating rod or plate connected with said tube at one end and exposed to the flame of the burners at its opposite end.

No. 16,251. Improvement in Manure Spreaders. (*Perfectionnement des distributeurs d'engrais.*)

William H. Crandall, Stowe, Mass., U.S., 2nd February, 1883; for 5 years.

Claim.—The hopper having its front and rear sides inclined downwardly toward each other, and its front inclined side *a* extended rearwardly under and beyond the rear inclined side *b* with a discharging space or opening *c* between them, and also having its end extended in rear of its side, in combination with the axle *C* arranged medially in the said hopper and above its chute, and a gate *B* applied to such rear inclined side and space and with a toothed cylinder *D* arranged in rear thereof and over the extended part of the front side and between the end extensions, and provided with mechanism for operating the said cylinder.

No. 16,252. Method of flavouring Syrups and Sugars. (*Méthode pour aromatiser les sirops et les sucres.*)

Josiah Daily, Madison, Ind., U.S., 2nd February, 1883; for 5 years.

Claim.—1st. The method of flavoring saccharine matter, including syrup and sugar, by treating and impregnating the same with the principal or extract of hickory. 2nd. An improved syrup or sugar, composed of any suitable saccharine matter flavored with an extract of hickory.

No. 16,253. Elastic Japan. (*Laque élastique.*)

David Macdonald, Toronto, Ont., 2nd February, 1882; for 5 years.

Claim.—1st. A compound composed of copal varnish, japan gold size, oil, rubber and bees wax. 2nd. The combination, with ordinary lithographic ink, of japan gold size or its equivalent, for the purpose of producing an ink capable of printing on an elastic japan surface.

No. 16,254. Improvements on Pumps.

(*Perfectionnements aux pompes.*)

The Field Force Pump Company, (Assignee of William P. Field,) Lockport, N.Y., U.S., 2nd February, 1883; for 5 years.

Claim.—A pump constructed with the single pump-cylinder, the casing *G* having a stuffing box for the rod, and a hollow laterally extending arm *G*, and detachably secured to the upper end of the cylinder, the air chamber *B* secured on the outer end of the said arm and provided, at its base, with a check valve and a short spout *c*, and the nozzle *F* detachably secured to the short spout by means of bolts.

No. 16,255. Improvements on Stock Cars.

(*Perfectionnements aux chars à bestiaux.*)

Henry P. Bothwell and James H. Strugnell, Toronto, Ont., 2nd February, 1883; for 5 years.

Claim.—1st. The combination, with the standards *A*, of the transverse chains *E* and the chains *F* attached to the said transverse chains and adapted to be attached to the adjoining transverse chain, whereby stalls are formed and the animals prevented from lying down. 2nd. The combination, with the sides of the car, of the trough *D* attached to the outer sides of the standards *A* and the covering of the troughs, provided with the openings *D*. 3rd. The combination, with the sides of the car, of the troughs *D* increasing in width towards the middle and having the inner sides bulged toward the interior of the car. 4th. The combination, with the sides of the car, of the troughs *D*, the bevelled timbers *c c* attached to the outer sides of the standards, and the slats *B* attached to the timbers *c c*. 5th. The combination, with the feed boxes *G* open at the bottom, of the manger bars *J* and the hooks *a b*. 6th. The combination, with a car, of diagonal bars *K* held to the top and sides, and of the canvas sheets *L* to the top and sides of the car and to the said bars *K*.

No. 16,256. Improvements on Harness Hames. (*Perfectionnements aux attelles des colliers.*)

Christian Lange, Black Earth, Wis., U.S., 2nd February, 1883; for 5 years.

Claim.—The hame staple composed of the bracing shoulder piece *c*, the parallel prongs *e* projecting from its bearing face *d*, the oblique perforated lugs *g* extending from its outer face, and the roller bearing.

No. 16,257. Improvements on Seals for Car Doors. (*Perfectionnements aux fermetures scellées pour les portes des chars.*)

Edward J. Brooks, New York, N. Y., U. S., 2nd February, 1883; for 5 years.

Claim.—1st. A shackle wire constructed with anchoring enlargements integral therewith and having detector indentations formed in the same end or ends of the wire to indicate any shortening of the shackle. 2nd. A shackle wire, having one end constructed with anchoring enlargements integral therewith and its other end indented, in combination with a seal disk of soft metal, cast on said indented end and having a threading hole formed partly by a semitubular projection on the back of the disk, to receive the shackle end first named. 3rd. A metallic seal composed of a shackle wire, a seal disk fast on one end of said wire and adapted to receive its other end and to secure the same, when pressed, and a labelling tag attached to the first named end of said wire above the seal disk.

No. 16,258. Improvements on Cooking Stoves, Ranges and Ovens. (*Perfectionnements aux poêles, landiers et fourneaux de cuisine.*)

Maryann Kinleyside and Mary Wilson, Hamilton, Ont., 2nd February, 1883; for 5 years.

Claim.—In combination with an oven, the shield A containing a thermometer tube, having a hollow inverted cone F at its lower end with a perpendicular slot down its centre, said tube extending from the shield into the oven in such a way that the temperature of the oven may be indicated on the outside of said shield.

No. 16,259. Improvements on Rope Serving Machines. (*Perfectionnements aux machines à fourrer les câbles.*)

Alexander F. Downie, (co-inventor with John H. Nute,) and George F. Downie, New Glasgow, N. S., 2nd February, 1883; (Extension of Patent No. 15,429.)

No. 16,260. Improvements on Rope Serving Machines. (*Perfectionnements aux machines à fourrer les câbles.*)

Alexander F. Downie, (co-inventor with John H. Nute,) and George F. Downie, New Glasgow, N. S., 3rd February, 1883; (Extension of Patent No. 15,429.)

No. 16,261. Improvements in Gas Motor Engines. (*Perfectionnements aux machines à gaz.*)

Herbert Sumner, Thomas Asbury, William Lees and Richard W. B. Sanderson, Manchester, Eng., 3rd February, 1883; for 5 years.

Claim.—1st. Operating the inlet and outlet valves by two cams on one movable boss so arranged that the action of the two valves can be adjusted for backward and forward motion of rotation of the engine. 2nd. The use, in conjunction with reversible inlet and outlet valves, of an igniting slide operated by an eccentric capable of adjustment to accord with the action of the said valves so as to bring the igniting slide into operation at the proper times for forward and backward motions of the engine. 3rd. Projecting the igniting flame into the working cylinder by causing the small portions of the compressed combustible charge from such cylinder to pass directly across the igniting flame opposite the entrance of the cylinder post. 4th. Operating the vertical slide (for igniting) N, and inlet and outlet valves B and M by the side shaft J (below the centre line of the cylinder) and wheels P.

No. 16,262. Improvements on Putting-out Machines. (*Perfectionnements aux machines de dégraissage des peaux.*)

Joseph W. Vaughn, Peabody, Mass., U. S., 3rd February, 1883; for 5 years.

Claim. 1st. A pair of yielding rollers provided with flanges or threads, for scraping or stretching the hide or skin, and adapted to revolve in opposite directions in such a manner as to oppose the passage of the skin between the same when in contact therewith, and a holder or carrier for the hide or skin, which holder passes between said rollers in presenting the hide or skin to the action of the same, in combination with mechanism for operating said rollers and holder. 2nd. The combination of the following instrumentalities, to wit: a pair of yielding rollers provided with flanges or threads for scraping or stretching the hide or skin, a movable holder or carrier, for holding and presenting the hide or skin to the action of the rollers, a shipping device for reversing the movement of the holder or carrier, after it has presented the hide or skin to the action of the rollers, a shipping device for reversing the movement of the holder or carrier, after it has presented the hide or skin to the action of the rollers, and a treadle or device for increasing the pressure of the rollers on the hide or skin, at the will of the operator of the machine. 3rd. The rollers B C suspended in the swinging lugs Q, in combination with the levers R S. 4th. The bars x ff, in combination with the levers R S and rollers B C. 5th. The combination of the bars x ff, cord 22 and shipping lever 30, for automatically shipping the belt P and reversing the movement of the holder or carrier W. 6th. A holder or carrier for the hide or skin, which is wedge-shaped in cross-section. 7th. The holder or carrier W provided with an elastic covering which yields slightly when the rollers act upon the hide or skin, and thereby assists in preventing injury to the stock. 8th. The holder W provided with the racks g, in combination with the pinions h, shaft j and operative mechanism. 9th. The projections or bars 27, in combination with the bars x ff, cord 22, shipping lever 30, and operative mechanism. 10th. The projections or bars 27, in combination with the bars x ff, levers

R S, rollers B C and operative mechanism. 11th. The treadle shaft z provided with the lever or arm r and cord m, in combination with the swinging lugs Q and rollers B C. 12th. The shaft D, bars x ff, rollers B C, shaft J, holder or carrier W, and their operative mechanism arranged in the frame work A, in the relative positions described and as shown in fig. 1, whereby the machine is rendered more compact and the various parts are enabled to perform their functions to the best advantage. 13th. The rod 50 for connecting the levers R S at one end of the machine with those at the other, thereby enabling the levers to be operated in unison by the handle T. 14th. A carrier or holder for the hide or skin having two tables arranged opposite each other or back to back, in such a manner that a part of the hide or skin will rest on one of the tables and a part on the other, and be simultaneously operated on by the mechanism for scraping, stretching, or putting out the same. 15th. The bars x ff, levers R S and cross connecting shafts 50, combined and arranged to operate with the rollers B C. 16th. The rollers B C provided with corresponding threads or flanges 45, but so arranged in the machine, by reversing the position of one of the rollers, that said threads run in opposite directions, whereby the action of the rollers on the hide or skin will be the same on either side thereof. 17th. The roller B provided with the long threads or flanges 45, and short threads or flanges 34, the long threads starting from the central line 35 and passing in a spiral direction around the roller towards its ends, whether said roller is used in a putting-out machine or for any other purpose for which it is adapted. 18th. The roller B provided with the long threads or flanges 45, and short threads or flanges 34, said short threads being arranged to meet alternately on, and at the side of the central line 35, whether said roller is used in a putting-out machine or for any other purpose for which it is adapted.

No. 16,263. Improvements in Vehicle Springs. (*Perfectionnements aux ressorts des voitures.*)

Alexander W. McKown, Honesdale, Penn., U. S., 5th February, 1883; (Extension of Patent No. 8406.)

No. 16,264. Improvements in the Indexing of Books. (*Perfectionnements dans les index.*)

Charles H. Denison, Bay, Mich., U. S., 5th February, 1882; (Extension of Patent No. 8387.)

No. 16,265. Improvement on Machines for Dressing Hoops. (*Perfectionnement des machines à tailler les cercles.*)

Samuel L. Garner, Joseph Bock, Augustus Hunter and Otto Reinke, Cassville, Wis., U. S., 5th February, 1883; for 5 years.

Claim.—1st. The combination, with the grooved frame A and the cutter head B, of the slide m, the gauge roller n, the lever o and the weighted lever i. 2nd. The combination, with the frame A and the cutter head B, of the slide m, the gauge roller n, the lever o, the weighted lever i and the set screw l. 3rd. The combination, with the frame A and the cutter head B, of the slide m, the roller n, the lever o, the weighted lever i and the grooved pressure roller k mounted loosely on said weighted lever. 4th. The combination, with the frame A provided with the guide plate h, and the cutter head B, of the grooved pressure roller k, the adjustable gauge roller n and the adjustable fluted feed rollers P P.

No. 16,266. Improvements on Scales. (*Perfectionnements aux balances.*)

Franklin Fairbanks, St. Johnsbury, Vt., U. S., 6th February, 1883; (Extension of Patent No. 8942.)

No. 16,267. Improvements on Sewing Machines. (*Perfectionnements aux machines à coudre.*)

John K. Harris, Springfield, Ohio, U. S., 6th February, 1883; (Extension of Patent No. 13,378.)

No. 16,268. Improvements on Sewing Machines. (*Perfectionnements aux machines à coudre.*)

John K. Harris, Springfield, Ohio, U. S., 7th February, 1883; (Extension of Patent No. 13,378.)

No. 16,269. Corset and Skirt Supporter. (*Bretelles de corset et de jupon.*)

Charles W. Higly, (assignee of Moses K. Bortree,) Jackson, Mich., U. S., 7th February, 1883; (Extension of Patent No. 9259.)

No. 16,270. Improvements in Wire Lines for Fences. (*Perfectionnements aux fils de fer des clôtures.*)

Angus M. Thom, Montreal, Que., 9th February, 1883; for 5 years.

Claim.—1st. The combination of two lines of wires A B, each provided at intervals with interlocking bends G and projecting ends F. 2nd. The combination of a continuous line of wire with a line of wire provided at intervals with interlocking bends G and projecting ends F.

No. 16,271. Improvements on Reapers. (*Perfectionnements aux moissonneuses.*)

George Sweet, Samuel D. Faulkner, Dansville, Lebbens Sweet, Wellsville, N. Y., U. S., and John Watson, Ayer, Ont., 10th February, 1883; (Extension of Patent No. 8412.)

No. 16,272. Art of Blasting Under Water and Apparatus Therefor. (*Art de miner sous l'eau et appareil pour cet objet.*)

Ebenezer E. Gilbert, Montreal, Que., 12th February, 1883; (Extension of Patent No. 8396.)

No. 16,273. Improvements on Carriage Gear. (*Perfectionnements aux trains des voitures.*)

George E. Barthelomew and Edmund Armant, Toronto, Ont., 12th February, 1883; for 5 years.

Claim.—1st. A vehicle provided with a single front spring connected to the axle by a fifth-wheel or circle, the braces F connected to, and extending from the bottom half of the spring to the bottom of the vehicle to which it is suitably connected by a hinge, or pivot joint, in combination with a centre brace G connected to and extending from the outer edge of the circle B to the bottom of the vehicle, where it is pivoted upon the same centre as the jointed end of the braces F. 2nd. A vehicle provided with single elliptic springs, the braces F pivotally connected to the lower half of the spring and extending in pairs to the bottom of the vehicle, where they are pivotally connected. 3rd. A vehicle provided with spring gear arranged for side springs, or the "Brewster" cross spring, the braces F connected to and extending from the ends of the head block to the bottom of the vehicle, where they are pivotally connected. 4th. A vehicle provided with an open fifth-wheel or arch, the clips a formed to extend inwardly in order to permit the guard to pass freely around till it comes in contact with the stop b. 5th. A vehicle provided with a solid fifth-wheel composed of two disks, one fitting into a recess formed in the other, an oil hole formed in the top half and provided with a spring or leather cover. 6th. In a vehicle provided with single elliptic springs coupled to the body of the vehicle, the combination of the loops D when coupled to the spring bar c by links.

No. 16,274. Improvements on Locomotive and Traction Engines. (*Perfectionnements aux machines locomotives et de traction.*)

Francis W. Webb, Crewe, England, 13th February, 1883; for 15 years.

Claim.—1st. The combination of the two pairs of driving and carrying wheels, a pair of outside cylinders for driving one pair of said wheels, and a single inside cylinder placed in the central line of the engine for driving the other pair of wheels. 2nd. The combination of the two separately driven or uncoupled pairs of driving and carrying wheels, the outside cylinders worked by steam direct from the boiler, for independently driving one pair of said wheels, and a single inside cylinder placed in the central line of the engine and worked by the exhaust steam from the outside cylinders to independently drive the other pair of wheels. 3rd. The combination of two pairs of driving and carrying wheels, cylinders for driving them, one pair of said wheels being worked by steam direct from the boiler, and the other pair of wheels being worked by the exhaust, and the pipe or pipes which convey the exhaust steam through the boiler of the engine. 4th. The combination of two pairs of driving and carrying wheels, two outside cylinders worked by steam direct from the boiler for driving one pair of wheels, a single central inside cylinder for driving the other pair of wheels, and valve mechanism whereby the single central cylinder may be worked by the exhaust steam from the outside cylinders or by steam direct from the boiler. 5th. The combination of a pair of driving and carrying wheels, two outside cylinders worked by steam direct from the boiler for driving said wheels, another pair of wheels coupled to and in rear of the pair above mentioned, another pair of driving and carrying wheels, and a single central inside cylinder for driving said wheels worked by the exhaust steam from the outside cylinders. 6th. The combination of a slide valve and mechanism for shifting or moving the valve on its face, transversely to its line of motion for each adjustment of the valve gear. 7th. The combination of the reversing shaft z, the slide valve, the T-piece or support at the bottom of the slide valve, and pivoted connecting levers between the T-piece and reversing shaft, whereby the valve is shifted on its face transversely to its line of motion, at each adjustment of the valve gear and grooving of the valve face prevented. 8th. The combination of the engine, the boiler, the fire box formed with one or more gussets, whereby the expansion and contraction of the fire box is permitted. 9th. The combination of the outer boxing or frame B rigidly secured to the main frame, the inner laterally moving boxing carrying the axle, the elastic cushion carried by the outer frame and the thrust bosses or heads carried by the inner laterally moving box. 10th. The combination of an axle boxing or frame rigidly secured to the main frame, a laterally moving boxing carrying the axle, and a spring, or elastic cushion, which receives the lateral thrust of the axle box in either direction. 11th. The combination of an axle boxing or frame, rigidly secured to the main frame, a laterally movable axle box carrying the axle, a spring or elastic cushion, which receives the side thrust of the moving box in either direction, and the strut rods which support the frame upon the top of the laterally moving boxing. 12th. The combination of the outer skeleton boxing or frame rigidly bolted to the main frame, the inner laterally moving box carrying the axle, the nest of springs or elastic cushion carried by the outer frame or boxing, the thrust cross heads carried by the laterally moving boxing and the frame struts which support the locomotive frame upon the laterally moving boxing. 13th. The combination, with the locomotive or vehicle frame, of the laterally movable axle box, which moves in the arc of a circle. 14th. The combination of the outer boxing or frame, rigidly bolted to the main frame and shaped in the arc of a circle in horizontal section, the correspondingly shaped axle box moving laterally within the outer casing and an elastic cushion which receives the thrust of any side-wise movement of the parts.

No. 16,275. Improvements on Wall Clasps. (*Perfectionnements aux accroche-tableaux.*)

Israel Charbonneau, Côte St. Louis, Que., 13th February, 1882; for 5 years.

Claim.—1st. A metal plate having its rear surface flat, or a counterpart of the surface it is intended to be secured to, provided with one or more spurs S entering the plaster or other material of which the wall or surface is formed, the face of the said plate being provided with a hook H for the reception of a cord loop ring, or other object it is desired to suspend, the plate being of any suitable shape and having a plain or ornamental surface. 2nd. A malleable metal plate P having spurs S and a hook H cut out in one piece with the plate and bent into suitable shape.

No. 16,276. Improvements on Hand Trucks. (*Perfectionnements aux camions à bras.*)

Calvin J. Holman, Chicago, Ill., U.S., 13th February 1883; for 5 years.

Claim.—1st. The combination, with the side bars provided at one end with handles, and at the other end supported by truck wheels and rigidly united by cross bars, of the barrel grasping jaws independently pivoted to one of the cross bars and extending longitudinally along the truck frame, and a horizontally swinging cam lever pivoted to one of the cross bars, between the free ends of the jaws, and projecting longitudinally along the truck frame between the side bars within reach of the operator, and means for holding the cam lever in its adjusted position. 2nd. The independently pivoted barrel grasping jaws extending longitudinally along the truck frame to a position within reach of the operator between the side bars, and a traverse rack bar for holding the cam lever in its adjusted position. 3rd. The combination, with the side and cross bars, of the barrel grasping jaws pivoted to one of the cross bars and having their outer curved positions supported by the side bars of the truck, the horizontally swinging cam lever pivoted to one of the cross bars, between the inner ends of the jaws, and projecting longitudinally along the truck frame within reach of the operator between the truck handles, and means for locking the cam lever in its adjusted position.

No. 16,277. Improvements in the Method of Treating Vegetable Fibrous Substances for the production of Fibres for Spinning, Paper Making, &c. (*Perfectionnements dans le mode de traitement des substances végétales fibreuses pour la production des fibres pour les filatures, fabriques de papier, &c.*)

James A. Graham, London, Eng., 13th February 1883; for 15 years.

Claim.—1st. The treatment of vegetable substances capable of producing fibres suitable for spinning, paper making and other purposes, either in a closed or open vessel or boiler, first with the monosulphite of potash, soda, magnesia, lime or other suitable base, and water, and when the gases contained in the vegetable substances have been driven off injecting into the vessel or boiler, sulphurous acid in the gaseous or liquid state, either alone or in combination with potash, soda, magnesia, lime or other suitable base, or a solution of sulphurous acid, so as to form in the boiler a solution containing an excess of sulphurous acid above that required to form, in combination with the base, a mono-sulphite. 2nd. The injection of sulphurous acid, either alone or in combination with potash, soda, magnesia, lime or other suitable base, in the form of a solution containing an excess of acid into a closed or open vessel or boiler, during the operation of boiling vegetable substances in order to produce fibres suitable for spinning, paper making and other purposes, by treating them with water alone, or in conjunction with potash, soda, magnesia, lime or other suitable base in the form of an oxide, or a mono-sulphite, or an acid sulphite thereof.

No. 16,278. Improvements in Pails. (*Perfectionnements dans les seaux.*)

Henry Mann, Milwaukee, Wis., U.S., 13th February 1883; for 5 years.

Claim.—A vessel formed of staves provided with one or more retaining wires embedded beneath its exterior surface, the ends of said wire or wires being connected together and fastened upon the interior surface of such vessel.

No. 16,279. Improvement on Malt Houses and Malt Kilns. (*Perfectionnement des malteries et tourailles.*)

Henry Altenbrand, Brooklyn, N. Y., U. S., 13th February, 1883; for 5 years.

Claim.—1st. The improvement, in drying malt, by drawing currents of warm air upward through the body of malt in such manner as to lift and separate the particles thereof. 2nd. The combination, with the perforated floors of a malt house and with the furnace thereof, of an exhaust apparatus communicating with the space above the upper floor and constructed and provided with operating mechanism, whereby the air above the malt is rarified and the particles of malt are lifted and separated by, and exposed to rapidly ascending warm air currents.

No. 16,280. Improvements in Vulcanizing India Rubber and Gutta-Percha Coatings and Coverings for Telegraphic Cables. (*Perfectionnements dans la vulcanisation des enveloppes et couvertures en caoutchouc et gutta-percha pour les câbles télégraphiques.*)

Henry A. Clark, Boston, Mass., U.S., 13th February, 1883; for 5 years.

Claim.—1st. The vulcanization of a cable composed of telegraphic, telephonic or electric wires embedded in India-rubber or gutta-percha, or other vulcanizable gum, which surrounds and separates the several wires by means of a mould, shaped to receive each cable and hold it in a straight position, while the India-rubber etc., is being vulcanized. 2nd. The vulcanization of cables for telegraphic, telephonic or electric wires in moulds adapted to receive them and confine them in a straight position while being so vulcanized, the projection of such moulds at and from each end of the vulcanizing oven or chamber.

No. 16,281. Shingle Machine. (*Machine à bardeau.*)

John Goldie and Daniel Cameron, Galt, Ont., 13th February, 1883; (Extension of patent No. 2115.)

No. 16,282. Railway Track Cleaner. (*Chasse-pierre de chemin de fer.*)

James H. Miller, Fredericton, N. B., 14th February, 1883; (Extension of patent No. 2391.)

No. 16,283. Improvements on Shingle Machines. (*Perfectionnements aux machines à bardeau.*)

William Wyley, Alma Mills, Foxmead P.O., Ont., 14th February, 1883; for 5 years.

Claim.—1st. The combination of friction wheels 7 and 8 driving a movable shaft 9, carrying a spool 10, winding a strap 11 attached to bolt carriage 12, lever 23, rock shaft 18, rod 19, an inclined block 20 for effecting engagement and disengagement of the friction wheels, the counterbalance weight 15 to effect a return motion of the bolt carriage 12, and sliding bar 25 operated in one direction by said carriage and reversely by spring bar 24 and strap 26, whereby the reciprocation of the shingle bolt to the saw is effected automatically. 2nd. The combination of the movable shaft 9 carrying a friction wheel 8, and spool 10 having strap 11 attached to the bolt carriage journal bearing 22 movably attached to frame 1, inclined block 20, rod 19 and rock shaft 18 provided with lever 23, operating to advance the carriage to the saw. 3rd. The spring bar 24, strap 26 and sliding bar 25 having projections 28 and 30 to operate lever 23 for effecting disengagement of the friction wheels 8 and 7, in combination with a reciprocating bolt carriage 12, receded from the saw by a counterbalance weight 15. 4th. The combination of the bolt carriage 12 having bracket 16 pintled thereto, rock shaft 18 provided with lever 23, rod 19, operating block 20, and shaft 9 carrying friction wheel 8 engaging and disengaging with friction pulley 7 and spool 10, winding strap 11 attached to the carriage, whereby the carriage, when receded, causes the friction wheels to engage and advance the shingle-bolt to the saw. 5th. The combination of movable shaft 9, carrying friction wheel 8 and spool 10, bolt carriage 12 attached to said spool by strap 11 winding thereon and provided with weight 15, slide 25 alternately reciprocated by carriage 12 and spring bar 24, and the rock shaft 18 provided with lever 23, rod 19 and block 20, whereby the carriage is automatically advanced and receded.

No. 16,284. Improvements in Clock Calendars. (*Perfectionnements aux horloges-calendriers.*)

Josiah K. Seem, Macomb, Ill., U. S., 14th February 1883; for 5 years.

Claim.—1st. The arrangement and combination of the unit wheel P having weight *i*, decimal wheel *a*, wheel *e* having long teeth *r*, disk *s* and wheel *i*. 2nd. The arrangement and combination of the frame *e*, pawl *f* having pin *b*, arm *r*2, shaft D, weighted lever Q. 3rd. The disk C having three pins *f*2, studs *e*1 *e*2 and corresponding notches in its circumferences, in combination with the wheel *e*, disk S and decimal wheel *a*. 4th. The combination and arrangement of the frame *e* having incline plane *a*2 and pin *o*, pin *b* on pawl *f*, wheel *i*, disk C having three projecting pins *f*2, stud *e*1 *e*2 and corresponding notches in its circumference, wheel *k*, index wheel *m* having leap year wheel *n*, pawl *d* and three cog-wheels *x*. 5th. The combination and arrangement of the lever *q* having weight *v* and projecting tooth on its inner end wheel *m*2, lock spring *u*, day wheel B, shaft D, arm *r*2 and pawl *f* having pin *b* operating jointly together.

No. 16,285. Improvements on Pipe or Hose Couplings. (*Perfectionnements aux joints des tuyaux ou des boyaux.*)

William F. Cassidy and Enos R. Williams, Cape May, N. J. U.S., 14th February 1883; for 5 years.

Claim.—1st. The combination, with hinged clamps, each having an opening *c*, of the two collars A A, each having a stud B which is formed with an incline *a* and notch *b*. 2nd. A hinged clamp constructed with an opening *c* and provided with side pieces *d*, whereby it is enabled to enclose the sides as well as the top of the coupling, in combination with a collar having a stud over which said clamp catches. 3rd. The two collars A A, each having a stud B, in combination with hinged clamps *c* having openings *c* and horns *e*1. 4th. The two collars A A, each having a stud B provided with an incline *a*, in combination with hinged clamps *c*, which are shaped so as to enclose nearly the entire circumference of said collars, the clamps being provided with openings *c* and horns *e*1.

No. 16,286. Improvements in the Bolsters of Bob-Sleighs. (*Perfectionnements aux sellettes des traîneaux accouplés.*)

Michael H. Ash, Sebringville, Ont., 14th February, 1883; for 5 years.

Claim.—1st. The combination of the king bolt D and the rear bolster E with the reach K. 2nd. The combination of the rear bolster E and the bolster bearings F F.

No. 16,287. Improvements on Dumping Waggon. (*Perfectionnements aux wagons à bascule.*)

Duncan Kennedy, (Assignee of Kenneth Kennedy,) Kenyon, Ont., 14th February, 1883; (Extension of Patent No. 12,691.)

No. 16,288. Improvements on Dumping Waggon. (*Perfectionnements aux wagons à bascule.*)

Duncan Kennedy, (Assignee of Kenneth Kennedy,) Kenyon, Ont., 14th February, 1883; (Extension of Patent No. 12,691.)

No. 16,289. Improvement on Sleighs. (*Perfectionnement aux traîneaux.*)

Abel A. Crosby, (Assignee of Sebastian Gilzinger,) Rondout, N. Y., U.S., 14th February, 1883; (Extension of Patent No. 8423.)

No. 16,290. Improvements on Sleighs. (*Perfectionnements aux traîneaux.*)

Abel A. Crosby, (Assignee of Sebastian Gilzinger,) Rondout, N. Y., U.S., 14th February, 1883; (Extension of Patent No. 8423.)

No. 16,291. Improvements in Wheel Ploughs. (*Perfectionnements aux charues à avant-train.*)

Frederick S. Davenport, Jerseyville, Ill., U.S., 15th February, 1883; for 5 years.

Claim.—1st. The combination, with an axle and wheels loosely mounted thereon, of levers secured rigidly to said axle and supporting at their rear ends an oscillating table upon which the plough beam rests and secured at their forward ends to the seat-arch a tongue arranged on one side of said arch and a brace arranged at the opposite side of the arch, a foot rest secured upon said tongue and brace, and an anti-friction roller mounted in bearings on the under side of the foot-rest. 2nd. The combination, with the axle A wheels B, levers C, arm N, table D and beam E, of the arch F, seat Q, tongue G, lever L, catch *g*, rack N^o and link O. 3rd. The combination, with the axle A, wheels B, levers C, arm N, table D and beam E, of the arch F, seat Q, tongue G, lever L, foot-rest I and roller J. 4th. The combination, with the side plates R11 R11, or an equivalent bifurcation in the front end of the beam R, of a clip S1 adapted to move in a vertical plane upon a horizontal axis S1 and provided with lugs T1 T1, adapted to butt against the lower front edges of the side plates R11 R11, and thus prevent the clip S1 falling below the point of horizontality, yet allowing it to play freely upward, so as to coincide with the line of draft.

No. 16,292. Improvements in Machines for Cutting Printers' Rules. (*Perfectionnements aux machines à couper les filets d'imprimerie.*)

Robert S. Robson, Cambridgeport, Mass., U. S., 15th February, 1883; for 5 years.

Claim.—1st. In combination with the frame or standard A and the rule rest *f* thereof, and with the cutting knife C having mechanism for elevating it, the said knife as explained and depressing relatively to said rest, the adjustable bed E pivoted to the said standard or frame A and provided with the movable clamp bar K and its screws, and with means of supporting such bed in a horizontal position, as well as in any inclined position within the range of its movements. 2nd. The combination of the index pointer projecting from the standard, with the divided limb of the adjustable bed and with such standard and bed provided with cutting and damping devices. 3rd. The combination of the pivoted arm L and its gauge rod M, with the adjustable bed E, the frame or standard A and its rule rest *f*, and with the cutting knife C provided with means of operating it.

No. 16,293. Improvements in the Manufacture of Silicious Copper and Silicious Bronze. (*Perfectionnements dans la fabrication du cuivre et du bronze siliceux.*)

Lazare Weiller, Angoulême, France, 15th February, 1883; for 5 years.

Claim.—1st. The process described of producing silicious copper and silicious bronze, by introducing into melted copper or bronze a mixture such as specified, and containing substances which, by their reactions in the midst of the molten mass itself, will furnish the silicium and sodium necessary for the formation of the said silicious compounds. 2nd. The manufacture of silicious copper and silicious bronze by the employment of the materials named and in the manner described.

No. 16,294. Improvements on Cooking Ranges. (*Perfectionnements aux landiers de cuisine.*)

Peter Brake, Toronto, Ont., 15th February, 1882; for 5 years.

Claim.—1st. A cooking range or stove constructed or provided with a water tank in the rear end of the same, the inlet damper F with end pieces *f*1 *f*1 and the outlet damper L. 2nd. In combination with the dampers F and I, a tank seat constructed with a return flue H and opening *h*1, the flue and opening *h*1 being made to suit the various forms of water tank which may be used in connection therewith.

No. 16,295. Improvements on Machines for Dovetailing Lumber. (*Perfectionnements aux machines d'assemblage à queue d'aronde.*)

Ebenezer Bassett, Rice Lake, Wis., U. S., 15th February, 1883; for 5 years.

Claim.—The combination of the yielding bottom rolls X, feed rolls P S, guide rolls T U, rotary cutter G having adjustable toothed cutter blades G² detachable bit frame T¹ T², bits V secured adjustably upon arbors mounted vertically in said frame, and having driving pulleys W and suitably constructed mechanism for operating the said rolls, cutters and bits. The combination of the cutter shaft G¹ having pulley F and mitre wheel H, shaft i mounted vertically in frame A and having mitre wheel I meshing with wheel H and pulley K, driving band h, vertical shaft L having pulley N and O, driving band h and dovetailing bits V arranged alternately in two vertical rows and provided with driving pulley W.

No. 16,296. Improvements in the Manufacture of Boots and Shoes. (*Perfectionnements dans la fabrication des chaussures.*)

Edward H. Buckley, Philadelphia, Penn., U. S., 15th February, 1883; for 5 years.

Claim.—1st. As an improvement in uniting the upper and soles of a boot or shoe, the method of channeling the outer sole, perforating the parts to be united, driving staples through said parts, embedding the heads of the staples in the prepared channel, clinching the ends of the said staples within the shoe, and finally covering the embedded heads of the same. 2nd. The art of uniting the upper and soles of boots and shoes, by channeling separate portions of the outer sole surface of suitable length to receive the staple head, perforating the parts to be united, driving the staples through the parts from the outside, embedding the heads in such prepared channels, and clinching the staple ends upon the insole.

No. 16,297. Improvements in Electrodes for Telegraph Instruments. (*Perfectionnements aux électrodes pour les appareils télégraphiques.*)

George Cumming and Clara M. Prinkerhoff, New York, N. Y., U. S., 15th February, 1883; for 5 years.

Claim. 1st. The combination, in an electrical instrument, of two metal wheels or disks forming electrodes or contact points impinging on one another as hammer and anvil, the point of contact being on their peripheries on a line vertical to the axis of each disk. 2nd. The combination, with the lever and base in an electrical instrument, of two disks or wheels and axle thereof. 3rd. The combination of lever base wheels or disks provided with rims or tires of platinum axles or shafts and set screws. 4th. In an electrical instrument, disks or wheels used as electrodes made of brass or any cheap good conducting metal, and surrounded with a rim or tire of platinum or any suitable material. 5th. The disks of an electrical instrument used as electrodes or contact points having a wire of platinum or other suitable metal let into a groove in the periphery of the disk. 6th. An electrical instrument having contact points on the periphery of disks or wheels, triangular, round, or half-round or other conveniently shaped rims or tires of suitable metal inserted into, or attached to the peripheries of the disks. 7th. The combination, in a telegraphic or electric key, relay or sounder or other similar instrument, of two disks or wheels forming the electrodes or contact points and having their peripheries of platinum or any other suitable material.

No. 16,298. Improvements on Bilge Water Valves for Ships. (*Perfectionnements aux valves à l'eau dans les mailles des navires.*)

Henry Cordes, Hoboken, and Thomas Keating, Jersey, N. J., U. S., 15th February, 1883; for 5 years.

Claim.—1st. The plate A having semi-annular slot B and opening E, the semi-tubular case C and plate D, the plug L and a mechanism for raising and lowering the said case and plug, whereby water can be readily withdrawn from a vessel's hold. 2nd. The combination, with the case and plate CD and the plug L, of the swivelled tubular screw G having exterior and interior screw threads and the interior screw J, whereby the said case, plate and plug can be readily operated and securely held in place.

No. 16,299. Improvements on Cooking Stoves and Ranges. (*Perfectionnements aux poêles et aux laniers de cuisine.*)

Edgar W. Anthony, Boston, Mass., U. S., 15th February, 1883; for 5 years.

Claim.—1st. The grate clip or support A. 2nd. The combination of the plate a¹ having the recess a² and the lug a³, with the clip A. 3rd. The perforated ash-guard B arranged below the grate to project into the ash pit chamber. 4th. The combination of the oven with an independent passage or chamber C¹ upon one side thereof and adjoining a flue plate, which passage or chamber opens at the top and bottom into the oven space. 5th. The combination of the auxiliary plate C with the flue plate of the oven, the said plate C being so shaped and arranged in relation to the flue plate as to provide a passage or chamber C¹ between it and the flue plate which opens into the oven space at the top and bottom thereof. 6th. The separate down-flues, tubes or boxes D, and up-flues, tubes or boxes D¹ arranged at one end or side of the oven. 7th. The combination of the down flues D, the chamber d₃, the flue plate d₄, the up-flue D¹ and the perforated plate d₁ d₂. 8th. The combination of the perforated plates d₁ d₂ having collars d₁ d₂ with the flue boxes D D¹. 9th. The combination of the down-flue D of a stove, the chamber E, the up-flue of the stove, the chamber d₃ and the double damper e¹, one blade of which is adapted to be moved a greater distance than the other. 10th. The combination of the damper rod

e² with the damper plate e² e³, arranged in relation to the down-flue D, and the chamber E. 11th. The combination of the auxiliary plate C with a vertically corrugated or rounded oven wall flue plate, the said plate C being shaped and arranged to provide a passage or chamber C¹ between it and the flue plate, which opens into an oven space at its top and bottom.

No. 16,300. Improvements on Monkey Wrenches. (*Perfectionnements aux clefs à écrous.*)

The Girard Wrench Manufacturing Company, Girard, (assignee of Charles H. Miller, Erie,) Penn., U. S., 15th February, 1883; for 5 years.

Claim.—1st. A frame consisting of the stationary jaw A, neck pieces CC and hollow handle D, formed of one piece of metal. 2nd. A frame consisting of the stationary jaw A, neck pieces CC and hollow handle D, in combination with the movable jaw B having notches b b₁, screw stem B₁ and worm wheel E. 3rd. A frame consisting of a head or stationary jaw A, neck pieces CC and hollow handle D, and having the lug d and lugs e e e e formed of one piece of metal.

No. 16,301. Improvements on Balanced Thermometers. (*Perfectionnements aux thermomètres suspendus.*)

Hyland C. Kirk and James T. Brayton, Phelps, N. Y., U. S., 15th February, 1883; for 5 years.

Claim.—1st. A thermometer having a balanced fluid tube or bar, pivoted or suspended from a point above the centre of gravity. 2nd. The combination of a fluid tube provided with a bulb at one end and with a point at the other end, and pivoted or suspended from a point above its centre of gravity, and a fixed graduated scale at the pointed end of the tube. 3rd. An open ended tube for the purpose explained. 4th. The method of adjusting a balanced thermometer to differently graduated scales, which consists in varying the elevation of its pivots above the centre of gravity. 5th. In combination with a balanced thermometer, a case in which said thermometer is balanced, containing a fixed scale and mounted upon a pivot, whereby it may be rotated to adjust the scale to proper position as explained. 6th. The described case for a balanced thermometer, having the removable transparent front, whereby the position of the indicator may be seen from the outside, or the tube may be removed for independent use. 7th. In combination with the balanced pointer disks H I provided with tongues o projecting respectively over and under the pointer and graduated and stationary pointers p. 8th. In combination with supports g, a hanger e provided with points b, and secured to, and carrying the pointer tube or bar by means of spiral coil f. 9th. In combination with the indicator tube or bar and a bracket or support, the bent arm or hanger e, provided with arms or points b and adjusting screw i. 10th. A graduated thermometer tube adapted to be removed from its pivots and used independently. 11th. The combination of soft iron bearing points or pivots attached to the tube or bar, and a magnetized bracket or hanger above said bearing points.

No. 16,302. Improvement in Devices for Tearing Wrapping Paper. (*Perfectionnement des machines à déchirer le papier d'enveloppe.*)

Alonzo W. Jerome, Paxton Ill., U. S., 16th February, 1883; for 5 years.

Claim.—1st. A device affording means for tearing sheets from the roll of paper in a straight edge A having a suitable bevelled or other edge, in combination with links or arms B, pivotally connecting the straight edge with the centre D of the paper roll E, by means of pivots C. 2nd. A device affording means for tearing sheets from a roll of paper in the straight edge A, in combination with the links or arms B pivoted thereto and also to separate standards, wall, counter or other object. 3rd. The combination of a paper roll E upon a centre D, arms B, pivots C and straight edge A. 4th. A roll of paper to be used in various sized sheets pivotally hung to a suitable object and combined with a straight edge A pivotally secured to a counter, wall, or other suitable object by the arms B, the end of the paper upon the said roll passing underneath the straight edge to the desired length and being torn off along the straight edge by drawing the paper towards the same, while pressing it down.

No. 16,303. Improvements on Surgical Trusses. (*Perfectionnements aux bandages herniaires.*)

Edward Parker and Adam H. Saylor, Bloomfield, Ont., 16th February, 1883; for 5 years.

Claim.—A truss for hernia composed of the body belt A provided with a pad, or pads CC sliding thereon, and straps E E attached thereto and to belt A rearward of the hips, and loops G for holding up the said straps.

No. 16,304. Improvements on Carriage Seats. (*Perfectionnements aux sièges des voitures.*)

Richard H. Lewis, Oshawa, Ont., 16th February, 1883; for 5 years.

Claim.—1st. The side rails B B and back rail F having an adjustable screw connection. 2nd. The seat A secured pivotally by bolt M to box L fastened to the floor of the carriage to turn the seat.

No. 16,305. Improvement in Cigar Lighters. (*Perfectionnement des allume-cigares.*)

Samuel D. Mott, New York, N. Y., and William A. Stern, Menlo Park, N. J., U. S., 16th February 1883; for 5 years.

Claim.—1st. In combination with an electric circuit an incandescent substance exposed to the atmosphere, a circuit breaker in cir-

cuit therewith and a torch, or torches suspended thereon whereby the circuit connections are kept apart by the weight of the torch. 2nd. The combination of a circuit, a rheostat, a circuit breaking lever, an incandescing substance and a torch suspended by the lever and acting to break the circuit when not in use.

No. 16,306. Improvements on Circular Sawing Machines. (*Perfectionnements aux scieries à lames circulaires*)

William McDonald, Calais, Me., U. S., 16th February, 1883; (Extension of Patent No. 8465.)

No. 16,307. Improvements on Combined Envelopes and Letter Sheets. (*Perfectionnements aux enveloppes et aux feuilles à lettre combinées.*)

Richard W. Stevens, Alton, Ill., and George R. Moore, St. Louis, Mo., U. S., 16th February, 1883; for 5 years.

Claim.—1st. An envelope letter sheet having a single gummed sealing flap and two ungummed sealing flaps. 2nd. An envelope letter sheet having a sealing flap formed from the body of the sheet by a line of perforations, or a slit therein. 3rd. An envelope letter sheet having two sealing flaps projecting from the body of the sheet and one sealing flap formed from the body of the sheet.

No. 16,308. Improvements on Buggy Tops. (*Perfectionnements aux soufflets des voitures.*)

Robert McLaughlin, Oshawa, Ont., 16th February, 1883; for 5 years.

Claim.—1st. The combination of a rod extending across the back of the buggy and connecting the bottom end of the back joint on one side of the top with the bottom end of the back joint on the opposite side, the said rod being journalled in sockets formed upon or attached to the side rails and provided with a lever extending into the buggy at about right angles to the rod and within easy reach of the occupant of the buggy. 2nd. A socket or sleeve piece B set into a hole in the back end of each side rail and forming journals for the rod D, in combination with a plate C, extending from the inner end of each socket B and provided with buttons for fastening the bottom of the back curtain and quarters. 3rd. The plates C extending inwardly from each side rail, their inner ends being secured to the seat by the journals G, for the purpose of forming a rigid connection for the bottom of the back curtain and quarters, in combination with a rod D held in the journals B and G and connecting the bottom ends of the two back joints E, the said rod being provided with a lever. 4th. A spring fixed to the back, or side rail, in such a position that the back bow of the top will rest upon it when the top is thrown back.

No. 16,309. Improvements on Cattle Ties.

(*Perfectionnements aux attaches des bestiaux.*)

August Bynell, Grantsburg, Wis., U. S., 16th February, 1882; for 5 years.

Claim.—1st. A cattle tie comprising the yoke A having hooks B provided with cross heads C and the inverted yoke D having eyes E, chains F and swivelled bolts G provided with chain I. 2nd. A cattle tie composed of the yoke A U-shaped in cross section and having a series of slots, detachable and adjustable hooks B having cross heads C and inverted yoke or cross bar D provided with end chains F and swivelled chains I. 3rd. The combination of a yoke approximately U-shaped in cross section and having end hooks with a bottom yoke, or cross bar having end chains adapted to be adjusted upon said hooks.

No. 16,310. Improvements on Car Trucks.

(*Perfectionnements aux châssis des chars.*)

Alanson A. Blackman, Elhanan Blackman and Hyreanno Blackman, Snowshoish, W. T., 16th February, 1883; for 5 years.

Claim.—1st. The combination, with a series of independent truck frames and bolsters to which the truck frames are swivelled, of reaches hinged to the bolsters so as to allow vertical oscillation to the bolsters and truck frames, whereby the car truck shall be adapted to an uneven, or undulating track. 2nd. The combination of four independent truck frames swivelled to the end of the bolsters in pairs and provided each with two double flanged wheels arranged one in front of the other, and a suitable gear for connecting the parts, whereby an uneven track composed of two rails without ties may be employed.

No. 16,311. Improvements on Cultivators.

(*Perfectionnements aux cultivateurs.*)

John Mooney, West Missouri, Ont., 16th February, 1882; for 5 years.

Claim.—1st. The spiral steel teeth I. 2nd. In combination, with wooden frames A B, the steel or wrought iron bars C and teeth I, chains D and lever and arc E F.

No. 16,312. Improvements on Water Filters.

(*Perfectionnements aux filtres à eau.*)

The American Filter Company, Portland, Me., (assignee of James S. Smart, Salem, Mass.,) U. S., 16th February, 1883; for 5 years.

Claim.—The filter composed of the shell a having the internal bearing surfaces f f, the plug e having the bearings g g, and the strainers or nettings h h.

No. 16,313. Improvements on Calculators.

(*Perfectionnements aux tables d'arithmétique.*)

Robert T. Martin, Toronto, Ont., 16th February, 1883; (Re-issue of Patent No. 14,981.)

Claim.—1st. The combination of a frame having one horizontal groove made in it to receive a series of blocks, each block having imprinted on its outer surface a particular digit and being independently adjustable, so that the series of blocks may be manipulated for the purpose of producing the various combinations of figures employed in teaching the simple rules of arithmetic. 2nd. A frame having one horizontal groove made in it to receive the series of blocks, each block having imprinted on its outer surface a particular digit and being independently adjustable, so that the series of blocks may be manipulated for the purpose of producing the various combinations of figures employed in teaching the simple rule of arithmetic, in combination with a series of balls strung on a wire attached to the frame, and manipulated for the purpose of assisting the teacher to convey to the mind of the pupil the results obtained by the various combinations of the digits.

No. 16,314. Improvements in Attrition Mills. (*Perfectionnements aux moulins à attrition.*)

Thomas L. Sturtevant, Framingham, Mass., U. S., 16th February, 1883; for 5 years.

Claim.—1st. The combination, with the rotary head carrying the moving portion of the underground material and the receiver containing the comparatively stationary underground portion thereof, of a movable part to such receiver for removing the ground portions of the material. 2nd. The combination, with the rotary head and housings, of the rotary receiver provided upon its inner periphery with cells, to receive the ground portions of the material. 3rd. The combination, with the receiver rotary head and the adjacent housing or wall of the receiver, of the adjustable tubular lining closely fitting the bore of the rotary head, and the opening in the housing opposite such head. 4th. The rotary recessed head supported and driven by a suitable shaft, in combination with said shaft and the receiver composed of the housings and the rotary ring plate. 5th. The combination, with the rotary recessed head, the housings and ring plate, of the anti-friction rolls constituting the support of the said elevator. 6th. The combination of the rotary head, the receiver and a device for stirring or agitating the bulk of underground material in such receiver. 7th. The combination of the receiver D with head A having removable bushing C, whereby the edge of the head nearest said receiver may be removed and replaced as fast as worn.

No. 16,315. Improvements in Hoisting and Conveying Apparatus. (*Perfectionnements aux appareils à hisser et transporter.*)

Jedediah Ladd, Plattsburg, (assignee of Francis A. Clarkson, Black Brook, N. Y., U. S., 16th February, 1883; for 5 years.

Claim.—1st. The combination of the carriage B provided with grooved rollers C, the pivoted hook latches D and the suspended pivoted bale E, the sheaved hook H provided with double sheaves F and its pivoted arm, and the rope G with each other, with the cable C and with the stopping blocks L and P provided with the dumping block N. 2nd. The combination of the hook H provided with the pulley F₁, bail E, rope G, pulleys F, braces e united by the clevis f with the carriage B. 3rd. The combination of the catch q and the pivoted lever catch r with the block P provided with a clamp that is operated by the levers U, to retain the carriage at any desired point in the cable C, for the purpose of manipulating the bucket by means of the ropes G. 4th. The stopping block L provided with a hook catch K, clamps h i, and loop m, in combination with the cable C. 5th. The combination of the movable dumping block M provided with arms o and plate p, with the block P, clamp U, catch q and pivoted lever catch r.

No. 16,316. Medicinal Compound.

(*Composition médicinale.*)

Daniel W. Edwards, Beloit, Wis., U. S., 16th February, 1883; for 5 years.

Claim.—1st. A compound composed of the following ingredients and in the proportions specified, to wit: fluid extract of hops, one pound, fluid extract of red cinchona, eight ounces, fluid extract of sarsaparilla, six ounces, fluid extract of dandelion, six ounces, fluid extract of burdock, six ounces, fluid extract of yellow dock, six ounces, fluid extract of golden seal, six ounces, fluid extract of mandrake, four ounces, oil of winter green, three-fourths of an ounce, oil of sassafras, three-eighths of an ounce, oil of lemons, three-eighths of an ounce, oil of horsemint, one-fourth of an ounce, granulated loaf or other fine clarified sugar, six pounds, alcohol, (about ninety-four per cent) two gallons, with pure water sufficient to make in all twelve gallons.

No. 16,317. Improvements on Drying Apparatus. (*Perfectionnements aux appareils de séchage.*)

The St. Albans Manufacturing Company, St. Albans, Vt., U. S., and Henry W. Atwater, Montreal, Que., (assignees of Levi K. Fuller, Brattleborough, Vt., U. S.,) 16th February, 1883; (extension of Patent No. 8464.)

No. 16,318. Improvements on Combined Fluting and Sad Irons. (*Perfectionnements aux fers à tuyauter et repasser.*)

Charles B. Judd, (assignee of Hiram R. Ellis,) Grand Rapids, Mich., U. S., 16th February, 1883; for 5 years.

Claim.—1st. The combined fluting and sad iron composed of a hollow triangular body A having a polished bottom B, a corrugated side C and a smooth side F, the sides C F converging to form the top ridge or apex of the triangular body and the side F having a pair of rigid curved arms or brackets E, for supporting the handles D vertically above or in line with the top ridge or apex of the iron. 2nd. The combination, with a combined fluting and sad iron having a non-detachable handle, of a stand I having groove or recess K.

No. 16,319. Improvements on Steam Ploughing Machines. (*Perfectionnements aux charrues à vapeur.*)

George Greig, Edinburgh, Scotland, 19th January, 1883; for 15 years.

Claim.—1st. The combination of two or more plowing machines C O with a single operating rope or chain A, and impelling means B for the latter. 2nd. In steam plowing machines adapted to operate in pairs or sets, moving one behind another, the wheel or pulley D and controlling means G H adapted to hold and release the rope A, so as to increase or diminish the distance of the machines apart.

No. 6,320. Improvements on Car Wheels and Axles. (*Perfectionnements aux roues et aux essieux des chars.*)

Orson T. Southworth, Chicago, Ill., U. S., 19th January, 1883; for 5 years.

Claim.—1st. The annular groove F encircling the axle arm in the centre of wheel seat. 2nd. The extension of the oil chamber E to the inner shoulder of the wheel D.

No. 16,321. Improvements on Saw Jointers. (*Perfectionnements aux estampes des scies.*)

John A. Church, Nevada, Cal., U. S., 19th February, 1883; for 15 years.

Claim.—The improved saw jointer composed of a single plate A of metal, having the upper portion formed as shown in Fig. 4 and provided with hooks b₁ jointly with the bolt a, having a projection a₂ and tightening nut a₁, and file B.

No. 16,322. Improvements in Spark-Arresters. (*Perfectionnements aux arrête-flam-mèches.*)

Richard M. Howling, Ballarat, Victoria, 19th February, 1883; for 5 years.

Claim.—1st. The combination of two or more concentric cylinders with a cover or hood to the outer of them, so arranged as to produce an annular space or spaces through which the draught is deflected into an outer annular space between them and the sides of the cage, the diameter of the innermost cylinder being always larger than that of top of the funnel. 2nd. The construction of such cylinders, save the outer one, with outward and downward flanges at the bottom, and with a horizontal and inward flange at the top of the second one. 3rd. The special method of constructing and connecting the sides, bottom and internal fittings of the apparatus.

No. 16,323. Improvements on Sewing Machines. (*Perfectionnements aux machines à coudre.*)

John K. Harris, Springfield, Ohio, U. S., 19th February, 1883; for 15 years.

Claim.—1st. The combination, with a base plate, a ship over slide carrying an oscillating cloth clamp and a feeding device for said cloth clamp arranged to be adjusted with said ship over slide, of a device connected to the base plate ship over slide and feeding device, to effect the reversal of the feed in the middle of the ship over movement. 2nd. The combination, with the feed clutch I for the cloth clamp having pin p and the ship over slide J, of a lever H having a cam for working the said slide, and a groove or slot n having its end sections about different radii and running into each other in the middle.

No. 16,324. Improvements on Running Gear for Waggon. (*Perfectionnements aux trains des voitures.*)

Allen J. Beach, Flint, Mich., U. S., 19th February, 1883; for 5 years.

Claim.—1st. The reach C pivotally secured to the draw-bar D, in combination with the circle I below the bar D, the bolster G and the bolster barrier F above said draw-bar, and the bent bearing brackets I secured to the bolster and adapted to act against the circle I and the axle E. 2nd. In combination with the draw-bar D, bolster G and axle E, the circle I secured to the axle, and the bent bearing plate I₁ secured to the bolster and adapted to act against the circle. 3rd. In combination with the axle E thereof, the bolster carrier F and the draw-bar D provided with the double shouldered thimble d, adapted to support the centre of the bolster barrier. 4th. In combination with the circle H provided with the hanger J, in which is partially hung the tongue K, the sliding sleeve L and shaft rods M.

No. 16,325. Improvement in Washboards. (*Perfectionnement des planches à savonner.*)

George H. Van Dyke, Grimsby, Ont., 19th February, 1883; for 5 years.

Claim.—1st. The combination of the metal or wooden frame A B and the metal bars, or rods D. 2nd. One, two, or more of the metal rods or bars D constructed to pass through the sides A and secured by nuts E.

No. 16,326. Improvements on Belt Pulleys. (*Perfectionnements aux poulies à courroies.*)

Elijah B. Martindale, Indianapolis, Ind., U. S., 19th February, 1883; for 5 years.

Claim.—1st. The use of a web or body, made of paper paste board or other like material, combined with a metal hub and a metal or paper rim, in the construction of pulleys, or wheels. 2nd. A combination pulley or wheel, made of a cast iron hub, or web, or body of paper paste board, or such like material, a rim of metal or paper, the parts being fastened together with flanges, rivets or bolts. 3rd. A

composite pulley with a metal rim resting upon, and attached to a body, or web, made of paper paste board, or other like material, with a cast iron hub, the parts being fastened together with flanges, rivets or bolts.

No. 16,327. Improvement on Apparatus for Separating Refined Petroleum or its Distillates into Different Gravities, Grades and Fire Tests. (*Perfectionnement des appareils pour séparer le pétrole épuré ou ses produits, par pesanteur, qualité et épreuve de feu différents.*)

Davenport Rogers, Galion, Ohio, U. S., 19th February, 1883; for 5 years.

Claim.—1st. An apparatus for dividing or separating refined petroleum oils or their distillates into different grades, specific gravities and fire tests, and removing the odor, which apparatus consists of a separator or cylinder C, drums E provided with perforations, and drum G having an open top forming air chambers b and b₁, eduction oil pipes O and N₁, induction feed pipe N, and slide valves B₁, in combination with drum H with a foraminous bottom or system of air brakes, eduction gas and air pipe I, spiral imperforated incline passage F and drum L connected to separator C by means of air pipes. 2nd. In combination with the separator, an air vessel in communication therewith by the pipes 1 2 3 4 5 and 6 arranged in relation to the separator so as to discharge blasts of fresh air between the coils of the inclined passage into the air cells d, immediately below the foraminous openings or plates c therein. 3rd. In combination with the separator, the slides B₁ having openings on opposite sides of the drum E respectively corresponding to the openings 1 2 3 on one side, and 1 2 and 3 on the other of the separator. 4th. The combination of the heater A with its coil of supply pipe, separator C having an internal concentric arrangement of drums, helical inclined plane and foraminous plates c, air cells d, outlets O and N and pipe connection with the air vessel L, condenser with its condensing coil J provided with discharging cocks au br cu. 5th. The heating of the oil to a degree just below the vaporizing point, and passing the same in bulk from over a spiral imperforated inclined plane having openings covered with wire gauze or foraminous plates, for the admission of blasts of air into the bulk oil, as it passes over the said spiral inclined plane. 6th. The process of fractional separation of petroleum oils or their distillates, by means of currents of air force through the oils in bulk when heated to a point just below vaporizing. 7th. The herein described oil, a product of fractional separation resultant of the process.

No. 16,328. Improvements on Cutting Machines. (*Perfectionnements aux coupe-racines.*)

Marion C. Morts, Mohawk, N. Y., U. S., 19th February, 1883; for 5 years.

Claim.—The combination of the detachable teeth I having triangular shanks, with the transverse bar H having corresponding shaped recesses, in which the teeth are secured by top and bottom plates K K₁.

No. 16,329. Improvements in Railway Switches. (*Perfectionnements aux aiguilles des chemins de fer.*)

Franz S. Scheffler, Richmond, Que., 19th February, 1883; for 5 years.

Claim.—1st. The combination, with the main line rails A A₁ and switch rails B B₁, of the shifting rails C C₁ and guard or check rail D. 2nd. In combination with the main line rails A A₁ and switch rails B B₁ of the shifting rails c c₁ and guard or check rail D. 2rd. In combination with the main line rails A A₁, switch rails B B₁, shifting rails c c₁ and guard or check rail D, the double acting spring lever F having suitable fastenings at either end. 3rd. The double acting spring lever F made up of the shoulder n i, the centre shaft j, the outer casing m m and the spring l, in combination with each other.

No. 16,330. Improvements on Cigar Bunching Machines. (*Perfectionnements aux machines à empaqueter les cigares.*)

George Moeb, Detroit, Mich., U. S., 19th February, 1883; for 10 years.

Claim.—1st. A curved table supported between and hinged or pivotally secured to bars of coincident curvature, which are provided with stops to arrest the fall of the free end to the table and an apron secured to the underside of said table. 2nd. The combination of a curved table hinged or pivoted and an apron or bunching cloth with a ratcheted roller, and a spring for holding said roller in locked position until the force of said spring is overcome. 3rd. The curved table D having trough b and hinged as shown, combined with the curved frame C having stops a and with the apron E secured to the underside of said table D. 4th. The combination of the apron E and roller c with the roller d having rack m, the pawl a, nut h and spring i. 5th. The combination of the curved hinged table D, frames C a, roller c and apron E with the roller D having rack m, pawl a, nut h and spring i.

No. 16,331. Improvements on Grain Separators. (*Perfectionnements aux séparateurs des grains.*)

Neil McLean, Watsonville, Cal., U. S., 19th February, 1883; for 5 years.

Claim.—The supplemental attachment to the straw carrier of a grain separator consisting of the spout formed by side boards c c, having the inclined floor A₁ and revolving shafts B B₁ provided with fingers t, and reels A A, the screw conveyor I, spout J, perforated screen K and revolving shaft M provided with fingers a a.

No. 16,332. Improvements on Heating Stoves. (*Perfectionnements aux poêles de chauffage.*)

Edward Stewart, Fort Madison, Iowa, U.S., 19th February, 1883; (extension of patent No. 8428.)

No. 16,333. Compound to be used as Paint or Varnish. (*Composition pour servir de peinture ou de vernis.*)

Anthony W. Burke, Stayner, Ont., 20th February, 1883; for 5 years.

Claim.—A liquid compound composed of glue, sulphate of zinc, soluble glass, camphor, oil and lime water, and coloured with logwood extract.

No. 16,334. Improvements on Combined Seed Drill and Broadcast Sowers. (*Perfectionnements aux semoirs en ligne et à la volée combinés.*)

Walter Coulthard and John Larsen, Oshawa, Ont., 20th February, 1883; for 15 years.

Claim.—1st. In a combined seed drill and broadcast scatterer, a lifting roller provided with a bracket at either end having a pivot pin cast on each, in combination with a gab formed on the front of each hopper end to receive the pivot pins. 2nd. In a combined seed drill and broadcast scatterer having a lifting roller pivoted in gabs formed in the front of each hopper end, hand lever fixed to one end of the roller, in combination with notches formed on the back of the hopper end. 3rd. The combination, in a sowing machine, of a rectangular metal frame supported by wheels revolving on an axle rigidly secured to both sides of the said frame, for the purpose of bracing said frame to prevent it twisting. 4th. A sowing machine having a rectangular metal frame, the brackets H having flanges or lips formed on them for the purpose of grasping the top and bottom edges of the frame, and a journal for supporting the main axle of the machine, in combination with the pinching screws I, screwed into the journals for the purpose of grasping the axle and forming a rigid connection between it and the frame. 5th. A scattering tube hopper made in two parts, having the inner edges of each part longitudinally rounded to enable the diameter of the hopper's bottom to be contracted so as to permit the lugs or pins, which are cast on the outside of each part, to pass from the mouth of the tubes to the holes in the tubes made to receive them. 6th. A scattering tube hopper made in two parts, the lower half of an axle bearing, formed on the front of the hopper, in combination with a cap pivoted within the hopper and forming the upper half of the bearing, a single bolt being provided for connecting the cap to the lower half of the bearing. 7th. A scattering tube hopper provided with an axle bearing arranged to so fit the axle supporting it, that the friction necessary to hold the scatterer in position for work will permit it to give, should the scatterer come in contact with an obstruction. 8th. A broadcast scattering board held in brackets bolted to the frame of the machine, in combination with a board carrying the grain conductors and hinged to the scattering board, so that the grain conductors may be readily adjusted for the purpose of directing the grain, either into the drills or broadcast scattering tube. 9th. A bracket arranged to be bolted to the frame of the machine and having a groove to hold the end of the scattering board rigidly in position, and an arm to support the end of the grain conductor's board when set to direct the grain into the drill tube. 10th. A distributing wheel, a revolving ring R contained within the casing Q and having lugs n cast on it, in combination with a loose back S fitting within the ring R and having wings p cast on it to fit into the lugs n. 11th. In a distributing wheel provided with a revolving wheel R and loose back S, the combination of a sleeve T fitted into the distributor and having a out-off wing r and stop t cast on it. 12th. In a distributing wheel, a sleeve T fitting on a rod U, in combination with a recess g made in the face of the loose back S. 13th. In a sowing machine in which all the distributors are connected by a rod for regulating the discharge of grain, a rack V attached to the said rod, in combination with a lever X pivoted in the bracket W. 14th. In a sowing machine in which the discharge of grain from all the distributors is regulated simultaneously by the rod U, operated by a lever X, the combination of an index plate marked to indicate the size of the discharge and notched to receive a lip formed on the lever X. 15th. A spring hoe, a dog Z pivoted between the drag bars Z1 and provided with hooked lugs z to receive the end of the braces Z2, in combination with a spring Z3, the hooked end of which fits over the dog Z. 16th. A spring hoe in which the braces are bolted, a casting pivoted to the drag bars, a hole having a gab to fit over the pivot bolt of the casting.

No. 16,335. Improvement on Seed Planting Machines. (*Perfectionnement des semoirs en ligne.*)

Charles E. Patric, Rochester, N. Y., U. S., 20th February, 1883; for 5 years.

Claim.—1st. In a seeding machine, a driving shaft, a feed shaft parallel to, but independent of said driving shaft, and a series of four feed wheels mounted on said shaft, combined with a train of connecting gearing, one member of said train being a wheel, the pitch line of engagement whereof may be varied, as to diameter, at will, whereby the speed transmitted is correspondingly varied. 2nd. A driving shaft, a feed shaft independent of, but parallel thereto, and a series of four feed wheels mounted on said feed shaft, combined with a train of connecting mechanism, one member whereof is disk wheel m, provided with concentric rows of mitre teeth of equal pitch, and another member whereof is a pinion J adjustable to mesh with either row of teeth on said disk-wheel. 3rd. A driving shaft, a feed shaft independent of, but parallel thereto, and a series of four feed wheels mounted on said feed shaft, combined with a train of connecting mechanism, one member whereof is a disk wheel m, provided with concentric rows of mitre teeth of equal pitch, and another member whereof is a pinion J adjustable to mesh with either row of teeth on said disk wheel, and means whereby said pinion may be moved at

will and retained in adjustment. 4th. A driving shaft, a feed shaft and a series of feed wheels mounted thereon, combined with a train of connecting mechanism, one member whereof is a disk wheel m provided with concentric rows of teeth of equal pitch, and another member whereof is a pinion J adjustable to mesh with either row of teeth on said disk wheel and the rack P, segment Q and indicator T. 5th. A driving shaft, a feed shaft, and a series of feed wheels mounted thereon, combined with a train of connecting mechanism, one member whereof is a disk wheel m provided with concentric rows of teeth of equal pitch, and another member whereof is a pinion J adjustable to mesh with either row of teeth on said disk wheel, and a rack P with skin teeth, the segment Q on shaft R, oblique to the axis of motion of said rack, and the indicator T. 6th. The wheel C provided with the ratchet hub r, and the sliding ratchet clutch H provided with holes r and their enclosed springs t, combined with the hub k rigidly secured to the shaft and provided with flange l. 7th. The wheel C provided with the ratchet hub r, and the sliding ratchet clutch H provided with the cells r, and their enclosed springs combined with the hub k rigidly secured to the shaft G, and provided with flange l. 8th. The pinion J, adjustable along its axis of revolution, combined with the disk m provided with concentric rows of gear teeth of equal pitch, whereof said pinion meshes, and traction spring n behind said disk, whereby it may yield and spring back when said pinion passes from one of said rows of teeth to another. 9th. The disk m mounted upon the shaft G, combined with the hollow hub O fixed upon said shaft, the enclosed spring and feather, whereby said disk is compelled to turn with said shaft, and the enclosed spring n whereby said disk may be permitted to move lengthwise of said shaft. 11th. A disk m provided with concentric rows of gear teeth of equal pitch, combined with a pinion J adjustable along its axis of rotation, so as to be capable of meshing with either one of said rows of gear teeth, and an elastic member whereby said disk and pinion may be permitted to recede and approach each other, when passing from one concentric series to another.

No. 16,336. Improvements on Turn-Tables. (*Perfectionnements aux plates-formes tournantes.*)

Clements A. Greenleaf, Knoxville, Tenn., U.S., 20th February, 1883; for 5 years.

Claim.—1st. The combination of a turn-table, provided with mechanism for enabling it to rotate in a central pedestal and provided with brace 20 having groove P1 and rollers R, and said pedestal provided with surface J. 2nd. The combination of a turn-table provided with mechanism for enabling it to rotate on a central pedestal, and provided with brace 20 having groove P1, and rollers R and locking devices, and devices for supporting the turn-table while the load is passing off or on. 3rd. The combination of a turn-table diagonally non-deflectable, provided with box H and plate M and ring t, rollers t, pedestal J and ring S and rollers R. 4th. The combination of a turn-table diagonally non-deflectable, and box H and plate M and ring t, rollers t, pedestal J and ring S and rollers R, and devices for locking the turn-table and for supporting the turn-table, while the load is passing on or off the turn-table. 5th. The device for supporting the turn-table while the load is passing on or off the latter, and consisting of the oscillating arms T provided with projections U, mechanism for advancing and retracting said arms, and a pit provided with recesses V1. 6th. The device for supporting the ends of the turn-table, consisting of the oscillating arms T provided with projections U pivoted at T1 to the trusses B, eccentric yokes 21, eccentrics 3, shaft 4 and levers 7. 7th. The device for locking the turn-table, consisting of the oscillating arms T and locking studs 10. 8th. In combination, the oscillating arms having projections U and locking studs 10, mechanism for advancing and retracting said arms, and the pit provided with recesses V1. 9th. In combination, the oscillating arms pivoted at T1 to the turn-table, and having projections U and locking studs 10, and the eccentric yoke 21, eccentrics 3, shaft 4 and levers 7. 10th. In combination, a turn-table turning on a central pedestal brace 20, anti-friction rollers R and locking device, consisting of the oscillating arms having projections U and mechanism for advancing and retracting the said arms. 11th. In combination, a turn-table turning on a central pedestal brace 20, anti-friction rollers R and device for supporting the ends of the turn-table when locked, and consisting of the oscillating arms having projections U, and mechanism for advancing and retracting said arms. 12th. In combination, a turn-table turning on a central pedestal brace 20, anti-friction rollers R, oscillating arms T provided with projections U, locking studs 10, and mechanism for advancing and retracting said arms.

No. 16,337. Improvements on Harvesters. (*Perfectionnements aux moissonneuses.*)

Frank Bramer and George G. Crowley, Little Falls, N. Y., U.S. 20th February, 1883; for 10 years.

Claim.—1st. The combination of the main frame, the finger beam, the adjusting rod with which the finger beam is connected at its heel, the main frame lug in which the lower end of the adjusting rod is supported, and the main frame lug provided with the slot through which the adjusting rod passes. 2nd. The combination of the finger beam, the lugs at the heel thereof, the adjusting rod passing through the upper one of said lugs and threaded to match a screw formed in the lower lug through which it also passes, the main frame lug in which the adjusting rod is supported beneath the threaded lug of the finger beam, the main frame lug through which the adjusting rod passes above the upper lug of the finger beam, the pullies of the inner and outer ends of the finger beam, the vertically adjustable grain wheel, the downwardly projecting arm of the main frame, and the flexible connection between said arm and the gear and detent rod thereof, and the adjusting rod on which the sleeve turns. 4th. The combination of the main frame, the finger beam, the adjusting rod with which the finger beam is connected at its heel, the main frame lug in which the lower end of the adjusting rod is supported, the main frame lug provided with an elongated slot through which the adjusting rod passes, the sleeve turning on the adjusting rod, the toothed arc secured to the sleeve, the rack with which said arc engages, the lever and its detent devices. 5th. The combination of the main frame, the

threaded turning and rocking adjusting rod, the finger beam supported thereby and provided with the threaded lug in which the rod works, the main frame lug by which the rod is supported at bottom, the main frame lug by which the adjusting rod is supported above its connection with the finger beam and guided in its rocking movements, the crank by which to turn the rod to raise and lower the finger beam, the sleeve on the rod and means for turning the sleeve to rock the rod. 6th. The combination of the rake head and the inclined grain deflecting plate tooth at the inner end thereof. 7th. The inclined tooth V, provided with the loop and shank by which to attach it to the rake head. 8th. The combination of the stud or roller P, its overhanging support and the trip lug R of the oscillating rake head acted upon by said roller to rock the rake teeth downward. 9th. The combination of the rake standard, the roller mounted on the overhanging arm, the series of rake arms and their oscillating brackets rocked by said roller to turn down the rake teeth, preparatory to entering the standing grain. 10th. The combination of the rake head, the hinged rotating grain carrying arm, the oscillating bracket by which the rake head is mounted upon its carrying arm, the spring acting to rock up the rake teeth or hold them up the cam track, the cam track, travelling roller and means by which to rock the rake head against the force of the spring, by which the rake teeth are sustained in their elevated position, and direct the roller outside of, or beneath the cam track. 11th. The combination of the rake head, the oscillating bracket by which it is mounted on its hinged carrying arm, the rotating carrier, the cam track, the cam track travelling roller on the bracket, the overhanging arm provided with the roller, and the roller actuated trip lug on the bracket. 12th. The bracket Q provided with the bearings to fit upon the rake carrying arm and having the roller actuated curved arm or trip lug, and the cam track travelling roller. 13th. The combination of the rake head, the hinged rake carrying arm, the bracket fitted by its bearings to rock on said arm, the spring acting to rock up the rake teeth, and the roller actuated trip lug of the bracket by which the rake teeth are rocked down against the force of the spring. 14th. The combination of the rotating carrier, the rake carrying arm hinged thereto, the rake head, the oscillating bracket to which it is secured, the bracket bearings fitted to the rake carrying arm, the spring acting upon the bracket to hold up the rake teeth, the cam track travelling roller, the trip lug on the bracket, and the stop lug at the heel of the bracket, abutting against the shoulder of the rake carrying arm to limit the rocking movement of the rake head. 15th. The combination of the rake standard, the rotating carrier, the cam track, the overhanging arm, its roller, the series of rake carrying arms, the rake heads and the oscillating brackets actuated by the roller to rock down the rake teeth. 16th. The combination of the fixed sections of the cam track, the cam switch, its locking arm, the tripping lever, the rake head, the oscillating bracket, its roller, the carrying arm, the spring acting on the bracket, and the stop-lug for limiting the oscillation of the bracket. 17th. The combination of the cam switch, its locking arm, the tripping lever, the foot treadle and the connections between the treadle and tripping lever, by which said lever may be moved in either direction, to engage or release the switch locking arm. 18th. The combination of the cam switch, the locking arm thereof, the tripping lever, the rocking lever provided with the heel projection crossing beneath the tripping lever, and the springs acting upon said levers with a tendency to hold the tripping lever engaged with the switch locking arm. 19th. The combination of the revolving rake heads, the constantly revolving cam or series of cams, and mechanism actuated thereby for controlling the action of the rakes. 20th. The combination of the rake heads, the revolving cam or series of cams, and cam operating mechanism actuated by the rake rotating mechanism, by which the rotary motion is imparted to the cam or series of cams independently of the rakes. 21st. The combination of the rake standard, the series of revolving, rising and falling rake heads, the cam track, its switch, the setting lever by the actuations of which the switch tripping lever is operated to rock and release the switch, the rotating adjustable cam or series of cams for actuating the setting lever, and cam rotating mechanism actuated independently of the rakes. 22nd. The combination of the rake standard, the series of revolving, rising and falling rake heads, the cam track, the cam switch, the cam track travelling rollers of the rake heads, the tripping lever, the vertically rocking setting lever acting upon the tripping lever, a cam acting upon the setting bevel, and in contact with which the lever is held by spring pressure, and the rotating shaft upon which the cam is fixed. 23rd. The combination of the rake standard, the rotating rake carrier, the pinion geared with the rake carrier, the shaft on which the pinion is mounted, the cam or series of cams, and mechanism actuated by the cam or cams for controlling the action of the rakes. 24th. The combination of the rake standard, the rotating rake carrier, the scroll gear, the pinion actuated thereby, the cam or series of cams rotating with said pinion, and the shipping lever. 25th. The combination of the rake standard, the rotating rake carrier, the scroll gear, the pinion actuated thereby, the shaft rotating with said pinion, the cam or series of cams on said shaft, and the shipping lever. 26th. The combination of the rotating rake carrier, the rake carrying arms, the oscillating brackets, the cam track, the cam switch, the cam track travelling rollers, the tripping lever, the switch locking arm, the setting lever springs acting upon said tripping lever and setting lever, the cams acting upon the setting lever, and the rotating shaft upon which said cams are mounted. 27th. The combination of the rake standard, the rotating shaft supported thereby, the cam or series of cams on said shaft, the plain or uncammed disk also on said shaft, the washers between which said cams and disk are secured, the setting lever provided with the curved nose and shoulder, and the shipping lever.

No. 16,338. Improvements on Knife Scourers
(*Perfectionnements aux nettoyeurs de coutellerie.*)

Cyrus Kinner, Windsor, Ont., 20th February, 1883; for 5 years.

Claim.—The elastic scouring and polishing cylinders C C C interposed between the plates B B.

No. 16,339. Improvements in Box Piling.
(*Perfectionnements dans la mise en paquets.*)

Edward G. Scovil, Coldbrook, N. B., 20th February, 1883; (Extension of Patent No. 8450.)

No. 16,340. Improvements on Wire Fences.
(*Perfectionnements aux clôtures en fil de fer.*)

Adélaré F. Martel, James McPherson, Montreal, Que., Alexander F. McIntyre and John P. Lewis, Ottawa, Ont., 20th February, 1883; for 5 years.

Claim.—1st. In a wire fence and in combination therewith, the notched posts and fence wires, the binding wires D bent half way around, or passed through the posts and half way around the fence wire, at a distance apart corresponding to the diameter of the post, the ends of the binding wire then returned to the back of the post and twisted together, whereby the binding wire exerts a double tension on the fence wire to bind it to the post, and the ends of the wire are conjoined by twisting to fasten the fence wire to the post. 2nd. A fence post of tubular wrought iron slotted diametrically and longitudinally, and inserted ground plates F F bent to a right angle, the angles arranged to be diametrically opposite, and posts and plates secured together by a rivet E. 3rd. A fence post of tubular wrought iron provided with a conical plug or wedge G inserted in the bore, to spread the foot of the post when driven into a hole bored in a rock for holding the post fixedly.

No. 16,341. Improvement on Whiffletree Hooks.
(*Perfectionnement des crochets des palonniers.*)

Nathan Hill, Bravo, and John G. Todd, Bangor, Me., U. S., 20th February, 1883; for 5 years.

Claim.—1st. In combination with the shank of a whiffletree hook, the longitudinal ribs, or bars E. 2nd. The whiffletree hook consisting of the ferrule A, rigid hook B, catch or barb D and the ribs, or bars E, all constructed of a single piece of metal.

No. 16,342. Improvements on Butter Packages.
(*Perfectionnements aux boîtes à beurre.*)

James Tomlinson, Chatham, John M. A. Laing, William Laing and James Lozie, Essex Centre, Ont., 20th February, 1883; for 5 years.

Claim.—1st. In combination with a round wooden box, a loose and removable interior cylinder made of a single thickness of veneer. 2nd. As a means of coating the interior of a wooden box, the sealing compound, composed of paraffine wax and resin.

No. 16,343. Improvements in Water Meters.
(*Perfectionnements aux hydromètres.*)

Parker Wells, Lynn, Mass., U. S., 20th February, 1883; (extension of patent No. 16,141.)

No. 16,344. Improvements in Water Meters.
(*Perfectionnements aux hydromètres.*)

Parker Wells, Lynn, Mass., U. S., 21st February, 1883; (extension of patent No. 16,141.)

No. 16,345. Improvements in Horse Headlights.
(*Perfectionnements des lanternes à la tête des chevaux.*)

Ernest F. Pflugger, Akron, Ohio, U. S., 21st February, 1883; for 5 years.

Claim.—1st. A plate of metal, or other suitable material, provided with devices for attaching it to the bridle or harness of the horse, and coated with a paint composed of sulphide of calcium and a sicative oil or paint varnish. 2nd. A new article of manufacture, consisting of a plate of metal, or other suitable material, adapted to be attached to the bridle or harness of a horse, and covered with a substance which is luminous in the darkness.

No. 16,346. Improvement on Reciprocating Saw Mills.
(*Perfectionnement des scieries alternatives.*)

Theodore S. Wilkin, East Saginaw, Mich., U. S., 21st February, 1883; for 5 years.

Claim.—A reciprocating gate, or sash 20, in combination with a long pendulum 2 hung to the gang frame 1 and carrying the upper gang slider 3, the lower end of the short pendulum gang slides 5 pivoted near the lower end of the long pendulum and attachably connected at upper end to main gang frame 1, by link 7 and pins 8 or 9 or other suitable connections, to allow a compensating movement of the upper end of lower gang slides, whereby the swinging of the lower end of pendulum causes slides 5 and 3 to advance the saws toward the log on the downward stroke, and recede them from the log on the upward stroke to clear the saws.

No. 16,347. Improvements on Board Measures.
(*Perfectionnements aux mesures de bois.*)

Emanuel Andrews, Williamsport, Penn., U. S., 21st February, 1883; for 5 years.

Claim.—1st. A board-rule measure of spring metal made of increasing flexibility toward the head. 2nd. A board-rule measure of spring metal having a head with cutting edges secured to the same by a clamp, which locks the head on both sides, and also serves to secure it to the outer end of the board.

No. 16,348. Improvements on Bottle Stoppers.
(*Perfectionnements aux bouchons des bouteilles.*)

John M. Lewin, Lockport, N. Y., U. S., 21st February, 1883; for 5 years.

Claim.—1st. An internal bottle stopper in which the ends of the loop wire A are joined together by a metal disk or washer B cast upon, or otherwise rigidly fastened to them, while the ends of the loop wire projecting below the fixed washer pass through holes D made in the rubber stopper C, in combination with a washer E arranged to secure the stopper C in position. 2nd. In an internal bottle stopper in which the loop wire is joined together by a metal washer permanently fixed to it, and the ends of the wire are bent at about right angles, the combination of a movable washer E having a slot F cut through it, and indentations made in its surface, for the purpose of holding the stopper C in position.

No. 16,349. Improvements on Spring Mattresses. (*Perfectionnements aux sommiers élastiques.*)

Smith Knowles, Manchester, Eng., 21st February, 1883; for 5 years.

Claim.—1st. The construction of a spring mattress, spring bed bottom, or spring seat (applicable to bedsteads, ships, sleeping berths, couches, chairs, railway and road vehicle seats) by the combination of longitudinal and transverse laths and springs suspended (hammock fashion) from the head and foot rails (or back and front rails) of a frame or support, and free from and above the side rails or support. 2nd. The construction of a spring mattress having, in combination, frame A A', metallic laths B B and c, springs D D, (single or in pairs). 3rd. The construction of a spring mattress with the longitudinal laths B B, springs D D, (single or in pairs), and bound together by transverse laths joined to the two outside laths B B by a spring at one end thereof, or a spring at each end thereof. 4th. The construction of a spring mattress having, in combination, brackets K K, head and foot rails A A, plate E, metallic laths B B and c, springs D (single or in pairs) connected to the longitudinal laths and with or without a spring, or springs, connecting the transverse to the longitudinal laths.

No. 16,350. Improvements in Creaming Vessels. (*Perfectionnements aux boîtes à lait.*)

Francois X. Blais, St. Rémi, Que., 21st February, 1883; for 5 years.

Claim.—1st. The combination, with a creaming can, of a stand pipe arranged so as to permit of the circulation, or a stand of water, in the interior of the can. 2nd. In a creaming apparatus, the combination of the can A provided with internal stand pipe D and apertures a a, and suitable outlet f with the outer vessel G containing water. 3rd. The combination, with the can A, of the outlet device consisting of centrally pivoted plate e, stop e² and casing e³ provided with projections l 2.

No. 16,351. Improvement on Roller Dredgers. (*Perfectionnement des dragueurs cylindriques.*)

Andrew J. Burr, Olympia, Washington, Ty., U. S., 21st February, 1883; for 5 years.

Claim.—1st. The combination, with the frame E, the shaft A journaled therein, and the disks B secured on said shaft, of the teeth C, shaped like spoons, or like cultivator teeth, secured to said disks. 2nd. The combination, with one or more disks B, suitably mounted to form part of a dredging machine, of the curved teeth C provided with bifurcated flattened shanks e secured to the face of said disk by two bolts passing through both shank and disk. 3rd. The disk B suitably mounted to form part of a dredging machine, said disk being provided with two concentric circles of holes e¹ paired radially, in combination with teeth C provided with bifurcated shanks e, each hole e¹ of the inner circle in disk B being elongated to allow the bolt a¹ at the end of shank e, to be set at different angles around bolt e as a centre, for the purpose of giving any desired pitch to the tooth.

No. 16,352. Improvements on Fuel and Combustion Thereof. (*Perfectionnements au combustible et à la combustion.*)

Joseph C. Cooper, Brooklyn, N. Y., U. S., 21st February, 1883; for 15 years.

Claim.—1st. The method of insuring the practically complete combustion of carbonaceous fuel by burning the same in connection with a compound composed of alumina as the same is contained in alum, aluminum cake, or aluminous earths with common salt, or chloride of sodium and sulphate of soda. 2nd. The improved combustible composed of carbonaceous fuel, alumina as the same is contained in alums, aluminous cake or aluminous earths, chloride of sodium, or common salt and sulphate of soda.

No. 16,353. Improvements on Waggon Gearing. (*Perfectionnements aux trains des voitures.*)

Thomas Seaman, Listowel, Ont., 21st February, 1883; for 5 years.

Claim.—The combination of the socket brackets A A provided with tenons A¹ A¹, axles B B provided with mortises B¹ B¹, bolts C C¹, bolster F, reach E, king-bolt H, brace G, tongue D provided with metallic strips J J, spring P, skains L L provided with lugs L¹ L¹, double truss rod M, nuts e e, staples N N and stake O.

No. 16,354. Improvements in Magnetic Ore Separators. (*Perfectionnements aux séparateurs des minerais magnétiques.*)

Samuel E. St. O. Chapleau, Ottawa, Ont., 21st February, 1883; for 5 years.

Claim.—1st. The combination of an electro-magnet and a series of supplemental attractive surfaces separated from the magnetic pole and arranged in relation thereto. 2nd. The combination of an electro-magnet and a series of supplemental surfaces of magnetic material insulated and disconnected from the magnet, but arranged in re-

lation thereto. 3rd. The combination of a hopper, a magnet and series of magnetic rings or plates encircling the pole of the magnet. 4th. The combination of the revolving cylinder provided with the series of electro-magnets and supplemental surfaces, and means whereby the magnets are rendered active and inactive alternately. 5th. The combination of the revolving cylinder, the electro-magnets and supplemental surfaces mounted thereon, the feed hopper, the two receptacles and means for magnetizing and de-magnetizing the electro-magnets, and the use of centrifugal force for repelling non-magnetic substances.

No. 16,355. Improvements in Lozenge Machines. (*Perfectionnements aux machines à pastilles.*)

Charles H. Hall and Rufus P. Pattison, Chicago, Ill., U. S., 21st February, 1883; for 5 years.

Claim.—1st. The combination, with a cutter or series of cutters, of a piston or series of pistons adapted to have a longitudinal movement on the interior of said cutters, for the purpose of embossing and expelling the goods therefrom. 2nd. The travelling guides adapted to carry a cutter plate and a piston plate, both being actuated from the same central point, whereby the lozenge or confection is embossed when the cutters are part way through the sheet of paste, the embossing pistons being momentarily freed from contact therewith, but before the completion of the revolution, return a second time and expel the goods from the cutters. 3rd. The combination, with the end pieces A¹ A¹, of the travelling guide pieces A³ A³ provided with the rectangular apertures a a, of the cutter plate A⁴. 4th. The combination, with the cutter plate A⁴, of the series of cutters B detachably inserted therein, the guide pieces A³ A³, the connecting rods B¹ B¹, the crank pins a⁴ a⁴, the crank plates a⁵ a⁵ and the counter shaft a⁶, whereby a reciprocating movement is imparted to the cutting mechanism. 5th. The combination, with the piston plate B⁵, of the series of pistons b⁵ provided with the stems b³, the inner guide pieces b² b², and the outer guides A³ A³. 6th. The combination, with the piston plate B⁵, of the guides b² b², the pins b¹ b¹, the connecting rods B⁴ B⁴, the eccentric shoes B³ B³, the crank pins a⁴ a⁴, the crank plates a⁵ a⁵ and the counter shaft a⁶. 7th. The eccentric shoes B³ B³ having the adjustable lever projections a⁷ and provided with the irregular shaped apertures B² B² and the ears b b. 8th. The combination, with the eccentric shoes B³ B³, of the crank pins a⁴ a⁴, the connecting rods B⁴ B⁴, the springs C C, the U-shaped straps b⁷ b⁷, the guides b² b² and the piston plate B⁵. 9th. The combination, with the piston plate B⁵, of the guides b² b², the adjustable downward projecting bolts b⁸ b⁸, the springs C C, the guide pieces A³ A³ and the stops b⁶ b⁶ inserted therein. 10th. The combination, with the receiving tray C¹ adapted to have a reciprocating movement, of the slotted guides C² C² adjustably secured to the parts A¹ by means of the bolts c. 11th. The combination, with the receiving tray C¹ and the friction roller C² C², of the arms C⁴ C⁴, the vertical rods C⁵ C⁵ and the rock shaft C⁶. 12th. The combination, with the rock shaft C⁶, of the rocker arm e¹, the connecting rod e², the eccentric strap e³, the cam disk e⁴ and the counter shaft a⁶. 13th. The combination, with the cam disk e⁴ provided with a tripping pin e⁵, placed on each side and at opposite points in the plane of revolution, of the eccentric straps e³ provided on each side with the angular plate e⁶. 14th. The combination, with the vibrating tray D, of the supporting arms e⁷ e⁷, the cross bar e⁴ and the rotating disks e⁸. 15th. The combination, with the rotating disks e⁸, of the pin e² inserted between the irregular faces of said disks which are alternately brought in contact with said pin, and the cross bar e⁴, whereby a vibrating motion is imparted to the tray D. 16th. The combination, with a trough receptacle placed underneath the cutting mechanism to receive the scrap, of an endless chain conveyer adapted to remove said scrap and deliver the same into a box receptacle. 17th. The combination, with one of the guide pieces carrying the cutter plate, of the bell crank E³ adapted to have an oscillating movement in relation thereto, the rod E⁴, the slotted arm E⁵ and the journal d², whereby the feed mechanism is adapted to have an intermittent action in unison with the reciprocating movement of the cutting and embossing mechanism. 18th. The combination, with the slotted arm E⁵, of the pawl d⁴, the ratchet wheel d³ and the journal shaft d¹ carrying the roller E¹, whereby the forward movement of the feed apron is locked against a back movement. 19th. The combination with the journal shaft d¹ passing through the feed roller E¹, of the pinion F rigidly secured thereto, the gear wheel F¹ and the pawl F², whereby a rotary motion is imparted to the feed mechanism. 20th. The combination, with the main driving shaft G, of the clutch box G¹, the friction collar G², the shifting arm G³, the shifting bar G⁴ and the operating lever G⁵. 21st. The combination, with the main shaft G, of the clutch box G¹, the friction collar G², the shifting arm G³, the shifting bar G⁴ and the operating lever G⁵. 22nd. The combination, with the clutch box G¹, of the pinion g², the gear wheel g³ and the counter shaft a⁶, whereby motion is transmitted from the main driving shaft to the counter shaft.

No. 16,356. Improvements in Attrition Mills. (*Perfectionnements aux moulins à attrition.*)

Thomas L. Sturtevant, Framingham, Mass., U. S., 22nd February, 1883; for 5 years.

Claim.—1st. The method of grinding various substances which consists in compelling one portion of the mass of material to be ground to remain in a passive state, while another portion revolves in a compact or coherent body upon it, the intermediate shifting portion being ground by friction or attrition between its own particles, the entire mass itself thus providing not only the grinding surface, but the material to be ground and the supply being continuously furnished to the hopper. 2nd. The mill consisting of the rotary chambered head, in combination with the hopper arranged to communicate with, and supply the chamber of such head.

No. 16,357. Heel Nailing and Trimming Machine. (*Machine à cheville et parachever les talons.*)

James W. Brooks, Cambridge, (assignee of Charles W. Glidden, Lynn,) Mass., U. S., 22nd February, 1883; (Extension of Patent No. 8,518.)

No. 16,358. Improvement on Car Brakes.*(Perfectionnement des freins de chars.)*

Hubert A. Banning, New York, N. Y., U. S., 22nd February, 1883; for 15 years.

Claim.—1st. The break head B having curves facing in the same direction, in combination with the shoe A having lugs *d e* corresponding with such curves. 2nd. The fastening C in combination with the shoe A and brake head B.

No. 16,359. Improvements on Steam Heaters.*(Perfectionnements aux calorifères à vapeur.)*

Edward E. Gold, New York, N. Y., U. S., 22nd February, 1883; for 5 years.

Claim.—1st. A locally controllable steam heating apparatus adapted for long narrow spaces, consisting of a main longitudinal steam pipe and a series of distinct heating chambers or radiators arranged, at intervals, lengthwise and parallel to the main, with lateral branch pipes connecting the same with the main and controlling valves in said branches. 2nd. The combination, with a longitudinal main pipe *a*, of the elongated heating drums *c c* arranged, at intervals, parallel with the main lateral branches *d d*, connecting the same with the main and valves *e e* controlling said branches. 3rd. In a locally controllable steam heating apparatus adapted for long narrow spaces, consisting of a longitudinal main steam pipe covered to present a non-radiating exterior, in combination with a series of distinct heating or radiating chambers exposed to give out their heat, and arranged closely adjacent to, and parallel with the main, and connected therewith by lateral branches provided with regulating valves. 4th. A steam heating drum or radiator constructed with two distinct cells, or chambers, one placed directly over the other and separated by a partition, the upper one being charged with a sealed body of liquid, while the lower one is adapted to connect with a supply of steam admitted against the intervening partition. 5th. A steam heating drum or radiator, formed of cast metal and constructed with two distinct cells or cavities, the one being adapted to receive the steam and arranged in the base of the drum, and the other being adapted to be charged with a confined mass of liquid and placed over the steam chamber, and the whole embodied in one integral structure. 6th. A steam heating drum, or radiator, formed in one continuous casting, with two distinct cavities, the one placed upon the other, and the lower one adapted to receive the steam, and the upper one to be charged with a confined body of liquid.

No. 16,360. Improvements on Spark-Arresters. *(Perfectionnements aux arrête-flammèches.)*

David Groesbeck, New York, N. Y., U. S., 22nd February, 1883; for 5 years.

Claim.—1st. The combination, with a smoke box, of an inclined downwardly turned spark conductor, or deflector, projecting out from the flue sheet including the flues, and discharging downwardly in the lower and front corner of the smoke box, in combination with a water box depending from the base of the smoke box below the discharging end of said deflector, with a free or open space between the deflector and the water level, and between the deflector and the front of the smoke box, equal to the area of the flues or thereabouts. 2nd. In a locomotive boiler, the combination, with a smoke box extended forwardly beyond the stack, of a water tank arranged in the base and front end of the smoke box, and a spark deflector extending out from the tube sheet over the flues and discharging downwardly into said tank over the middle thereof, or nearly so, and remote from the stack, with an exhaust or steam jet discharging above the said deflector directly under the stack and remote from the discharging end of the deflector. 3rd. The combination, with the smoke box of a locomotive engine provided with a downwardly turned spark deflector, of a water tank affixed to its front end below said deflector, and depending from the base of the smoke arch down between the cylinders and truck wheels of the engine. 4th. The combination, with the smoke box of a locomotive boiler, of a water tank affixed to the front end thereof, and depending from the base of the same, with its water level arranged below the base of the smoke arch, in combination with a spark deflecting partition in said smoke box extending forward and downwardly from the tube sheet, and discharging above the water level in said tank and at, or near, the base of the smoke arch. 5th. The combination, with a deflecting, or spark-arresting partition, in a smoke box forming an indirect passage to the stack, of an opening through said partition, and a damper in said opening forming a direct passage to the stack capable of being opened, or closed as required. 6th. The combination of a smoke box or chamber, with an inclined deflecting or spark-arresting partition, forming an indirect passage for the draft, and a damper mounted in an opening in said partition, forming a direct passage for the draft to the stack, said damper being so hung that, when opened or partly opened, it assumes an inclination similar to the deflecting partition, and acts also as a deflector to sparks which may issue from the flues. 7th. The combination of an inclined deflecting or spark-arresting partition arranged diagonally in the box and terminating at right angles, or nearly so, to the water in a tank below it, and forming an indirect passage for the draft through the same with a steam, or exhaust jet, or nozzle rising through, said partition and discharging above the same into the stack.

No. 16,361. Improvements on Washing Machines. *(Perfectionnements aux laveuses.)*

Erasmus L. Keys, Fostora, Ohio, Horatio J. Lockart, Muncie, Ind., Rawson Crocker and John S. Ellis, Fostora, Ohio, U. S., 22nd February, 1883; for 5 years.

Claim.—1st. The shaft E being provided with a clutch working between two clutch wheels and operated by a lever. 2nd. The rollers *a* attached to the boards *k* by the castings *al*. 3rd. The board *il*, key J, T-head *il* and bar *i*. 4th. The combination of the board *il*, T-head *il*, bar *i* and key J, with the bottom B.

No. 16,362. Improvements in Evaporators.*(Perfectionnements aux appareils évaporatoires.)*

Hardy E. Tupper, William Tupper and Joseph A. Tupper, Bury, Alexander Ross and Charles W. Ross, Lingwick, Que., 22nd February, 1883; for 5 years.

Claim.—1st. The combination, with a suitable fire-place and the main or sugaring off pan, of additional chambers, or compartments, situated around said pan, so as to be acted upon simultaneously by the same fire, said compartments being connected with each other. 2nd. The combination, with the main pan A, chambers C, D, E, F and G, and fire chamber B, of the inclined hails *a a*. 3rd. The combination of the flues L L with the fire chamber B, sap chamber G and smoke chamber H. 4th. The removable smoke chamber H. 5th. The combination, with the fire chamber B and sap chambers D and E, of the connecting pipe K.

No. 16,363. Improvements on Tapping Rings. *(Perfectionnements aux douilles de mise en perçe.)*

Andrew R. Schmidt and John Keck, Ann Arbor, Mich., U. S., 22nd February, 1883; for 5 years.

Claim.—1st. The form of tapping ring P N N P, the distinguishing feature of which is the neck at T by which the rim of the rim is forcibly drawn and retained against the outer surface of the vessel tapped. 2nd. The packing ring P N N P having the conical neck on its innerside.

No. 16,364. Improvements on Veneer Packages. *(Perfectionnements aux paquets de placage.)*

James Tomlinson, Chatham, John Milne, Alexander Laing, William Laing and James Lozie, Essex Centre, Ont., 22nd February, 1883; for 5 years.

Claim.—1st. A wooden cylindrical-shaped package, the walls of which are of three thicknesses of veneers, the outer and inner sections of said walls being composed of one piece enclosing an intermediate section.

No. 16,365. Improvements on Magneto-Electric Machines. *(Perfectionnements aux machines électro-magnétiques.)*

Marcus A. Hardy, Newport, R. I., U. S., 24th February, 1883; for 5 years.

Claim.—The combination of the field magnets A A, armature B, gear wheel or pinion B, shaft K, gear wheel K₁, spring N, ratchet wheel K₂, pawl O and a brake for controlling the wheel K₁. 2nd. The combination, with a magneto-electric machine having an electro field magnet, or magnets, means for driving the machine and mechanism for storing up power in the means for driving the machine, of a brake for controlling the means for driving the machine, and a switch actuated by said brake, whereby the electric current generated in the machine may, at first, be caused to magnetize the field magnets of the machine and, after that is accomplished, to direct or shift the electric current upon an outside circuit. 3rd. The combination, with a magneto-electric machine having electro field magnet or magnets, means for driving the same and mechanism for storing up power in the means for driving the machine, of a brake for controlling the means for driving the machine, comprising a lever M and the binding posts E E, connected with the wire of the field-magnets, the wires G I and the arms H J.

No. 16,366. Improvements on Horse Shoes. *(Perfectionnements aux fers à cheval.)*

George W. Fenley, Jr., Tolosa, Texas, U. S., 24th February, 1883; for 5 years.

Claim.—1st. The base A B made in two parts hinged to each other by parallel arms having bevelled ends, and a pintle C, whereby the upward movement of the said parts above a horizontal plane is prevented. 2nd. The combination, with the hinged base A B, of the two part cap D E having fastening F G, whereby the shoe can be readily applied and detached, and will be firmly held in place. 3rd. The combination, with the hinged base A B having cap D E, of the screw rod H, whereby the said hinged parts are locked in place.

No. 16,367. Improvements on Can Soldering Furnaces. *(Perfectionnements aux fourneaux pour souder les boîtes métalliques.)*

John Shank and Richard Burbridge, Chatham, Ont., 24th February, 1883; for 5 years.

Claim.—1st. In a soldering furnace and in combination with the solder bath, or pan B, the cover C having an aperture or opening E, to receive the cylindrical edge of a can to be soldered, when in an inclined position, standard F to support the can in said inclined position, and a soldering tip G on the under side of said cover and projecting into the concavity of aperture E.

No. 16,368. Improvement on Saddles for Bicycles. *(Perfectionnement des sellettes de vélocipèdes.)*

Franklin G. Burley, Boston, Mass., U. S., 24th February, 1883; for 5 years.

Claim.—An improved bicycle saddle consisting of the base A turned up at the front and having a cross piece B at the rear, and having slots d through cross-piece B, and a slot *dt* at the front, and the strap seat C received through the slots.

No. 16,369. Improvements in Boots.
(*Perfectionnements dans les bottes.*)

James B. Mackinnon, Montreal, Que., 24th February, 1883; for 5 years.

Claim.—1st. A boot composed of sole A, vamp B having tongue D, and leg C provided with flaps E E, and a device for fastening same. 2d. A boot composed of sole A, vamp B, tongue D, and leg C sewn together, and flaps E E provided with eyelets e e, hooks e' e' and a lace. 3rd. A boot composed of leather sole, vamp, leg and flaps E E closed by a suitable fastening device, in combination with a removable felt lining or stocking F.

No. 16,370. Improvements on Thill Supports.
(*Perfectionnements aux appuimontières.*)

Wellington W. McFail, Vassar, Mich., U. S., 24th February, 1883; for 5 years.

Claim.—1st. The combination, with the axle of the vehicle, of a spring thill or tongue support consisting of a base securing plate, an upwardly extending flat portion, capable of elastic movement laterally, and engaging top guides. 2nd. The spring thill or tongue support, constructed in one piece and comprising an approximately U-shaped rod gradually flattened, so as to be capable of lateral spring movement, and having two oblique guides at its top above which is formed a loop serving as a handle.

No. 16,371. Improvements on Ploughs.
(*Perfectionnements aux charrues.*)

Edmund D. Meagher, South Bend, Ind., U. S., 24th February, 1883; for 5 years.

Claim.—1st. A reversible plough point having symmetrical upper and lower faces, upper and lower flanges and a connecting web at the rear edge adapted to the foot of the standard. 2nd. A plough point removable and reversible having symmetrical upper and lower faces the thickened central portion adapted to rest against the notch in the tip of the foot, and the connecting web. 3rd. The wedge-shaped plough point, wide at the front end and tapering to the rear, having the thickened central portion and web adapted to the foot of the plough standard and to the wing. 4th. In combination with the plough point having upper and lower flanges and connecting web 1, the hooked rod extending through the brace 8, and adapted to draw back the point upon its bearings. 5th. The combination of the plough point having upper and lower flanges, with the foot of the standard having inclined upper and lower faces and side recessed, and shoulder and notch in the tip thereof, all adapted to furnish solid bearing for the point. 6th. The reversible and hoisted wing or share, in combination with the mould board and point of a plough. 7th. The reversible wing C having the inclined bevels on opposite faces, and ends tapering from upper to lower edge adapted to the recessed reversible point B, and in combination therewith. 8th. The combination of a supporting landside wheel and an elastic landside. 9th. The combination, with a supporting and landside wheel adapted to be vertically adjusted, of a landside H having rear portion partially overlapping the wheel and normally in a plane outside the vertical face of the wheel. 10th. The landside H having the rear portion elastic and partially overlapping the wheel, and the forward portion covering the recess in the point B. 11th. In combination with coupling E having arms e e and the wheel D, the bearing consisting of the cones G and F, and the connecting bolt adapted to draw upon both cones. 12th. The combination of the wheel having the annular flange, the cones G and F, coupling E and the connecting bolt.

No. 16,372. Improvements on Steam Traps.
(*Perfectionnements aux soupapes de vapeur.*)

Nelson Curtis, Newton, Mass., U. S., 24th February, 1883; for 15 years.

Claim.—1st. The combination, with a steam-tight water chamber, of a main water way, or passage, and a piston valve therein, a smaller passage connecting the two parts of said main passage, one above the piston and the other below the port of the said piston valve, an auxiliary valve in said smaller passage, and suitable mechanism within said water chamber for automatically controlling said auxiliary valve. 2nd. The combination, with a steam-tight water chamber, of a main water way or passage and a piston valve therein, a smaller passage connecting the two parts of said main passage, the one above the piston and the other below the port of the said piston valve, an auxiliary valve in the said former passage, and a float in said water chamber connected with said auxiliary valve. 3rd. The combination, with a steam-tight water chamber, of a discharge pipe or passage and a piston valve therein, a smaller passage connecting the two parts of said discharge passage, the one above the piston and the other below the port of the said piston valve, an auxiliary valve in the said smaller passage, and suitable mechanism within the said water chamber, for automatically controlling said auxiliary valve. 4th. The combination, with a steam-tight water chamber, of a discharge passage and a piston valve therein, a smaller passage connecting the two parts of said discharge passage, the one above the piston and the other below the port of said piston valve, an auxiliary valve in the said smaller passage, and a float in said water chamber connected with said auxiliary valve. 5th. The combination of the blow-off pipe R with the steam-tight water chamber A, a discharge passage and a piston valve therein, a smaller passage connecting the two portions of said discharge passage, one above the piston and the other below the port of said piston valve, and an auxiliary valve in said smaller passage. 6th. The combination of the steam-tight water chamber A and blow-off pipe R, with an exterior discharge passage and a valve therein.

No. 16,373. Improvements on Gear Cutting Machines.
(*Perfectionnements aux machines à tailler les alluchons.*)

Amos H. Brainard, Hyde Park, Mass., U. S., 24th February, 1883; for 5 years.

Claim.—1st. The worm wheel e in combination with the vertically adjustable worm-carrying bracket F adapted to be adjusted on the standard a by means of set screw a' and having fastening screws g g. 2nd. The dividing shaft f', its toothed wheel i, recessed plate m', crank lever k k', pawl m m', hinged crank l, latch i and button i'. 3rd. The cutter arbor n and cutter n', in combination with the extensible collar n' n' and fastening nut n'. 4th. The centering device for centering the cutter n' with the arbor c consisting of the rod o, set screw o', adjustable pointed strip o'', collar o''' and shank o''v adapted to be inserted in a hole or slot in the bearing N' for the cutter arbor. 5th. The combination, with the crank shaft p' and intermediate mechanism for raising or lowering the carriage S, of the stationary and graduated dial p and adjustable index or pointer p'. 6th. The vertically and laterally adjustable rim-rest r' r' adapted to be secured to the front of the standard a, and having its set screw r' arranged to support the rim of the wheel d that is to be cut.

No. 16,374. Improvements on Receiving Telephones.
(*Perfectionnements aux téléphones récepteurs.*)

George F. Dailey, Leadville, Col., U. S., 24th February, 1883; for 5 years.

Claim.—1st. A portable telephone receiver composed of the bobbin A, the tubular core C, magnet D, tube H and diaphragm F contained in a casing E, and the rigid sound conducting tubes H H curved upward and inward at their outer ends, and provided with the ear pieces J1 J1 placed facing each other.

No. 16,375. Improvements in the Treatment of Ores.
(*Perfectionnements dans le traitement des minerais.*)

Farnham M. Lyte, London, Eng., 24th February, 1883; (extension of patent No. 8559.)

No. 15,376. Improvements in Treating Ores.
(*Perfectionnements dans le traitement des minerais.*)

Farnham M. Lyte, London, Eng., 24th February, 1883; (extension of patent No. 8,560.)

No. 16,377. Improvements on Presses.
(*Perfectionnement aux presses d'emballage.*)

James R. Devor, Goshen, Ind., and Edward S. Norton, St. Paul, Min., U. S., 24th February, 1883; for 5 years.

Claim.—1st. The circular horizontally-revolving press-box or trough, having vertically-sliding transverse partitions or diaphragms, in combination with suitable compressing mechanism, and means for removing the compressed matter from the press-box. 2nd. The circular horizontally-revolving press-box or trough, having vertically-sliding transverse partitions or diaphragms, in combination with the roller or cylinder R, inclined plane V, and mechanism for depressing the diaphragms flush with the bottom of the press-box. 3rd. The combination of the base A having track B, the V-grooved wheels C, the rings E having V-shaped under sides, shoulders F and toothed flanges H and the press-box G. 4th. The combination of the press-box G having recesses M and brackets O, with the vertically-sliding diaphragms K having guides L, provided with friction rollers Q and stems N, the springs P and the inclined plane W. 5th. The combination of the rings E having toothed flanges H, the press-box G having vertically-sliding diaphragms K, the shaft S having roller R and gear wheels U, and suitable operating mechanism. 6th. The combination of the revolving press-box having vertically-sliding diaphragms, the roller R, inclined planes V W and X, and the endless apron or belt Br. 7th. The combination of the circular horizontally revolving press-box, the radial shaft S carrying compressing rollers R and a centrally-located master wheel engaging gear wheels upon the inner ends of the said shaft S.

No. 16,378. Improvements on Adjustable Rocker.
(*Perfectionnements aux bascules mobiles.*)

Edmond I. Scully, Windsor, Ont., (assignee of Edward W. Andrews, Detroit, Mich., U. S.) 24th February, 1883; for 5 years.

Claim.—1st. A chair rocker made in two sections joined together with an extensible coupling, in combination with devices for securing each section to a separate chair leg. 2nd. In combination with the sections a b, the socket B, secured to one section and loosely receiving the end of the outer section, and means for separately securing each section to a separate chair leg. 3rd. A chair rocker consisting of two sections joined together with an extensible coupling, each section being provided with a socket for receiving the chair leg, and a screw for fastening the leg in the socket. 4th. The combination, with the two sections a b, of the casting B secured to one section and having a socket to receive the other section, a socket to receive a chair leg, a screw to secure the leg in the socket, and means for securing the companion leg of the chair to that section of the rocker which fits into the socket of the casting B. 5th. The combination, with the two sections a b, of an extensible rocker of the sockets g c secured to the forward ends of the sections, the socket of the rear sections being also provided with a socket to receive the front section, and both sockets g c being provided with screws to secure them to the chair legs. 6th. The rocker A and the casting D having a socket g and a screw h, to receive and secure a chair leg, and provided with a socket projection f to receive the front end of the rocker, in combination with means for securing the rear leg of the chair.

No. 16,379. Improvements on Lifting Jacks.
(*Perfectionnements aux crics.*)

James N. Smith, Emlenton, Penn., (assignee of James Weathers, Indianapolis, Ind.,) U. S., 24th February, 1883; for 5 years.

Claim.—1st. The combination of the vertical standard, the dog adapted to slide upon the same, the lever fulcrumed thereto, and the slotted bracket adapted to slide upon the standard, and connected to the lever by suitable links. 2nd. In combination with the standard, the dog, the lever and the bracket, and the engaging hook on the dog and bracket.

No. 16,380. Improvements in Punching and Cutting Machines. (*Perfectionnements aux machines à poinçonner et découper.*)

Etienne Salomon and Edmond Armaant, Montreal, Que., 24th February, 1883; for 5 years.

Claim.—1st. In a machine for cutting and punching washers, etc., from a metal plate in one operation, the combination, with the gears G H mounted respectively on shaft C D and rotated by pinion I receiving motion from a pulley, of cams E and F of substantially the same configuration shown, also mounted on said shafts C and D respectively, and serving to operate punches E₁ and R, by means of rollers *r*₁ and *r*₂, and slides Q and S. 2nd. The punch E₁ and slide Q formed hollow in combination with punch R. 3rd. The combination, with the die block R₁ having slot *r*₂, of the ejector T operated by pivoted lever T₁ receiving motion from a cam on the shaft c. 4th. The combination, with the pulley H₁ cast in one with the gear H and having recess *h*, of the roller *n*, carried by skeleton pitman N, pin N₁, grooved collar M and a clutch for engaging with the hub of the driving pulley, and a system of levers for withdrawing said roller from said recess, and means for returning the clutch. 5th. The self-feeding mechanism consisting essentially of the lever U₁ operated by roller *h*₃, and a cam groove on the gear H, vertical feed-lever U₂, pawl U₁, ratchet V, shafts *v*₁ and *v*₂ geared together, and the rollers V₂, V₄, V₅, V₆. 6th. The means for adjusting the length of feed consisting of the block W, adjustably in slot *u* in lever U₁, said lever having spindle *h*₃ at its end working in curved slot *u* in the standard U, and the pivot of said block W working also in a straight slot *u*₂ in the said standard, the parts being fitted loosely to allow spindle *h*₃ to follow curved slot *u* at each change of radius.

No. 16,381. Improvements on Cases for Preserving Food. (*Perfectionnements aux garde-manger.*)

Jonathan J. Hoyt, Chelmsford, and James W. Bennett, Lowell, Mass., U. S., 24th February, 1883; for 5 years.

Claim.—1st. The combination of the glass case D E, the protectors B B₁, the ring clamps A A₁ and screw hold F. 2nd. The combination of the glass case D E provided with notched flanges *e* *e*₂, the ring clamps A A₁ and the screw bolts F. 3rd. In combination with glass case D E provided with notched flanges *e* *e*₂ the ring clamps A A₁ provided with vertical annular flanges and the screw bolts F.

No. 16,382. Improvements on Try Squares. (*Perfectionnements aux équerres d'épreuve.*)

Justus A. Trant, New Britain, Conn., U. S., 26th February, 1883; for 5 years.

Claim.—The combination of the slotted head, the eccentrically grooved pin and the blade having a longitudinal slot, the width of which slot is less than the diameter of the pin B.

No. 16,383. Improvements on Adjustable Carriage Tops. (*Perfectionnements aux couvertures mobiles des voitures.*)

William Hodge, Uxbridge, Ont., 26th February, 1883; for 5 years.

Claim.—The bow iron plate A pivoted to a counter-part plate D at the forward end, said plate D pivoted near the middle to the outer end of the side rails, and having an arm G provided with a suitable catch H, or other fastening device to lock with the bow irons, whereby the carriage top can be forwardly lowered and rearwardly raised adjustably.

No. 16,384. Improvements on Machines for Separating and Gathering Match Splints. (*Perfectionnements aux machines à séparer et ramasser les allumettes.*)

Bernard T. Steber, Utica, N. Y., U. S., 26th February, 1883; for 15 years.

Claim.—1st. In a match machine, the combination, with a stick or splint holder, of automatic devices for separating the sticks or splints in said holder. 2nd. In combination with a travelling clamp adapted to hold the match sticks, a separator arranged to spread the sticks apart as the clamp moves. 3rd. A match-stick separator provided with diverging ways arranged to receive a row of sticks at one end, guide them separately, and laterally spread them apart. 4th. The combination, with a stick-clamp or holder, of a separator adapted to spread the sticks apart in said clamp or holder, and a gatherer adapted to bring the sticks close together again after they have been spread. 5th. The separator composed of the suitably supported bottom, and top plates provided with the guide ways. 6th. The gatherer provided with guide ways having their walls rebated or cut away.

No. 16,385. Improvements on Washing Machines. (*Perfectionnements aux laveuses.*)

Stanislas Pariseault, St. Jean Baptiste Village, Que., 26th February, 1883; for 5 years.

Claim.—1st. The combination, with an ordinary tub, of a central post P secured to the bottom a dolly having, at its arms D, roller d free to rotate, said rollers d, post P and tub T studded with buttons or projections b, a hinged cover c₁ to which is secured a frame F carrying the shaft S which is fitted with double band crank H, bevel wheel W meshing into the bevel wheel W₁ secured to an upright spin-

dle *z*, which projects downward through the cover engaging by its square or angular end *z*₁ the square or angular holes D₁ in the dolly. 2nd. The combination, with a loose dolly having arms D, of the downward projecting rollers *d* centred to the ends of the said arms by studs *d*₁ upon which the said rollers may rotate freely. 3rd. The studding of the interior surfaces with buttons *b* secured singly or in slots of suitable section and afterwards cut or indented. 4th. The combination of a hinged cover supporting the working gear, having a vertical spindle engaging by a square or an angular end-hole of corresponding shape and size, in the loose dolly D.

No. 16,386. Improvement on Fire-Escapes. (*Perfectionnement des sauteurs d'incendie.*)

William Robinson, London, Ont., 26th February, 1883; for 5 years.

Claim.—1st. A brake A constructed with flange A₁ and holes B B₁ B₂ B₃ B₄, provided with ring flanges c c₁ c₂ c₃ c₄. 2nd. The combination of the brake B, bridle-rope D, lowering pipe R and hook *e*.

No. 16,387. Improvements in Grain Binders. (*Perfectionnements aux lieuses à grain.*)

Victor Henry, Chicago, Ill., U. S., 26th February, 1883; for 5 years.

Claim.—1st. An adjustable compressing device composed essentially of the parts B B₁, connected with the trip attachments and adapted to widen or narrow the circle between said trip and needle attachment. 2nd. The combination, with the adjustable compressing device B B₁ provided with the rectangular slots *a*₁ *a*₂, of the bolts *a*₁ and the trip A. 2rd. The combination, with the adjustable connecting rod B₂, of the trip bar A₁, the trip A and the compressing device B B₁. 4th. The combination with the needle A₂, of the double knife C₁. 5th. The combination, with the lever B₄ of the adjustable knife C₁ and the attaching bolt *c*₂.

No. 16,388. Improvements on Coating Metals. (*Perfectionnements dans le placage des métaux.*)

Henry W. Shepard, Brooklyn, N. Y., U. S., 26th February, 1883; for 5 years.

Claim.—An alloy for coating iron sheets and other metal articles, to prevent oxidation, composed of lead, tin and zinc compounded for use in the manner and proportions described, when combined with a small percentage of nickel, whereby the chemical union of the lead, tin and zinc is effected and an intimate and permanent alloy produced.

No. 16,389. Improvements on Steam Boilers. (*Perfectionnements aux chaudières à vapeur.*)

William H. Wilson, William C. Harris and Rollin D. Rockwell, Westfield, N. Y., U. S., 26th February, 1882; (extension of patent No. 8570.)

No. 16,390. Improvements on Window Guards. (*Perfectionnements aux garde-fenêtres.*)

Jonathan Badger, New York, N. Y., U. S., 26th February, 1883; for 5 years.

Claim.—1st. A window guard constructed and adapted to be used substantially in the manner and for the purpose described. 2nd. The window guard combining in its structure the longitudinal adjustable sections C₁ C₂, the head *o* at the outer ends of the sections and the packing strips *i* on the upper edges of the sections.

No. 16,391. Improvements in Button Boots and Shoes. (*Perfectionnements aux chaussures boutonnées.*)

George T. Slater, (assignee of Edouard Lanthier,) Montreal, Que., 26th February, 1883; (extension of patent No. 15,275.)

No. 16,392. Improvements on Stove Grates. (*Perfectionnements aux grilles des poêles.*)

Samuel Smyth, Pittston, Penn., U. S., 26th February, 1883; (extension of patent No. 9357.)

No. 16,393. Improvements on Stove Grates. (*Perfectionnements aux grilles des poêles.*)

Samuel Smyth, Pittston, Penn., U. S., 27th February, 1883; (extension of patent No. 9357.)

No. 16,394. Improvements on Refrigerators. (*Perfectionnements aux garde-manger.*)

Reuben A. Meserve, Medford, Mass., U. S., 29th February, 1883; for 6 years.

Claim.—1st. In a refrigerator having one or more series of refrigerating pipes, the boxes or joint protectors containing the joints of said pipes, said box being entirely disconnected from the interior of the preserving chamber and adapted to protect the joints of the pipes from contact with the external air. 2nd. The boxes or joint protectors containing the joints of the refrigerating pipes, and provided with pipes for the escape of leaking gas. 3rd. The boxes or joint protectors containing the joints of the refrigerating pipes and provided with a packing of asbestos, or other suitable material, around said joints. 4th. The combination of a preserving chamber, refrigerating pipes arranged along the walls thereof in two practically air-tight casings,

one inclosing each vertical series of pipes, said casings being separated by an intervening air space communicating with the upper and lower portions of the chamber. 5th. The combination of a preserving chamber, refrigerating pipes arranged along the walls thereof, practically air-tight casing inclosing the pipes and shutting them off from contact with the air in the chamber, and air passages passing through the said casings and communicating with the upper and lower portions of the chamber, whereby direct contact between the air in the chamber and the pipes is prevented. 6th. The combination of the preserving chamber, the double series of refrigerating pipes and the divided casings containing said pipes, the proximate sides of the divisions of the casings being corrugated and forming air passages communicating with the upper and lower portions of the preserving chamber. 7th. The casings B inclosing the refrigerating pipes and provided with outlets extending outside of the chamber for the escape of leaking gas. 8th. The combination of the refrigerating pipes, the casings B surrounding said pipes, and a filling of rock salt or other solid conductor of heat. 9th. The combination of the preserving chamber, the casings B inclosing the refrigerating pipes, and the vertical air passages *e* in said casings, formed as shown in Fig. 1, that is to say, presenting curved surfaces to the pipes *b* and having flat front surfaces.

No. 16,395. Improvements on Sole Stitch Raisers. (*Perfectionnement aux lève-points des semelles.*)

Thomas Migner, Quebec, Que., 27th February, 1883; for 5 years.
Résumé.—La combinaison du lève-point A avec le pied presseur B, au moyen de la vis C.

No. 16,396. Improvements on Refrigerators. (*Perfectionnements aux garde-manger.*)

Reuben A. Messervey, Medford, Mass., U. S., 27th February, 1883; for 5 years.

Claim.—1st. A series of tanks or receptacles formed on their approximate surfaces, whereby, when the tanks are placed in contact with each other, said proximate surfaces will form narrow parallel sided S-shaped vertical air passages, the entire surfaces of which are cooled by the refrigerant in the tanks. 2nd. The tanks or receptacles having S-shaped or tortuous air passages between their proximate sides, contracted upper ends projecting through the top of the refrigerator, and spaces between said contracted upper ends connecting said air passages with the other portion of the preserving chamber. 3rd. The improved tank composed of the cast metal top T having a groove *u*, the sheet metal body having its upper end contained in said groove and the bottom cleats connected to the top by vertical rods.

No. 16,397. Apparatus for the Recovery of Soda, &c. (*Appareil de réactivation de la soude, etc.*)

Henrick C. F. Stormer, Paris, France, 27th February, 1883; for 5 years.

Claim.—The apparatus for recovering soda and other lyes used in the manufacture of wood pulp, straw pulp and other fibre pulps for paper manufacture, the same consisting of a set or a series of boilers B D F, connected by steam pipes C and E and having escape-pipe G, in combination with the reverberatory furnace A, feed-pipe M, connecting pipes N and N' and pipe O, for returning the concentrated lye from the last boiler in the series to the reverberatory furnace under the first.

No. 16,398. Improvements on Middlings Purifiers. (*Perfectionnements aux épurateurs des gruaux.*)

John J. D. Hurst, Salem, Oregon, U. S., 27th February, 1883; for 10 years.

Claim.—1st. The combination of the adjustable rubber *r* consisting of a strip *f* covered with suitable soft substance, sliding piece S and slide S', with the slotted frame A and angle bar *h*, and set screws for adjusting the slides vertically. 2nd. The combination, with the reciprocating frame B and the screens *a b c* arranged at different levels in a series upon said reciprocating frame, of the series of adjustable rubbers *r* arranged at different levels to suit the screens, and the mechanism for operating said rubbers in such a manner as to sweep the entire under-surface of the screens. 3rd. The combination of the blower-fans E E, a series of graduated and perforated tubes C C, the reciprocating frame B, screens *a b c* arranged thereon in an overlapping series at different levels, the adjustable rubbers *r r*, hopper H, irregular portion G having valved openings, the dead-air chamber I and the exhaust fan F. 4th. The combination of a vibrating frame B containing a series of screens arranged in successive order, with the front end of one below the rear end of the preceding one, with the stationary perforated pipes C made tapering towards their rear ends, and fans E E. 5th. A vibrating frame B containing a series of screens arranged successively with the forward end of one below the rear end of the preceding, in combination with reciprocating rubbers *r* placed at a distance apart equal to the travel thereof, whereby the screens are kept constantly cleaned. 6th. A series of stationary perforated pipes C gradually reduced throughout their length and provided with removable stoppers *e*, in combination with the box D and fans E. 7th. A vibrating frame B, containing a series of screens arranged in successive order, and a series of stationary perforated pipes C tapering throughout their length, in combination with the supply fans E E and exhaust fan F, and air chamber G having valved openings *o* and dead-air spaces *d*.

No. 16,399. Improvements on Cross Cut Saws. (*Perfectionnements aux scies de tracers.*)

Eben M. Boynton, New York, N. Y., U. S., 28th February, 1883; for 5 years.

Claim.—The saw A having M-shaped cutting teeth B, each provided with two points *a* dressed to cut in line, and two outer cutting edges *b b* slightly inclined outward from the points, and the M-shaped clearing teeth C having points *c c* and vertical edges *d d*, said clearing teeth being arranged alternately with two or more of said cutting teeth.

No. 16,400. System and Apparatus for Detecting Leakage in Conduits. (*Système et appareil pour découvrir les fuites d'eau dans les conduits.*)

Thomas J. Bell, Cincinnati, Ohio, U. S., 28th February, 1883; for 5 years.

Claim.—1st. The method of ascertaining and locating leaks or improper use of water in service mains and pipes, in cities and buildings, consisting in receiving, amplifying and converting the molecular vibrations induced in such pipes by the escaping water, and conveying the same to the ear by means of suitable microphonic apparatus applied to such mains or pipes. 2nd. The microphonic apparatus consisting essentially of a metallic diaphragm centrally mounted upon a stud, or transmitting rod, in a sound chamber, and adapted to be applied to water or gas mains for the detection of leaks. 3rd. The leak detector consisting of a body-piece A provided with a stud *b* and a lug *c*, cap piece A' having an opening *a* and a diaphragm B mounted in the chamber formed by the cap and body piece. 4th. The combination of the body piece A, cap A', stud *b* and metal diaphragm B placed between the cap and the body. 5th. An apparatus for transmitting the sounds of leakage, in fluid conduits, to the ear of an attendant or inspector consisting of the microphonic leak deflector A and the key D, the latter adapted to be applied to the cock of the service pipe.

No. 16,401. Improvements on Threshing Machines. (*Perfectionnements aux machines à battre.*)

John C. Schneider, Hudson, Wis., U. S., 28th February, 1883; for 5 years.

Claim.—1st. In a grain separator, the screens E having longitudinal grooves F and apertures G. 2nd. In a grain separator for threshing machines, the combination of the screens E having longitudinal grooves F and apertures G, and means for vibrating them in an upward and rearward direction, with the boards L placed on edge alternating with screens E and having means for vibrating them in an upward and rearward direction alternating with screens E. 3rd. In a device for imparting an alternating upward and rearward motion to screens in a grain separator, the combination of the crank shaft P, pitman O and V, and arms Q and W. 4th. The combination, in a device for shaking the screens in a grain separator, the combination of the crank shaft P, pitman O, arm Q, pivoted at R and having short end S, and segmental plate T having spiral springs U U at both ends, bearing with their free ends against the ends S of arm Q. 5th. In a grain separator for threshing machines, the combination of the screens E fastened upon cross pieces H pivoted in the forward end upon arms Y, and having pitman O and arms Q at their rear ends, with the boards L placed edgewise, alternating with screens E pivoted at their forward ends upon arms Z, and having pitmen V and arms W at their rear ends. 6th. The combination, in a grain separator, of the crank shaft P, pitman O, arms Q bearing with their lower ends against springs U, pitmen V and arms W, screens E and boards L. 7th. The conveyor *f* consisting of shaft *g* having collar *h*, sleeves *i* having spiral flanges *j*, notches *k* and projections *l*, and nut *m*. 8th. The threshing machine consisting of the casing A having cylinder C a d heater D, screens E pivoted upon arms Y and Q, boards L pivoted upon arms Z and W, pitmen O and V, crank shaft P, shoe *b* actuated by bell crank *c* and pitmen *d*, conveyor *f*, conveyor *n*, elevator *o* and inclined board *p*.

No. 16,402. Improvements on Knife Edging Machines. (*Perfectionnements aux machines à remouler les coupeaux.*)

James A. Stephens, Brockville, Ont., 28th February, 1883; for 5 years.

Claim.—1st. The sloping table C hingcd to posts B B and supported adjustably by hand screws D D from bed pieces A A having bracers E E, rest bar F, connecting posts B' B' secured to bed pieces A A and bar handle P having stone R and provided with bumpers T T. 2nd. The bed pieces A A each having posts B B', the posts B connected by an adjustable sloping table C provided with hand screws D D and the posts B B' connected by rest-bar F parallel to said table and horizontally therewith. 3rd. The bar handle P having sharpening stone R and provided with bumpers T T and knob S.

No. 16,403. Improvements on Looms. (*Perfectionnements aux métiers à tisser.*)

Nathaniel W. Westcott, New York, N. Y., U. S., 28th February, 1883; for 5 years.

Claim.—1st. The combination, with the vertically moving needles, of the filling device constructed and arranged to divide the needles laterally and introduce the weft, as the needles rise to catch the warp thread and before reaching their highest position. 2nd. The combination, with the vertically moving needles, of the horizontal toothed weft wheel, arranged at right angles to the needles and provided with a circumferential groove for the filling. 3rd. The combination, with the needles and their jacks and toes, of the cam plates constructed to accommodate but one needle at the points where the warp is formed. 4th. The combination, with the needles and their jacks and toes, of the cam plates forming a cam slot having rises and drops at intervals, for forming the looped warp and straight portions between the points where the warp is formed, for raising the hooks above the cylinder and giving opportunity for mending. 5th. The combination, with the needles, of the cam plates L L, forming slot L having rises and drop:

l 1/2 and straight portions 15. 6th. The combination, with the needles, of the cam plates L 1/2, forming slat L having rises and drops l 1/2 and straight portions 15, and the filling wheels arranged above the rises l. 7th. The combination, with the needles, of the cam plates having the needle toes projecting outwardly, through the slat formed by them and exposed to view. 8th. The combination, with the cylinder and the needles, of the solid needle slide ring removably secured to the outside of the cylinder, and the guide plates secured in vertical grooves in said ring. 9th. The combination, with the cylinder and the needles, of the solid needle slide ring H removably secured to the outside of the cylinder and having shoulder h, and the guide plates R secured in the vertical grooves in said ring. 10th. The combination, with the vertical wires or rods of the stop motion, of a lever, a latch supporting said lever in an elevated position, and a ratchet ring engaging said lever when released, and operating the stopper. 11th. The pivoted block F carrying vertical wires or rods V and guided therefor, the latch O, lever Y, ratchet ring G, ring M and lever Z.

No. 16,404. Improvements on Power Convertors. (*Perfectionnements aux machines à convertir le mouvement.*)

Henry Croft, Jr., Springfield, Ohio, U. S., 28th February, 1883; for 5 years.

Claim.—1st. The combination, with a driving wheel whose shaft is provided with ratchets arranged on each side of the driving-wheel, of a vibrating pivoted beam actuated by the reciprocating rod and carrying, at its ends, beams provided at their lower ends with dogs, and connecting mechanism, whereby the vibration of the pivoted beam causes a continuous revolution of the driving-wheel. 2nd. The combination, with a driving-wheel, whose shaft is provided with ratchets, of a vibrating pivoted beam actuated by a reciprocating rod with elastic connection and carrying, at its ends, beams having elastic connections and provided at their lower ends with dogs, and connecting mechanism, whereby the vibration of the pivoted beam causes a continuous revolution of the driving-wheel, and whereby the shocks and jars to the machinery incident upon the sudden starting and stopping of the wind-wheel are prevented. 3rd. The combination, with the ratchets H and the beams C C', of the links I provided with dogs J and adjustably connected to the beams by the slotted pivoted blocks D and set screws f. 4th. In a power converter actuated by a reciprocating prime mover, the driving-wheel provided with sprocket or engaging points for a driving chain.

No. 16,405. Improvement on Corsets. (*Perfectionnement aux corsets.*)

John N. Lemen, Jackson, Mich., U. S., 28th February, 1883; for 5 years.

Claim.—1st. The combination, with the side pieces A 1 A 2 partially separated at their lower edges, of the shield B secured to the exterior of the corset and constructed to cover the junction of the pieces A 1 A 2, and the lacings a adapter to draw the pieces A 1 A 2 together and shield, the pieces A 1 A 2. 2nd. The combination, with the side pieces A 1 A 2 partially separated at their lower edges, of the shield B secured to the exterior of the corset and adapted to cover the junction of the pieces A 1 A 2, and the lacings d secured to the outer edges of the shield and passing through the holes c c in the side pieces, and through holds f f in the shield.

No. 16,406. Improvements in Water Wheels. (*Perfectionnements aux roues hydrauliques.*)

Royal N. Davidson, Weaverville, Cal., U. S., 38th February, 1883; for 5 years.

Claim.—The convex, or conical side A having a central axis B, the tapering buckets or flanges C secured upon the convex side, and curved and tapering towards the centre of the side A, and the rim or side D with its open centre.

No. 16,407. Improvement in Nails or Spikes. (*Perfectionnement des clous.*)

William Taylor, Pittsburgh, Penn., U. S., U. S., 28th February, 1883; for 5 years.

Claim.—1st. A headed nail, or spike, having a shank of triangular form provided with a tapering point. 2nd. In a headed nail, or spike having a shank of triangular form provided with a series of transverse necks, notches or indentations on one or all of its sides, at or near its point. 3rd. A headed and pointed nail, or spike, the shank of which is of uniform diameter from its head to the taper of its point and nicked, notched or roughened therefrom, about one-third of the length towards the head.

No. 16,408. Improvements on Mechanical Motors. (*Perfectionnements aux moteurs mécaniques.*)

Laurence H. Conner, Grand View, Texas, U. S., 28th January, 1883; for 5 years.

Claim.—1st. The combination of the frame A, the stationary and movable frames C and G, the dogs or levers mounted therein, the pins for holding said dogs, or levers, in a normal position, the follower attached to the movable frame, and mechanism for reciprocating said frame to elevate a series of weights successively. 2nd. The combination, with the frame A having the aperture R and the passage P, of the stationary frame C having dogs H and pins I, the movable frame G having the dogs D and pins E, the follower K, link L and lever M.

No. 16,409. Snow Plough. (*Charrue à neige.*)

James O. Stackhouse, St. John, N. B., 28th February, 1883; (extension of patent No. 2105.)

No. 16,410. Improvements on Pumps.

(*Perfectionnements aux pompes.*)

Charles Powell, Toronto, Ont., 28th February, 1883; for 5 years.

Claim.—1st. The tapering wooden stock A provided with bands a and with a detachable spout J, in combination with the enlarged head B, adapted to carry the pivot box of the pump lever and provided with a neck to fit into a recess, in the top of the pump stock. 2nd. The combination, with the wooden stock A having a recess in its upper end, of the enlarged head B, provided with a neck to fit into the recess in the stock, and adapted to support the pump handle. 3rd. The combination, with a wooden pump and the bearing box D having a horizontal groove, of the hook bolts F, handle rod E and means to prevent the lateral movement of the bearing box. 4th. A wooden pump provided with a swinging handle for operating the plunger rod, a metal bearing box having a horizontal groove formed in its front surface to receive the pivot rod of the pump handle and projecting studs on its opposite side to fit into the wood work of the pump, in combination with a fastening arranged to simultaneously hold the pivot rod and bearing box in their respective positions. 5th. A wooden pump provided with a swinging handle for operating the plunger rod, a metal bearing box having a horizontal groove formed in its front surface to receive the pivot rod which supports the pump handle, in combination with a fastening arranged to simultaneously hold the pivot rod and bearing box in their respective positions. 6th. The combination, with a hose coupling, of a bail pivoted thereto and a discharge spout having a curved or inclined surface adapted to tightly draw the bail upward, when said bail is pressed over the spout. 7th. In combination with a pump provided with a discharge spout having an outwardly inclined top surface, a bail pivoted to a coupling arranged to fit the mouth of the spout, the corner of the said bail being twisted or curled, to permit the bail to spring while being pressed upon the spout. 8th. In combination with a pump, provided with a discharge spout having an outwardly inclined top surface, a bail with twisted or curled corners and a roller placed on the bail between them, the ends of the bail being pivoted to a coupling arranged to fit the mouth of the spout.

No. 16,411. Improvement in Machines for Dressing Fish. (*Perfectionnement des machines pour préparer le poisson.*)

Magnus J. Palson and William Whitman, Elizabeth, N. J., U. S., 28th February, 1883; for 5 years.

Claim.—1st. The combination of a sliding reciprocating plate for receiving the fish to be dressed, with a frame provided with a series of knives, which frame slides above and in the opposite direction to the receiving plate and, during these movements, the knives of the upper sliding plate or frame, rip open the belly of the fish and cut out the entrails and backbone. 2nd. The combination, with a reciprocating plate for receiving the fish to be dressed, of a reciprocating frame provided with a series of knives, this plate sliding above the fish receiving plate and in the opposite direction, and of a sliding-spring knife for decapitating the fish. 3rd. The combination, with a reciprocating plate for receiving the fish to be dressed, of a reciprocating frame provided with a series of knives, this frame sliding above and in opposite direction to the fish receiving plate, of a sliding-spring knife for decapitating the fish, and of a sliding plate with hooks for drawing the fish from the receiving plate, when the operation is completed. 4th. The combination, with the fish receiving plate B, of the reciprocating knife frame J, the sliding hook plate X, the shaft G provided with the opposite cranks G 1 G 2, and of the pivoted connecting rod H 1 H 2 H 3, for the purpose of operating all the parts at the same time from the shaft G. 5th. The combination of the fish receiving plate with the tracks A 1 A 2 and the three hinged troughed sections B 1 B 2 B 3, provided with studs a 1 a 2 a 3 passing into the longitudinally grooved tracks A 1 A 2. 6th. The combination, with the section B 1, of the clamps D, the springs a 2, the studs c 1, the flanged stud d 1 and the swinging fork c 4, provided with outwardly bevelled prongs d, and whereby the upper ends of the clamps D D are separated to receive the fish. 7th. The combination, with the section B 2, of the clamps D, the springs a 2, the studs c 2 passing through slots a 5, the flanged stud d 2 and of the longitudinally slotted heart plate c 5 pivoted to the lower edge of section B 3. 8th. The combination, with the section B 3, of the clamps D, the springs a 2, the studs c 3 passing through slots a 6, and of the converging curved arms b 5 pivoted to a cross-bar D 3 of the machine. 9th. The combination, with the plate B having a trough or furrow, of the pivoted trough-shaped bar K 1 carrying the hook-shaped knives and serving also to assist in holding the fish. 10th. The combination, with the knife E, the spring E 1, the chain F, the loose pulley F 1 provided with a notch e 1, of the spring lever F 1 pivoted in the shaft G, and of the bevelled stud e 2 on the frame of the machine and for the purpose of automatically releasing the knife. 11th. The combination, with the reciprocating frame J sliding in tracks A 1 above the fish receiving plate B, of the hook-knife K fastened to an arm K 1, pivoted to the lower edge of the sliding frame J. 12th. The combination, with the sliding frame, of a hook-knife attached to the end of a bar pivoted to the lower edge of this frame. 13th. The combination, with the sliding frame J, of the hook-knife K pivoted to the plate J. 14th. The combination, with the plate J, the standards M 1 L 2 and pivoted hook-knife bar K 1, of the rod L, the lever L 1, the lever M pivoted to the inner end of the lever L, the rod R 1 and of the scoop-knife R, for the purpose of automatically adjusting the position of both knives K and R by the thickness of the fish. 15th. The combination, with the plate J, the standard M 1 L 2 and pivoted hook-knife bar K 1, of the rod L, the lever L 1, the lever M, the rod R 1, the scoop-knife R, for the purpose of adjusting the scoop-knife R according to the thickness of the fish. 16th. The combination, with the levers N O and the guide plate P, of a series of strips or bars p, arranged longitudinally and parallel to each other to form slots between each other, and provided with a bevelled diagonal transverse bar Z on the outer side, in combination with the lever having at one end the stud j. 17th. The combination, with the standards L 2 M 1, the plates J P and the pivoted hook-knife bar K 1, of the rod L, the lever L 1, the lever M having a pin j attached to the outer end of the lever N O, for the purpose of automatically adjusting a drop-knife to cut the backbone of the fish at half its length according to the thickness of the fish. 18th.

The combination, with the sliding frame J and the shaft S, of the pinion h^2 , the rack u , the spring w^1 and of the drop-knife U having a notch u , for the purpose of raising the drop-knife U by the movement of the frame J. 19th. The combination, with the longitudinally slotted guide-plate having a transverse piece in the centre of a lever having a stud fitting into the guide slots at the end and pivoted to move up and down a lever to move up and down, and a lever to move sidewise a drop-knife with a notch or aperture, and a spring for forcing the knife downward. 20th. The combination, with the scoop-knife R, the frame J and the drop-knife U having a stud x^2 , of the annular guide arm z^2 attached to the scoop-knife R, for the purpose of regulating the depth to which the drop-knife U cuts.

No. 16,412. Improvements on Fire-Escapes.
(*Perfectionnements aux sauveteurs d'incendie.*)

William Addison and William Farmer, Hamilton, Ont., 28th February, 1883; for 5 years.

Claim.—The wire rope R wound round the drum I which is lowered by the action of the spring K, both revolving on the shaft E and wound up by the crank handle T, said shaft E having its bearings F on the frame D secured to the wall over the window frame, in connection with the ratchet J and clutch L, and all contained inside of the iron truss C forming part of the window cornice, also the operating wire M with the bell attachment and the looped strap W.

No. 16,413. Improvements on Drags for Stopping Ships and Other Vessels.
(*Perfectionnements aux tratneaux pour arrêter les navires et autres vaisseaux.*)

John McAdams, Brooklyn, N. Y., U. S., 28th February, 1883; for 5 years.

Claim.—1st. The combination, with a vessel, of fins or blades pivoted at one edge to the sides thereof and connected with mechanism by which they can be simultaneously turned on the pivoted edges to swing on their free edges against the sides of the vessel and in front of their pivoted point, and connected devices for locking the fins in their folded position but adapted to simultaneously release them, whereby the water by the progress of the vessel will be forced between the hull and fins, and act to throw them rearward to a position transverse to the vessel. 2nd. As a means for stopping vessel, the pivoted elastic fins or blades adapted to swing forward to fold against the sides of the vessel, with their free edges in front of their pivotal connection with the vessel, the elasticity of the fins or blades permitting them to conform to the sides of the vessel, when folded by suitable mechanism, and to spring away from the side of the vessel when released. 3rd. The combination, with a vessel, and fins, or blades connected with the sides thereof, by pivots upon which they are adapted to swing outward and inward, of a locking device for holding said fins or blades inward, against the sides of the vessel, and a lever or feeler depending in front of the bow and connected with said locking device. 4th. The combination, with a vessel of hinged fins or blades C, the windlass G and pawl J for operating them and holding them inward, and the lever or feeler K and adjustable section K^1 connected with said pawl. 5th. The combination, with a vessel, of the hinged fins or blades C, the windlass G and pawl J, and the movable bow sprit or spar L connected with said pawl. 6th. The combination, with a vessel, of the fins or blades connected with the sides thereof by pivots, upon which they are adapted to swing outward and inward, and braces hinged to the outer portions of the fins or blades and to the sides of the vessel forward of the fins or blades, and each composed of hinged sections adapted to fold between the fins or blades and the sides of the vessel. 7th. The combination, with a vessel, of the hinged fins or blades C, the hinged sectional braces E^1 , and the strap F on which said braces may slide.

No. 16,414. Improvements on Feeding Apparatus for Grain Mills and Dressing Machines.
(*Perfectionnements aux appareils d'alimentation des moulins à blé et des machines à dresser les grains.*)

John Hurt, Glasgow, Scotland, 28th February, 1883; for 15 years.

Claim.—1st. The arranging and combining of the parts of apparatus for feeding grain, or other similar material, to grinding or crushing rolls or to similar machines. 2nd. In apparatus for feeding grain, or other similar material, to grinding or crushing rolls, or to similar machines, the fitting over the feeding roll of an oscillating hopper balanced by a spring, or springs, or by their weight levers, or weights, to regulate the flow or feed of the material from the hopper.

No. 15,415. Improvements in Safety Valves.
(*Perfectionnements aux soupapes de sûreté.*)

William E. Pearson, Boston, Mass., U. S., 28th February, 1883; for 5 years.

Claim.—1st. In a safety valve device, the combination of the valve B with the piston C having an annular lateral opening, and an adjustable cylinder C3. 2nd. In a safety valve device, the combination of the piston C and adjustable cylinder C3, with the recurved wall of the chamber S.

No. 16,416. Improvements on Pipe Cutters and Wrenches.
(*Perfectionnements aux decoupoirs et aux clés à tuyaux.*)

Joseph W. Calef, North Easton, Mass., U. S., 28th February, 1883; for 5 years.

Claim.—1st. The wrench stem B having notches b , handle A recessed at a , an angular head I, flanges H and a slotted part, or breast, between the notches b and lower end of the flanges H. 2nd. The combination of the slotted wrench stem A B having notches b , threaded bolt C C1, thumb-nut D, washer d , sliding bit block F adapted to receive a removable bit or jaw, and toggle joint E E1 or its equivalent.

No. 16,417. Improvements on Boulder Grapples.
(*Perfectionnements aux grappins à cailloux.*)

John Marshall, Cordova, Ill., U. S., 28th February, 1883; for 5 years.

Claim.—1st. The combination of the hook-armed yoke e , hook pointed fork f and connecting hook and chain k l. 2nd. The fork f , having hitching chain h and back-stay plank j , in combination with the hook-armed yoke e , connecting chain k and hook l .

No. 16,418. Improvements on Grain Binders.
(*Perfectionnements aux lieuses à grain.*)

Fred A. Dennett, Milwaukee, Wis., U. S., 28th February, 1883; for 5 years.

Claim.—1st. A flap hinged to the frame work of a grain-binder and supported by a spring in position to receive the grain as a bundle is being collected and formed. 2nd. The combination, of a hinged flap C and spring e . 3rd. The hinged flap having a bearing plate e secured to it, in combination with a spring C.

No. 16,419. Bark Rossing and Cutting Machine.
(*Machines à concasser et couper l'écorce.*)

Samuel R. Thompson, Brookline, Mass., U. S., 28th February, 1883; (extension of patent No. 8485.)

No. 16,420. Improvements on Harrows.
(*Perfectionnements aux hersees.*)

George Jackson, Boscobel, Wis., U. S., 28th February, 1888; for 5 years.

Claim.—The combination of a number of sections A, each one of which is composed of a number of beams or bars B of unequal length, with the pivotal rods E which pass diagonally through the ends of the beams.

No. 16,421. Improvements on Rotary Engines.
(*Perfectionnements aux machines rotatoires.*)

Henry W. Potter, Titusville, Penn., U. S., 28th February, 1883; for 5 years.

Claim.—1st. The combination, with an outer case having suitable ports and an inner slotted cylinder journaled eccentrically within said case and provided with adjustable pistons, of a fixed pin for the attachment of the piston boxes, said pin consisting of a shaft C, concentric with the outer case and having an enlarged eccentric head C1 concentric with the inner cylinder, said head C1 being detachably concentric with the outer case and adapted to form a bearing for one head of the inner cylinder. 2nd. The combination of the outer case having suitable ports, an inner slotted cylinder journaled eccentrically within said case, a fixed crank pin having an eccentric head or bearing, adjustable pistons journaled on the shaft of said pin, concentrically with the outer case and eccentrically with the inner cylinder, and the adjustable plate or abutment, arranged at the upper chambered portion of the outer case.

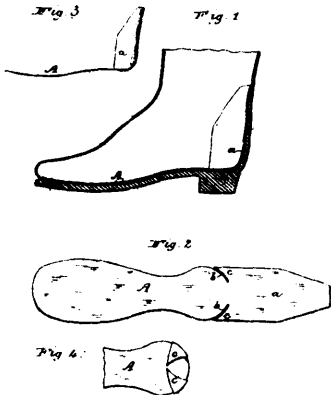
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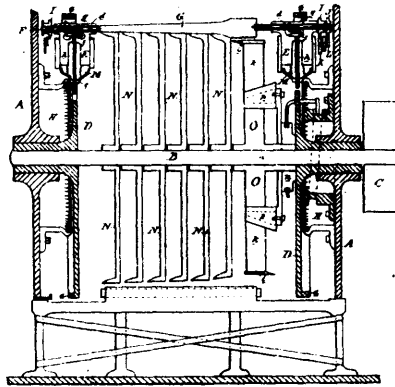
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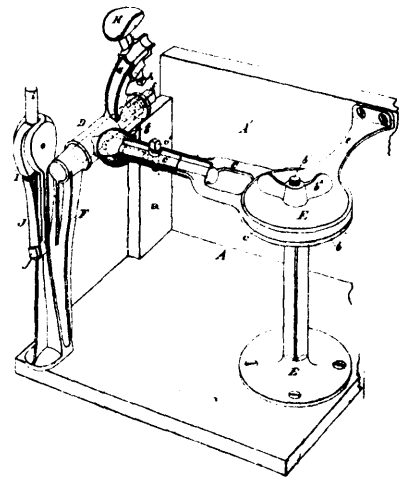
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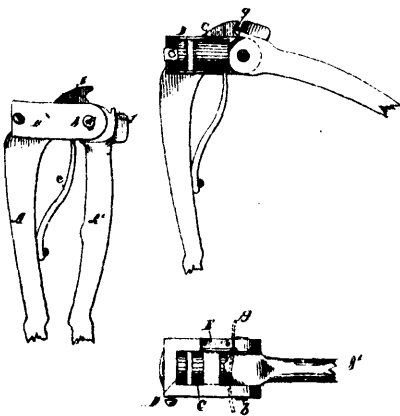
18242 Schenck's Improvements on Combined Insole and Heel Protectors.



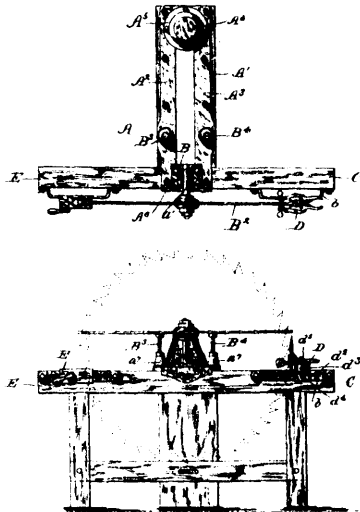
18243 Lenhart's Improvements on Lathes.



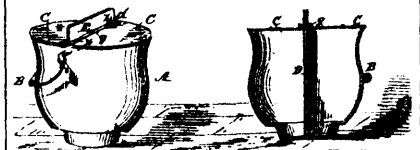
18244 Schipper & Dobel's Improvements on Shoemakers' Jacks.



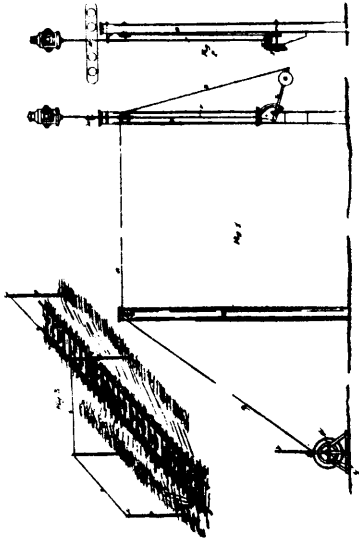
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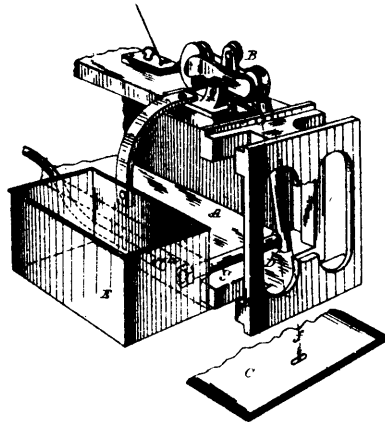
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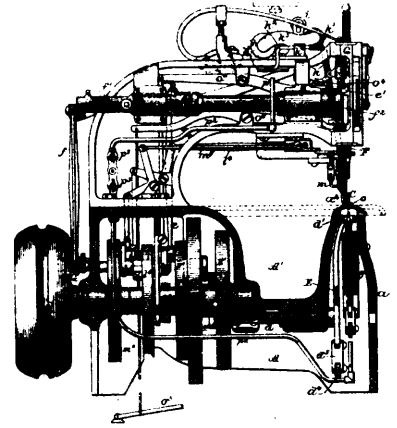
18247 Snyder's Improvements on Pots and Kettles.



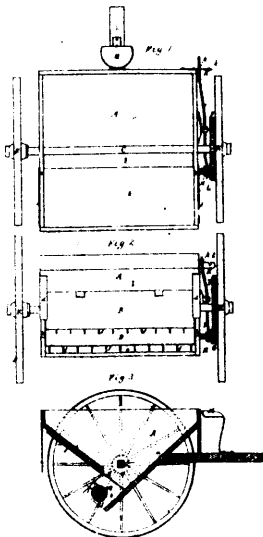
16248 Trites' Improvements on Railway Semaphores.



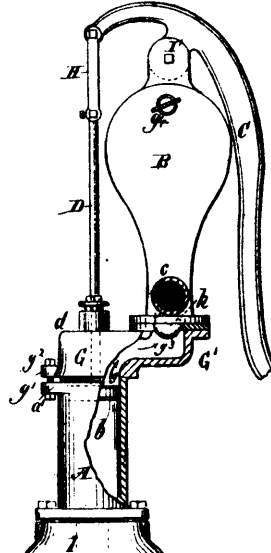
16249 Campbell's Improvements on Sewing Machines.



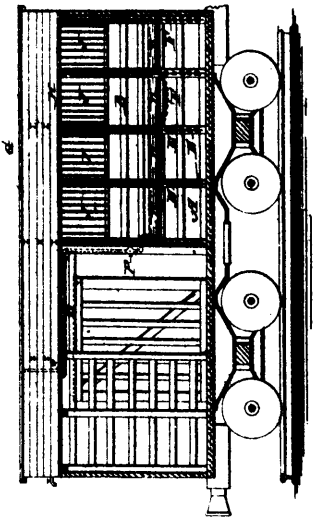
16250 Campbell's Improvements on Sewing Machines.



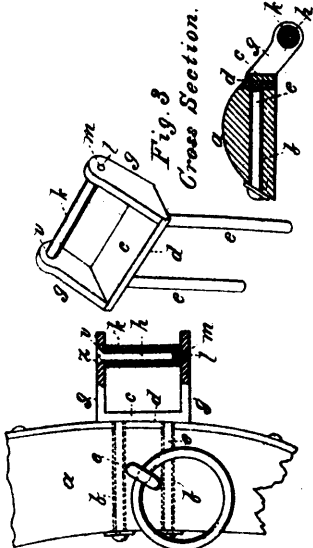
16251 Crandall's Improvement in Manure Spreaders.



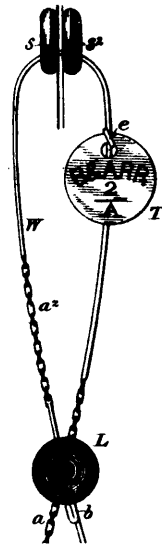
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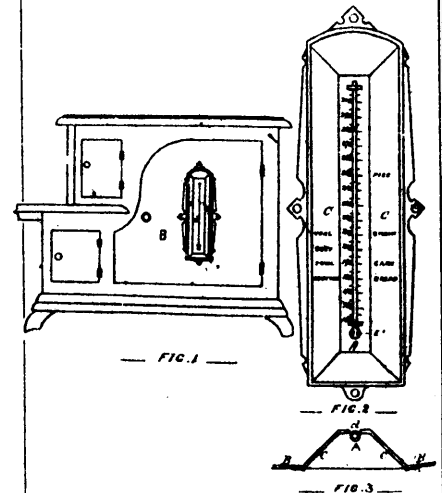
16255 Bothwell & Strugnell's Improvements on Stock Cars.



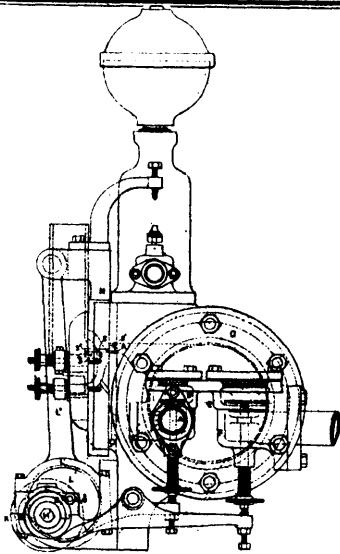
16258 Lange's Improvements on Harness Hames.



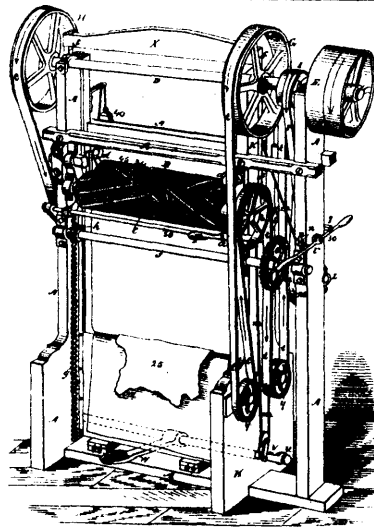
16267 Brooks' Improvements on Seals for Car Doors.



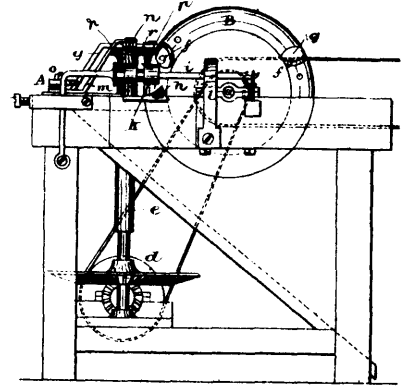
16258 Kinleyside & Wilson's Improvements on Cooking Stoves, Ranges and Ovens.



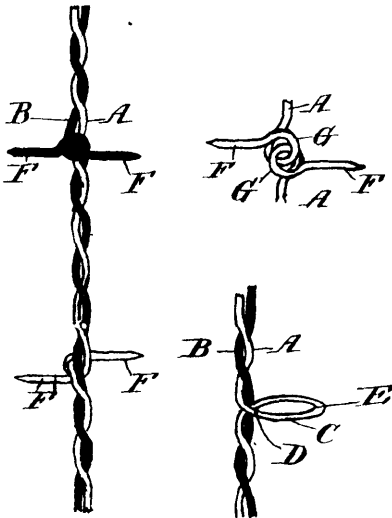
16261 Sumner's Improvements in Gas Motor Engines.



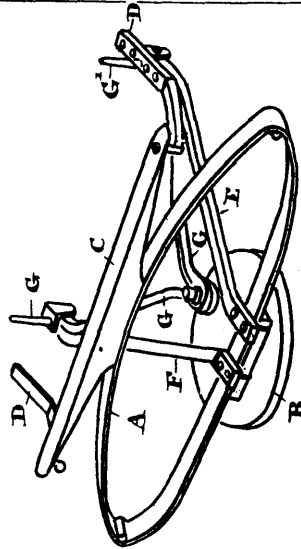
16262 Vaughn's Improvements on Putting out Machines.



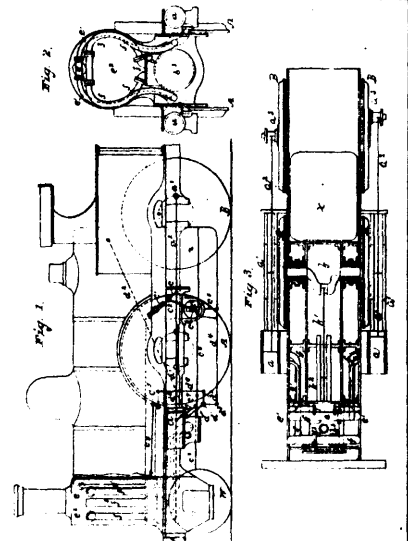
16265 Garner's Improvements on Machines for Dressing Hoops.



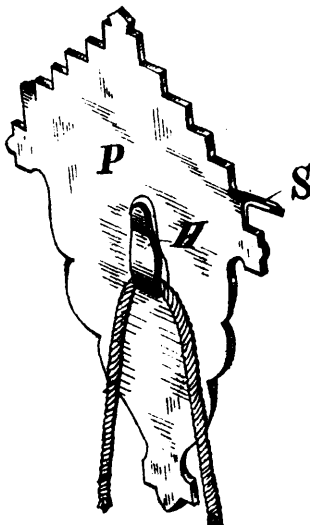
16270 Thom's Improvements in Wire Lines for Fences.



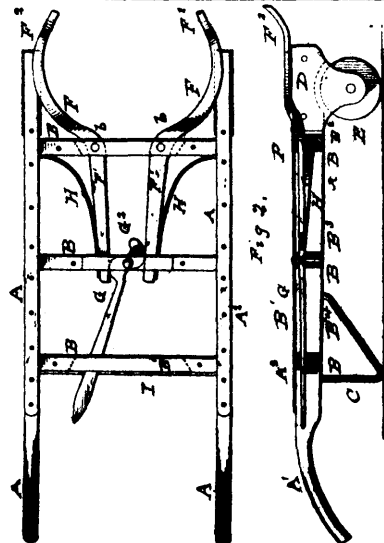
16273 Bartholomew's Improvements on Carriage Gear.



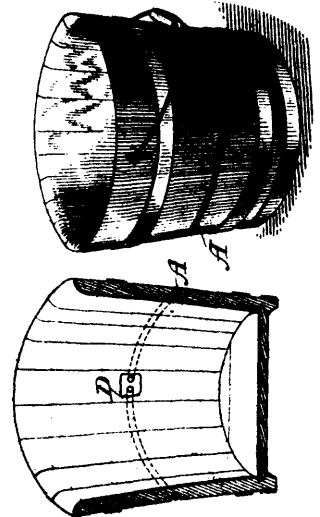
16274 Webb's Improvements on Locomotive and Traction Engines.



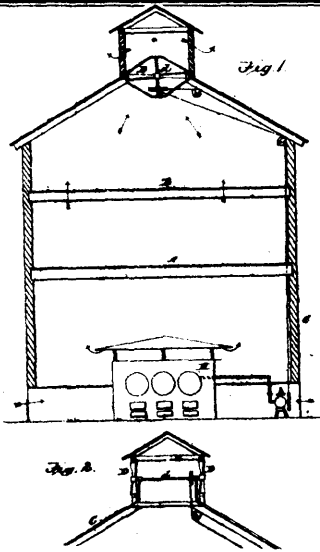
16275 Charbonneau's Improvements on Wall Clasps.



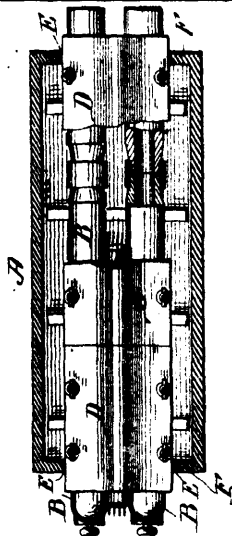
16276 Holman's Improvement on Hand Trucks.



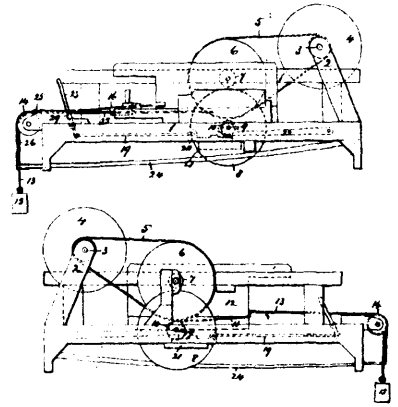
16278 Mann's Improvements in Falls.



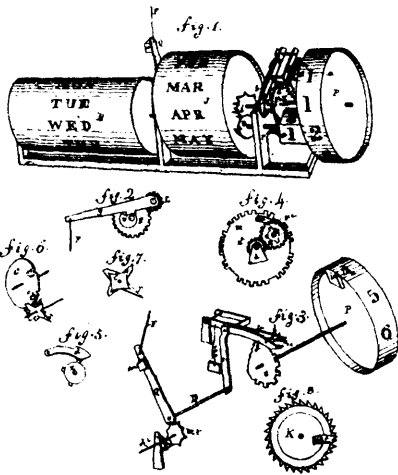
16279 Altenbrand's Improvement in Malt Houses and Malt Kilns.



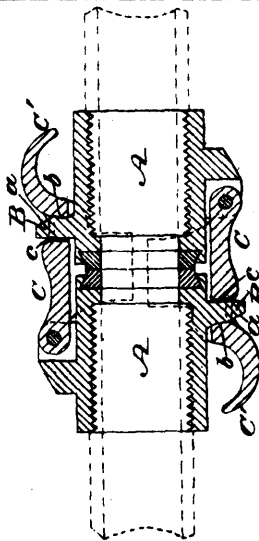
16280 Clark's Improvements in Vulcanizing India Rubber and Gutta Percha Coatings and Coverings for Telegraphic Cables.



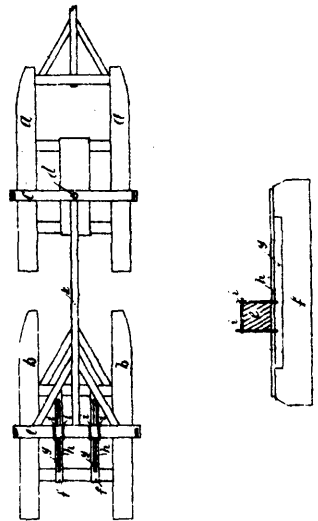
16283 Wyley's Improvements on Shingle Machines.



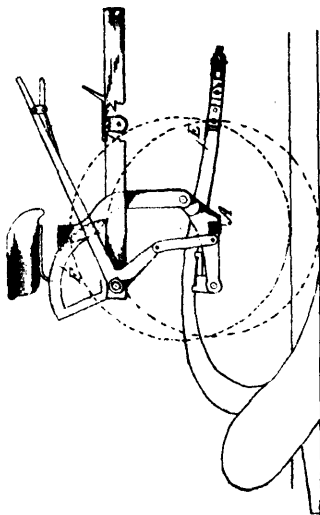
16284 Seem's Improvements in Clock Calendars.



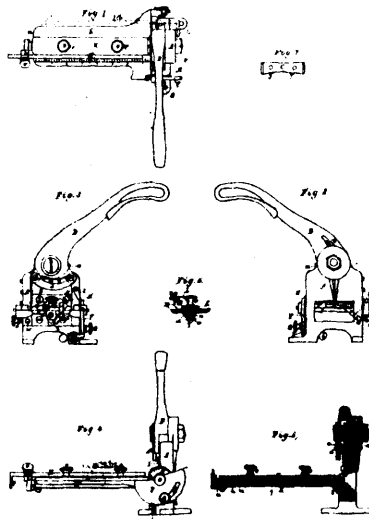
16285 Cassedy and Williams' Improvements on Pipe or Hose Couplings.



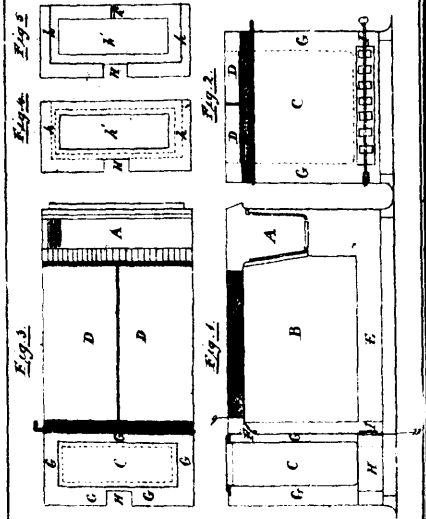
16286 Ash's Improvements on Bob Sleighs.



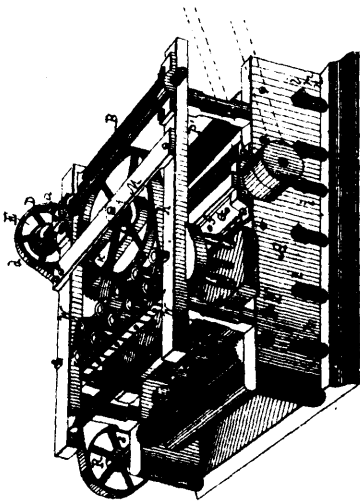
16291 Davenport's Improvements in Wheel Ploughs.



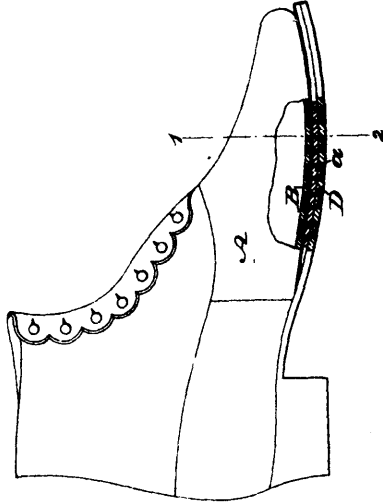
16292 Robson's Improvements in Machines for Cutting Printers' Rules.



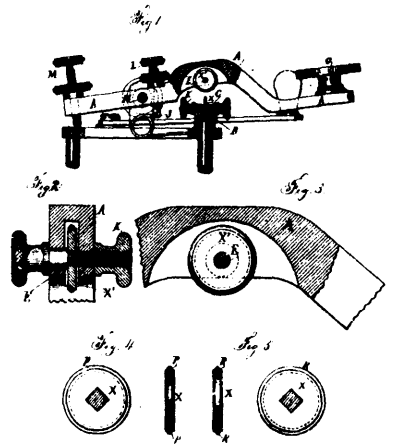
16294 Brake's Improvements on Cooking Ranges.



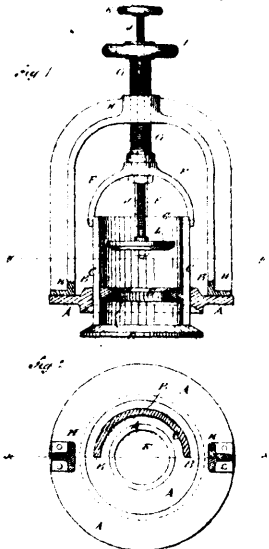
16295 Basset's Improvements on Machines for Dovetailing Lumber.



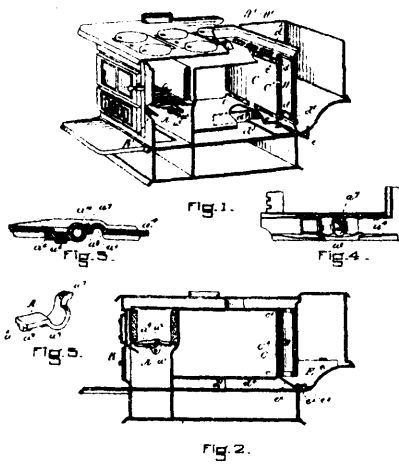
16296 Buckley's Improvements in the Manufacture of Boots and Shoes.



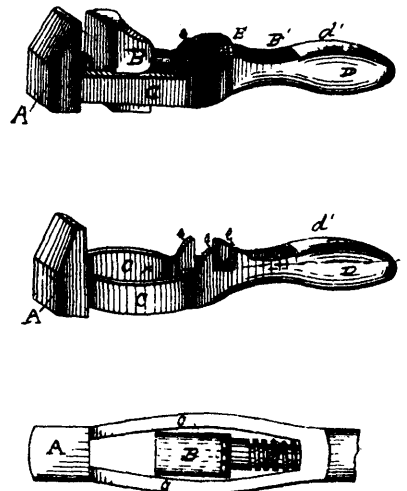
16297 Cumming's Improvements in Electrodes for Telegraph Instruments.



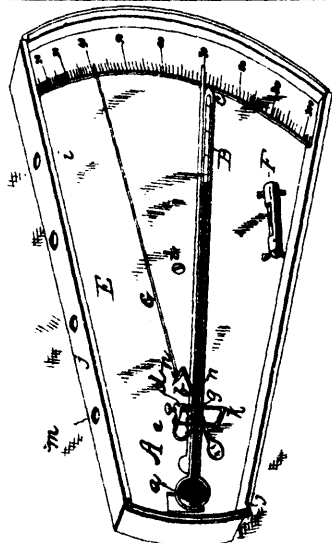
16298 Cordes & Keating's Improvements on Bilge Water Valves for Ships.



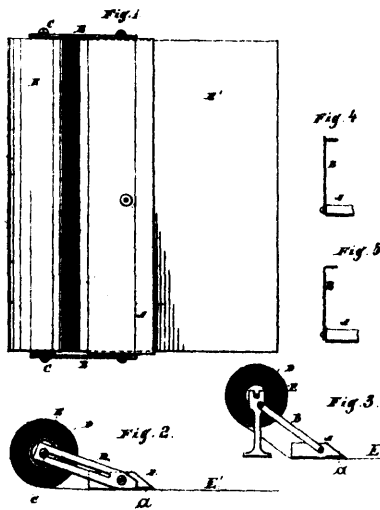
16299 Anthony's Improvements on Cooking Stoves and Ranges.



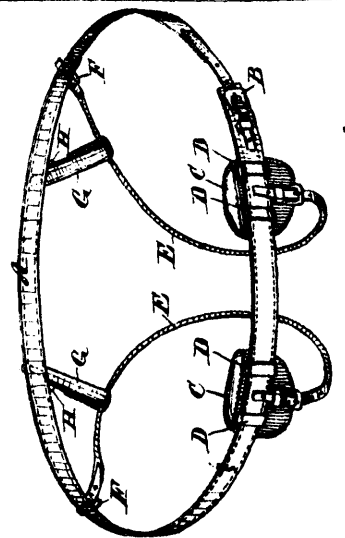
16300 Miller's Improvements on Monkey Wrenches.



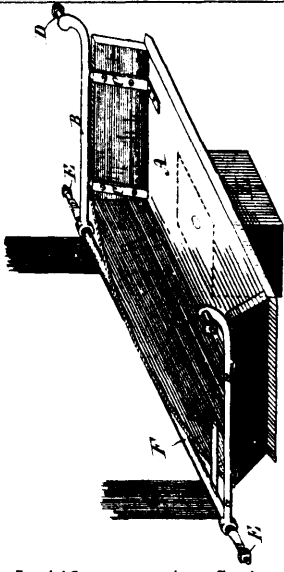
16301 Kirk & Brayton's Improvements on Balanced Thermometers.



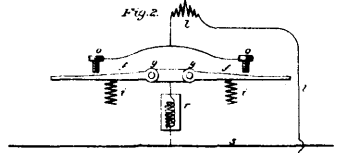
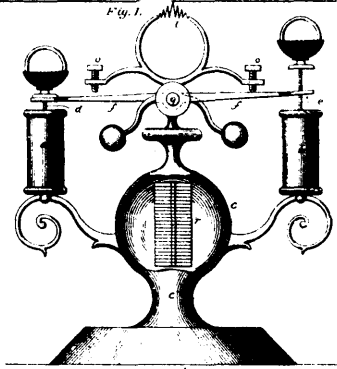
16302 Jerome's Improvement in Devices for Tearing Wrapping Paper.



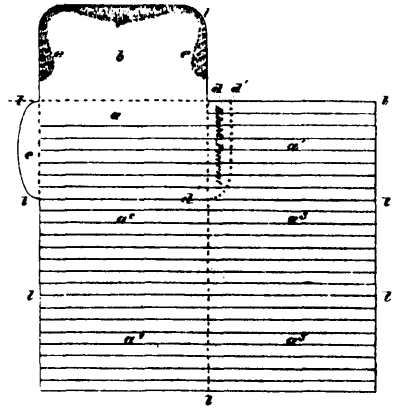
16303 Parker's Improvements on Surgical Trusses.



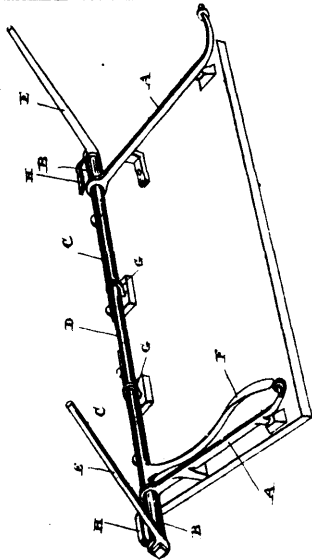
16304 Lewis' Improvements on Carriage Seats.



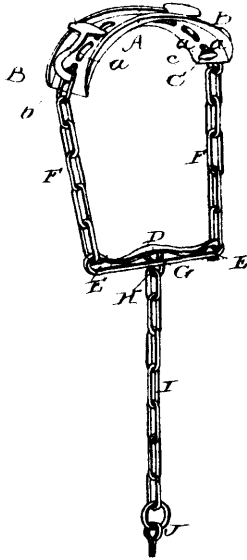
16305 Mott & Stern's Improvement in Cigar Lighters.



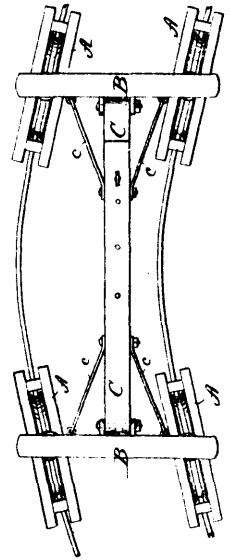
16307 Stevens & Moore's Improvements on Combined Envelopes and Letter Sheets.



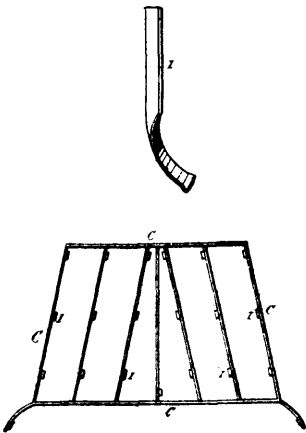
16308 McLaughlin's Improvements on Buggy Tops.



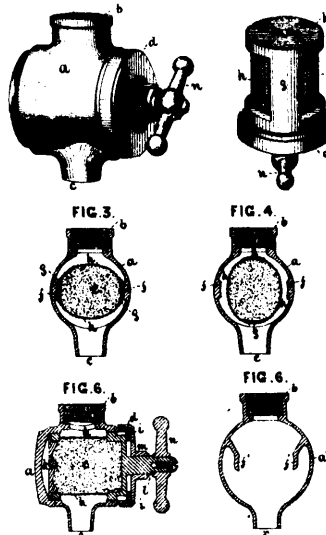
16809 Bynell's Improvements on Cattle Ties.



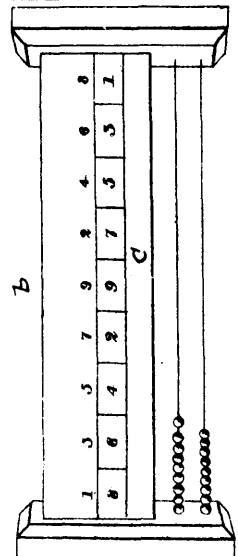
16310 Blackman's Improvements on Car Trucks.



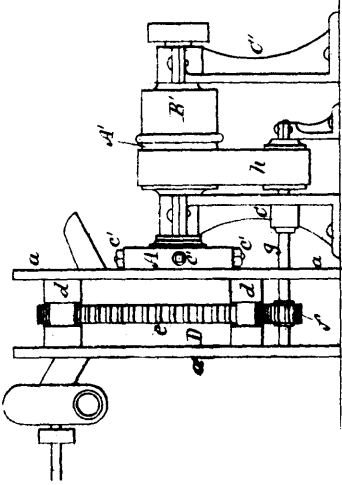
16311 Mooney's Improvements on Cultivators.



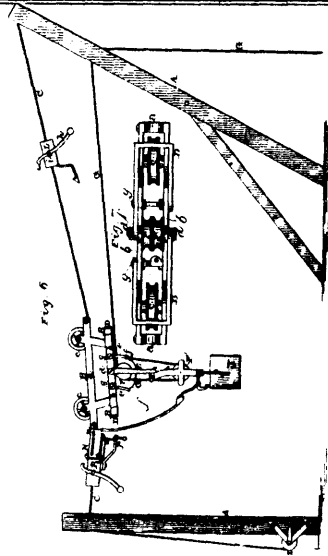
16312 Smart's Improvements on Water Filters.



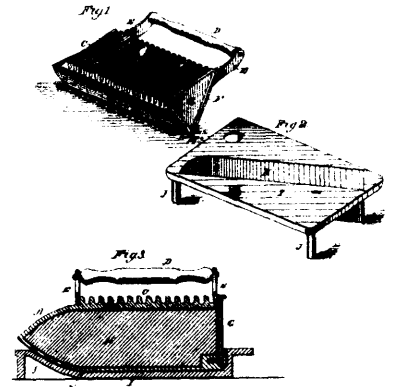
16313 Martin's Improvements on Calculators.



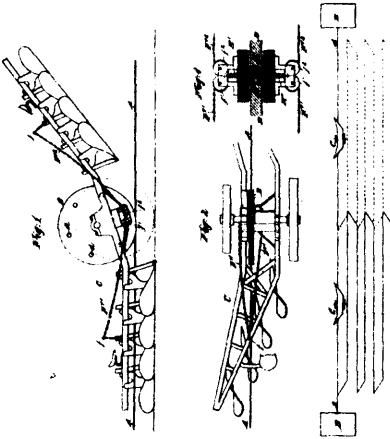
16314 Sturtevant's Improvements in Attrition Mills.



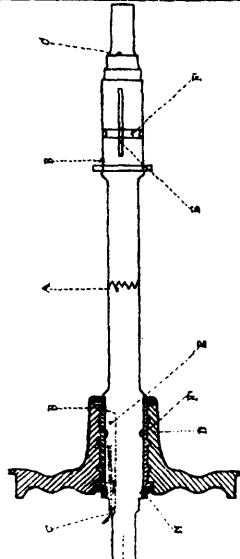
16315 Clarkson's Improvements in Hoisting and Conveying Apparatus.



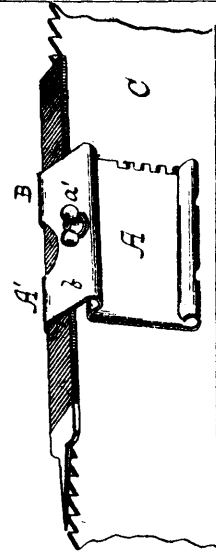
16318 Ellis' Improvements on Combined Fluting and Sad Irons.



16319 Greig's Improvements on Steam Ploughing Machines.



16320 Southworth's Improvements on Car Wheels and Axles.



16321 Church's Improvements on Saw Jointers.

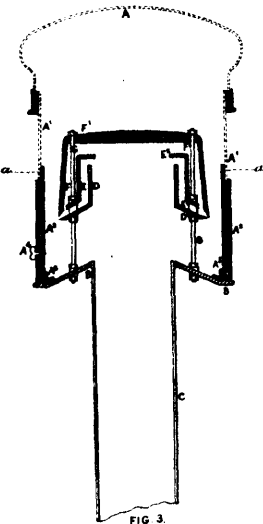
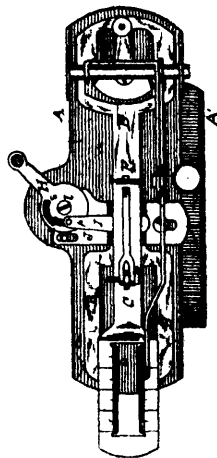
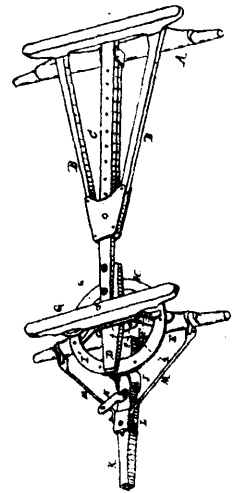


FIG. 3.

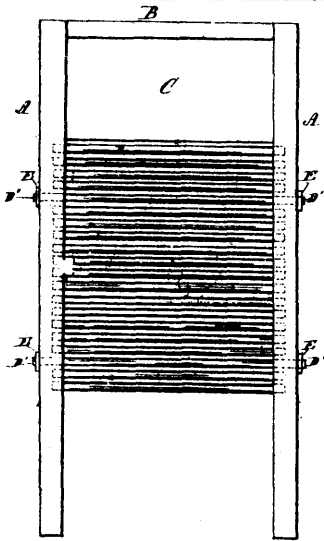
16322 Howling's Improvements in Spark-Arresters.



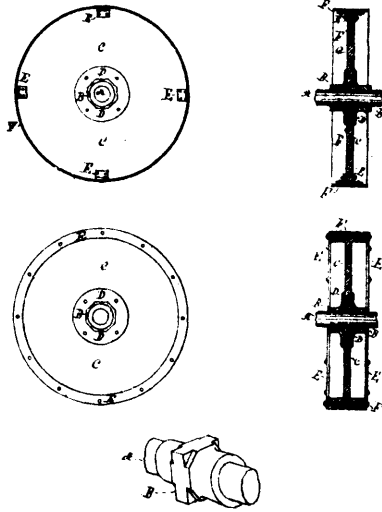
16323 Harris' Improvements on Sewing Machines.



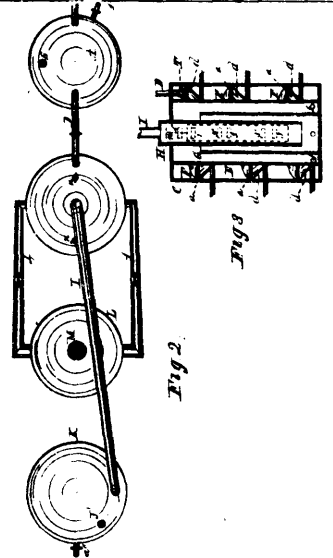
16324 Beach's Improvements on Running Gear for Waggon.



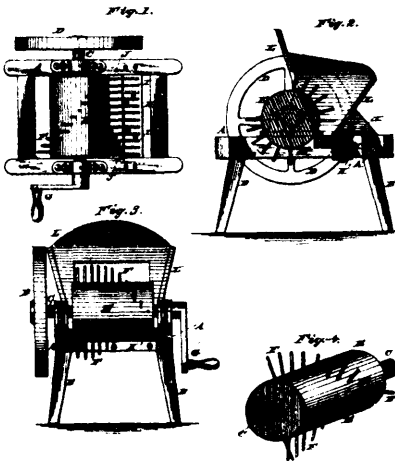
16325 Van Dyke's Improvement in Washboards.



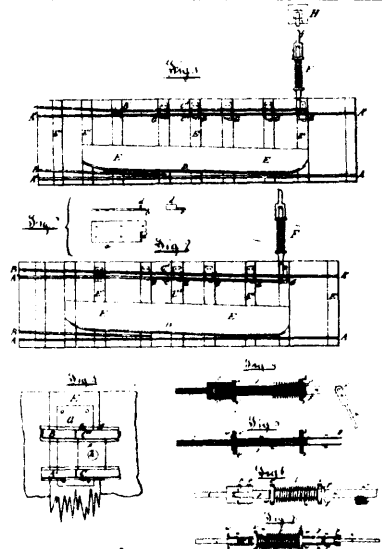
16326 Martindale's Improvements on Belt Pulleys.



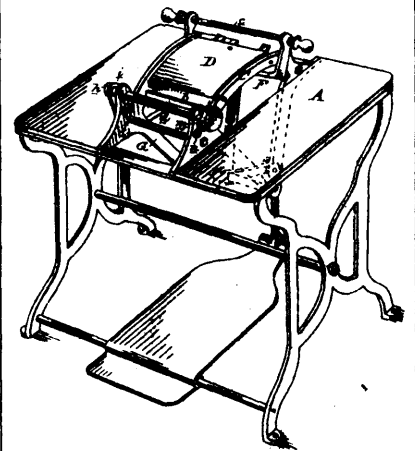
16327 Rogers' Improvements on Apparatus for Separating Refined Petroleum or its Distillates into different Gravities, Grades and Fire Tests.



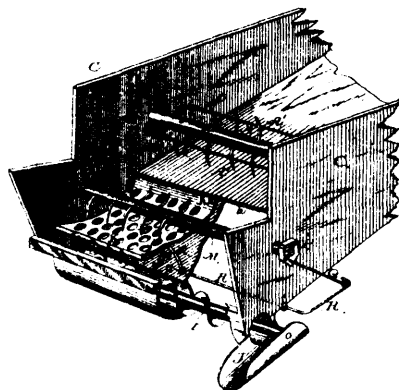
16328 Moris' Improvements on Cutting Machines.



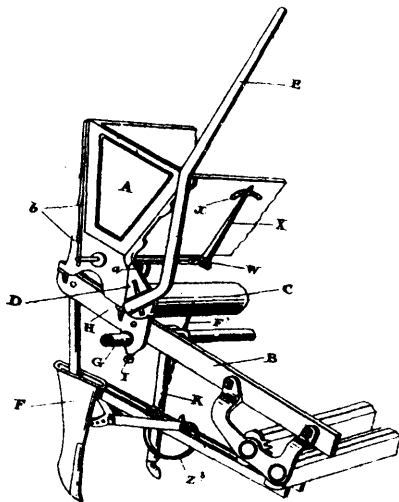
16329 Scheffer's Improvements in Railway Switches.



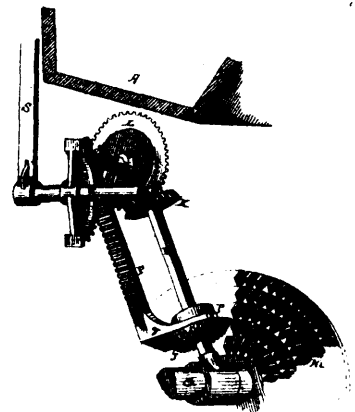
16330 Moeb's Improvements on Cigar Bunching Machines.



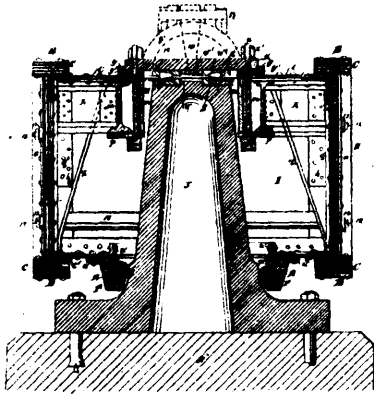
16331 McLean's Improvements on Grain Separators.



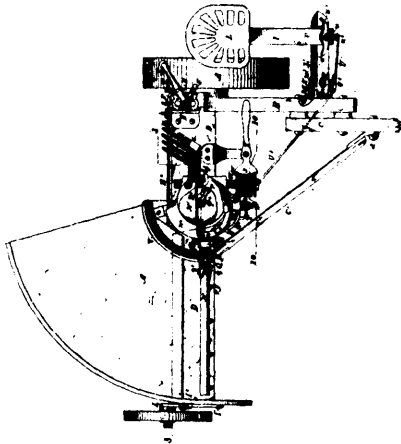
16334 Coulthard & Larsen's Improvements on Combined Seed Drill and Broadcast Sowers.



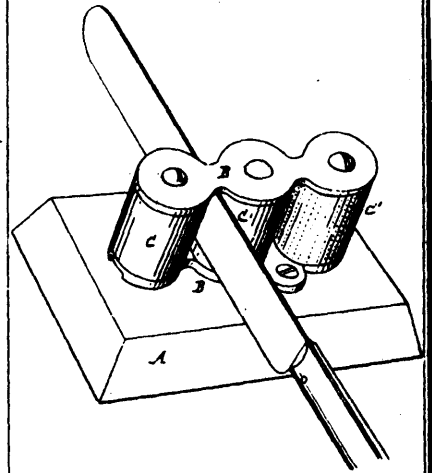
16335 Patric's Improvement on Seed Planters.



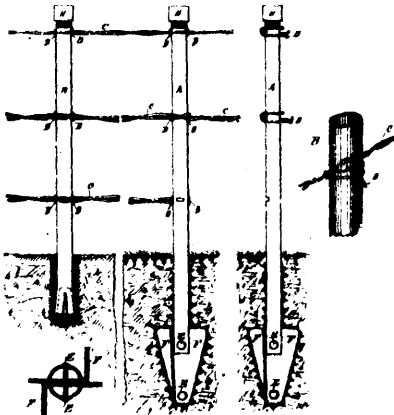
16336 Greenleaf's Improvements on Turn Tables.



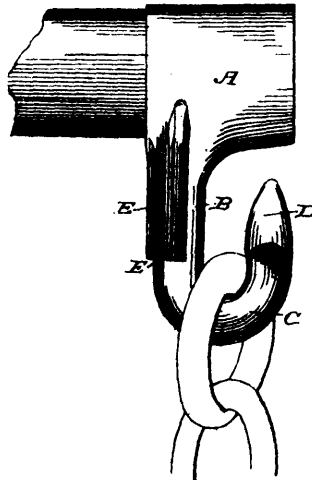
16337 Bramer & Crowley's Improvements on Harvesters.



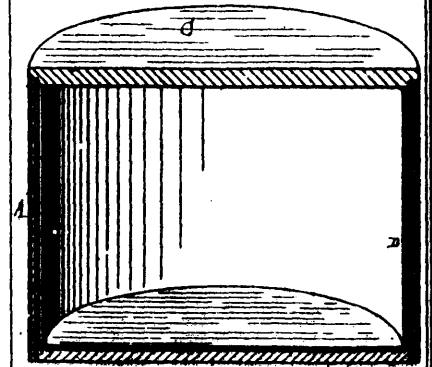
16338 Kinzey's Improvements on Knife Scourers.



16340 Martel & Macpherson's Improvements on Wire Fences.



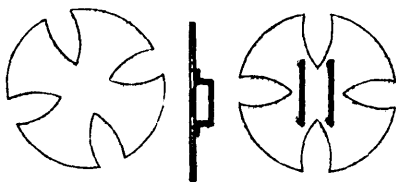
16341 Hill's Improvements on Whippetree Hooks.



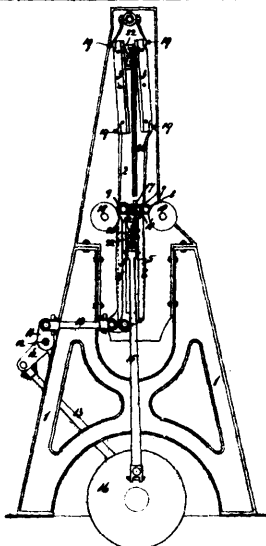
16342 Tomlinson's Improvements on Butter Packages.



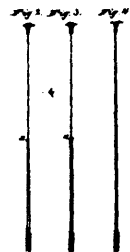
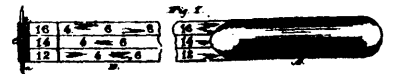
Fig. 1.



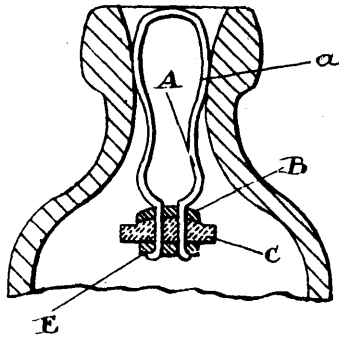
16345 Pfueger's Improvement in Horse Headlights.



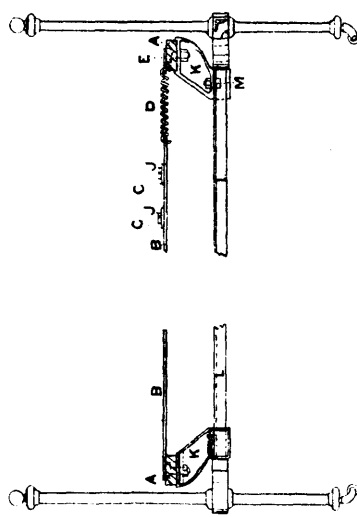
16348 Wilkin's Improvement on Reciprocating Saw Mills.



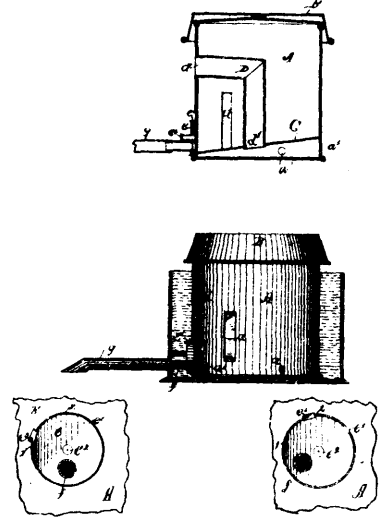
16347 Andrew's Improvement on Board Measures.



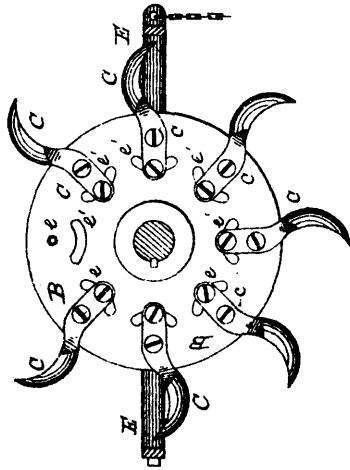
16348 Lewin's Improvements on Bottle Stoppers.



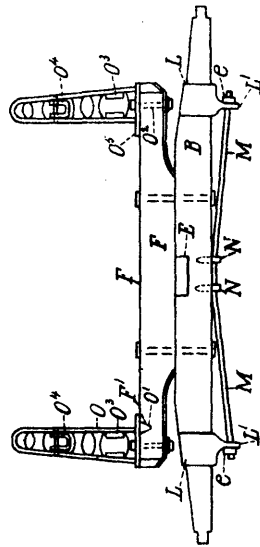
16349 Knowles' Improvements on Spring Mattresses.



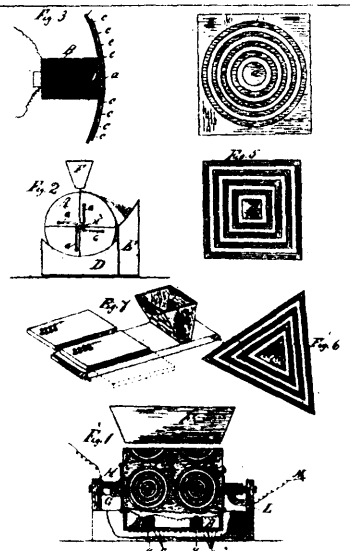
16350 Blais' Improvements in Creaming Vessels.



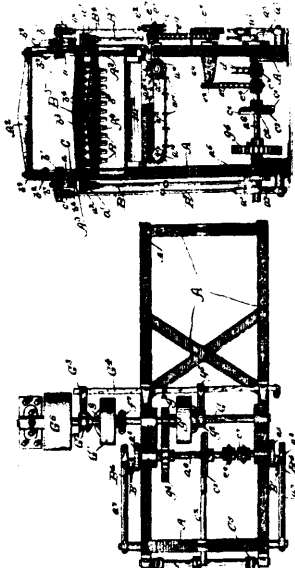
16351 Burr's Improvement on Boiler Dredgers.



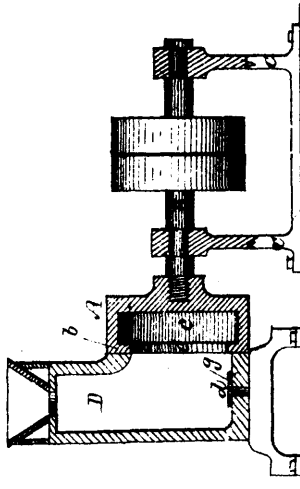
16353 Seaman's Improvements on Waggon Gearing.



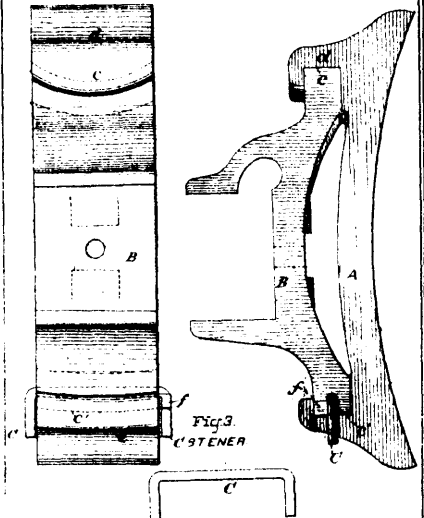
16354 Chapleau's Improvements in Magnetic Ore Separators.



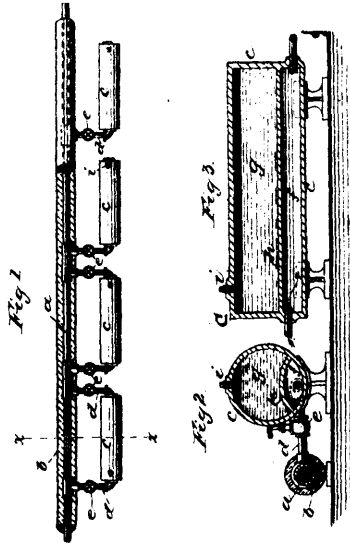
16355 Hall's Improvements in Lozenge Machines.



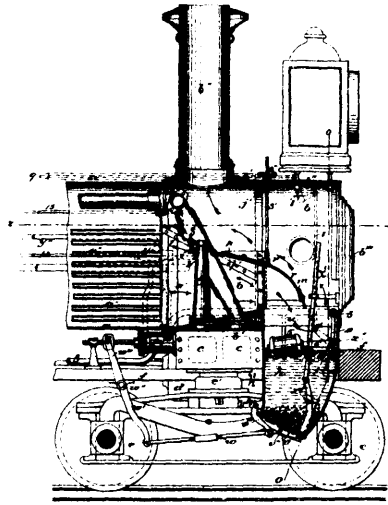
16356 Sturtevant's Improvements in Attrition Mills.



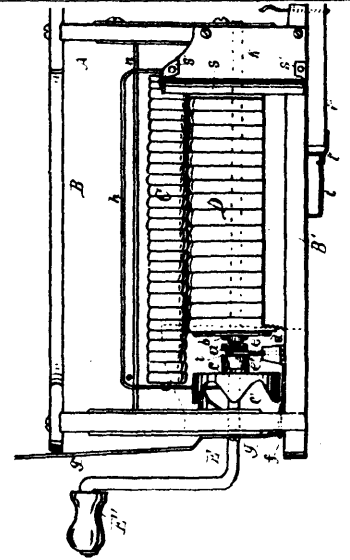
16358 Banning's Improvement on Car Brakes.



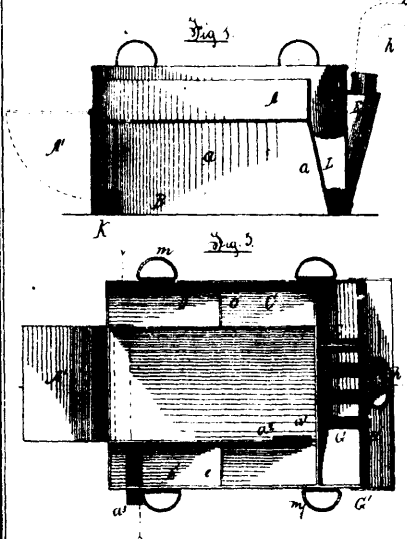
16359 Gold's Improvements on Steam Heaters.



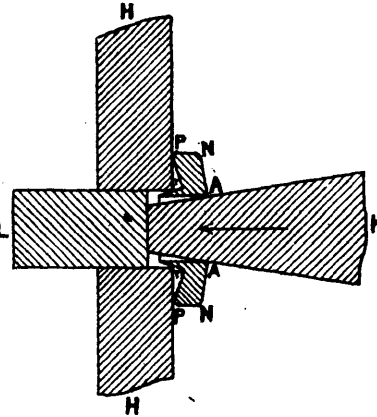
16360 Greosbeck's Improvements on Spark-Arresters.



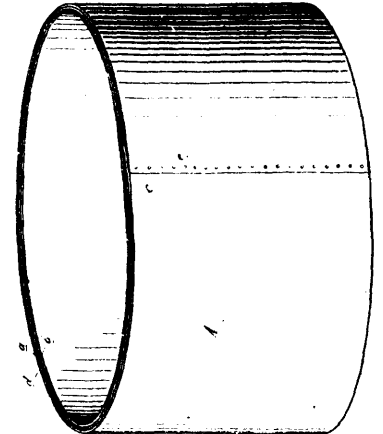
16361 Key's Improvements on Washing Machines.



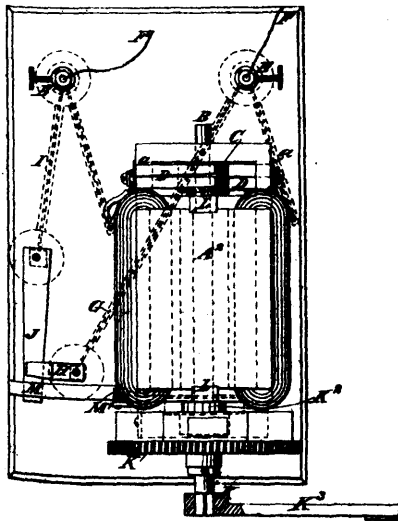
16362 Tupper's Improvements in Evaporators.



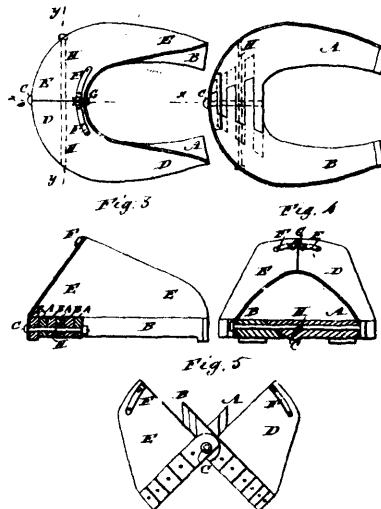
16363 Schmidt's Improvements in Tapping Rings.



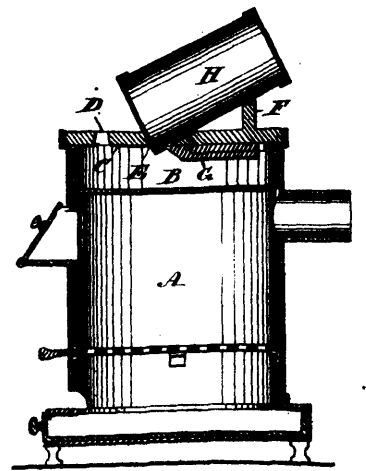
16364 Tomlinson's Improvements on Veneer Packages.



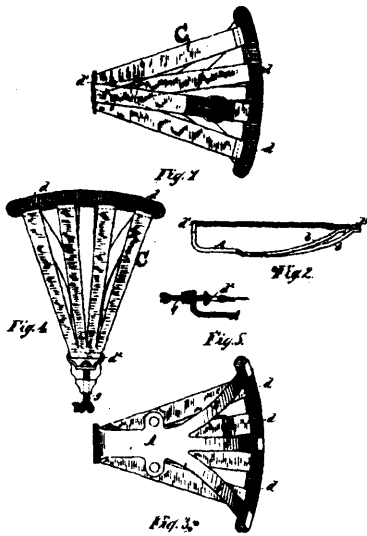
16365 Hardy's Improvements on Magneto-Electric Machines.



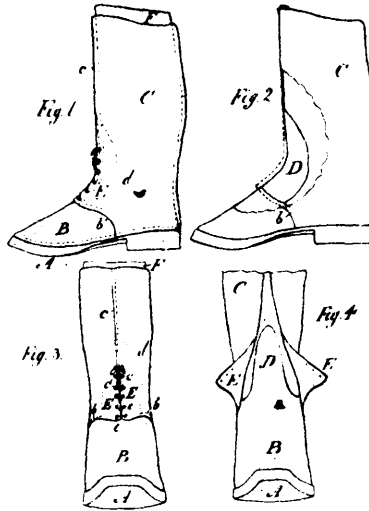
16366 Fenley's Improvements on Horse Shoes.



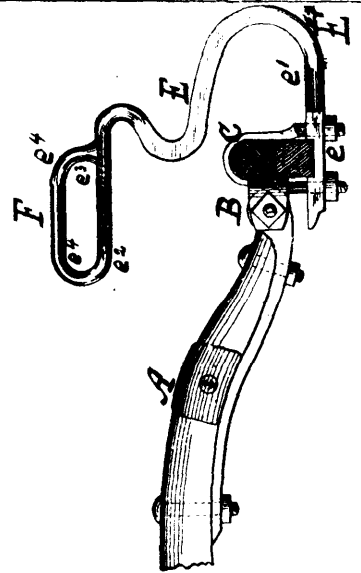
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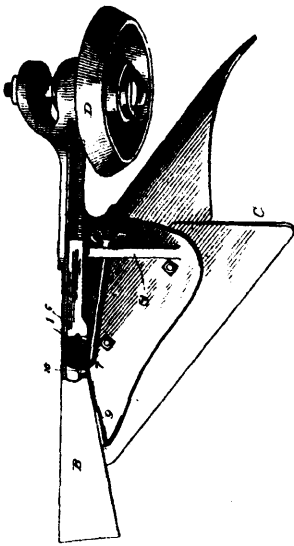
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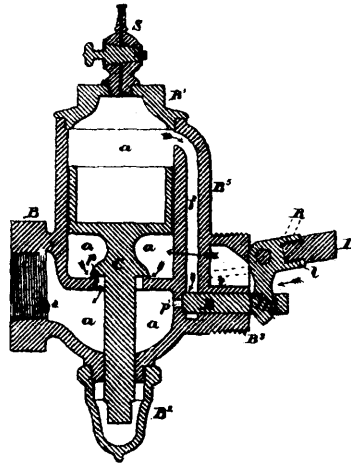
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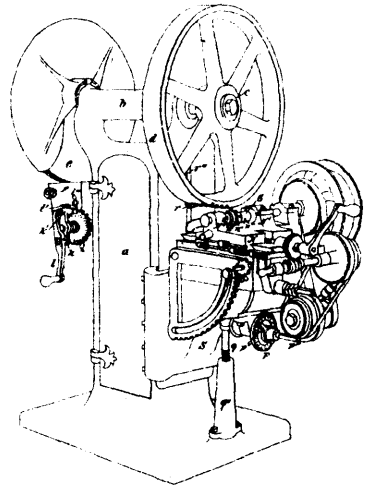
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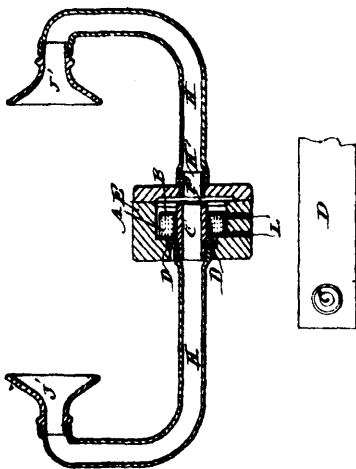
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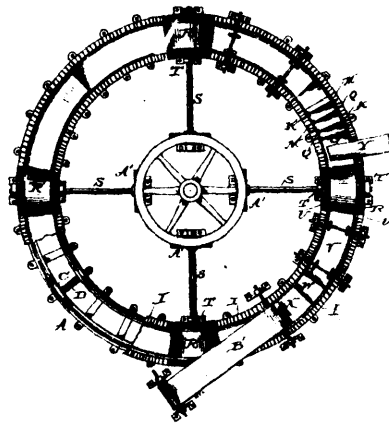
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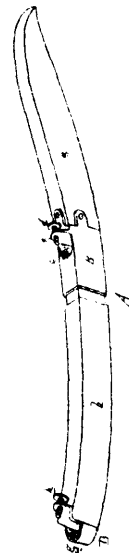
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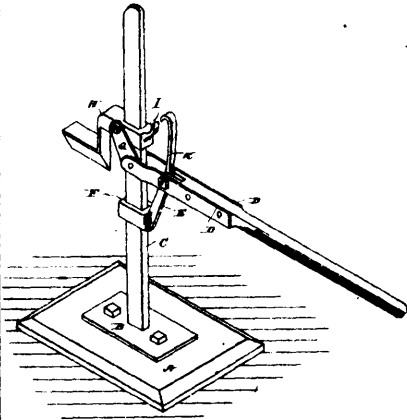
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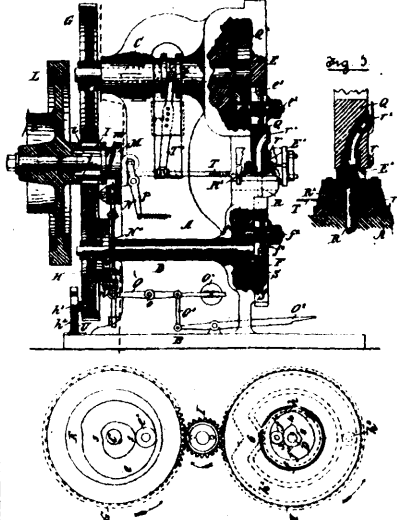
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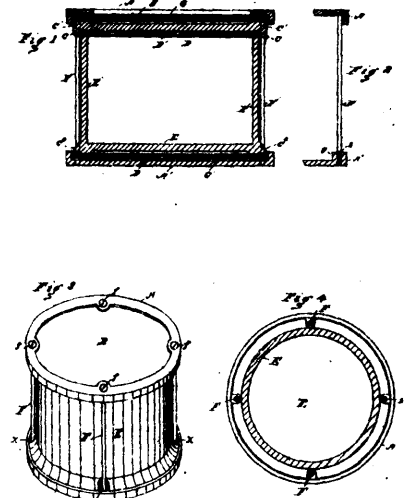
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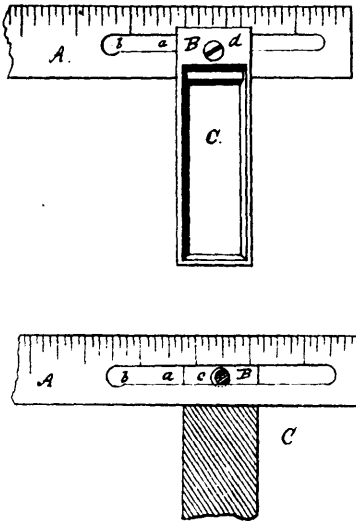
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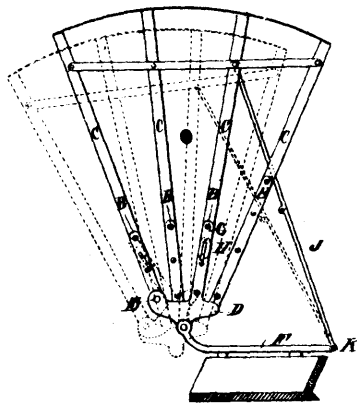
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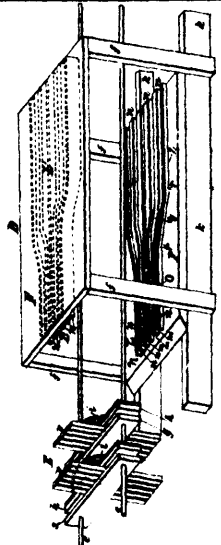
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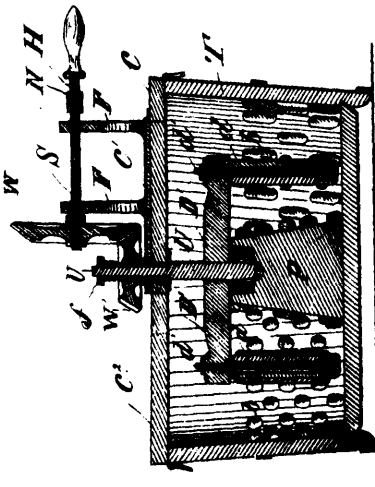
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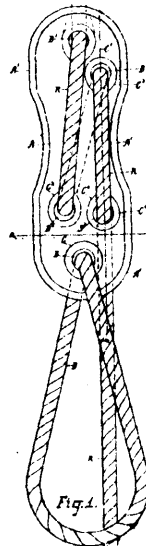
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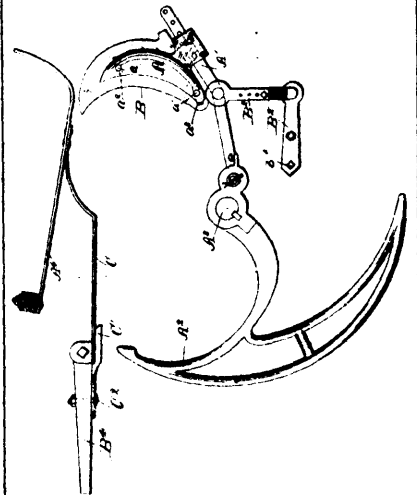
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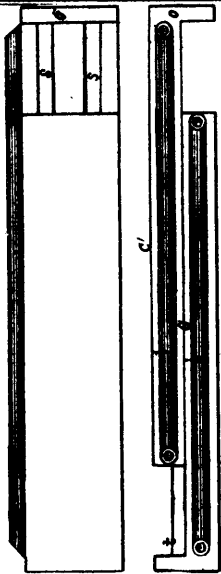
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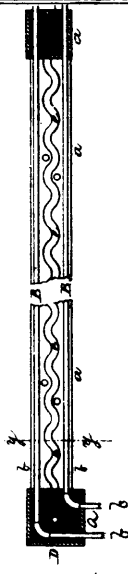
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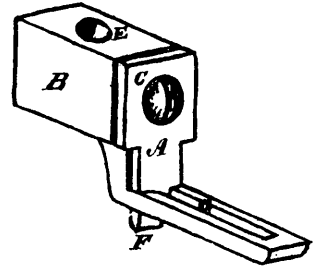
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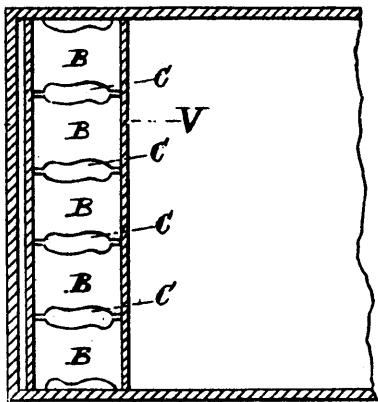
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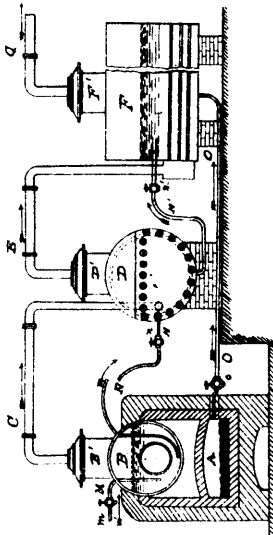
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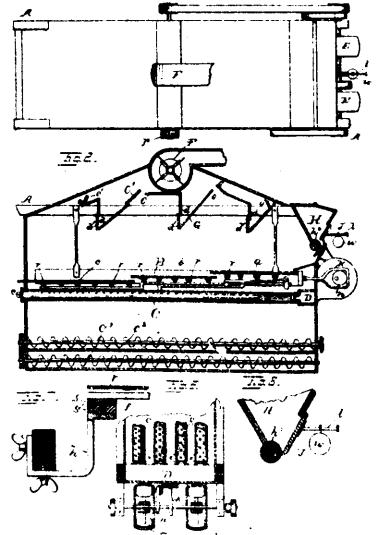
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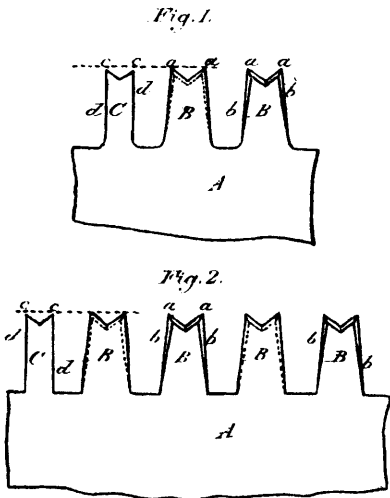
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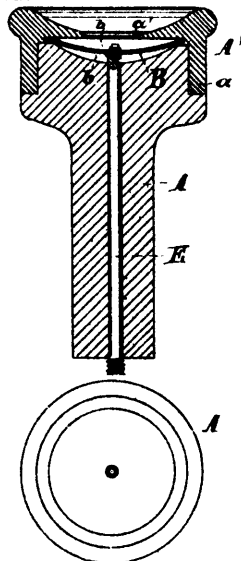
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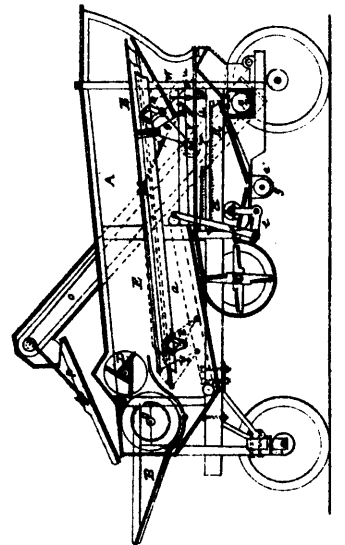
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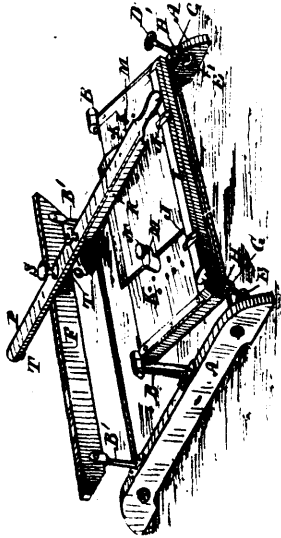
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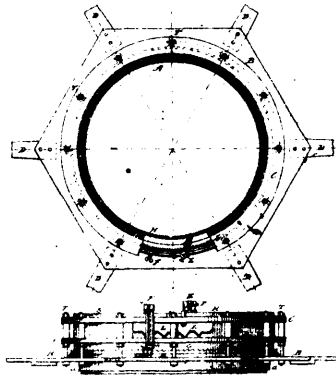
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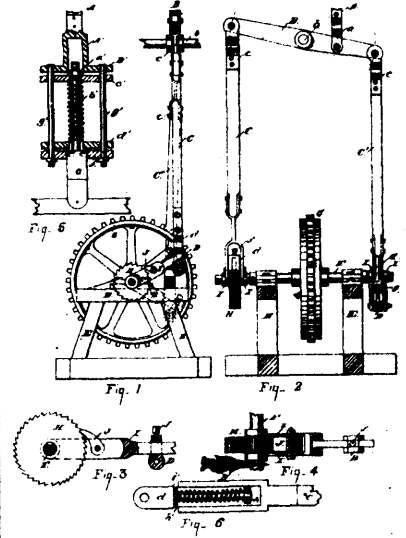
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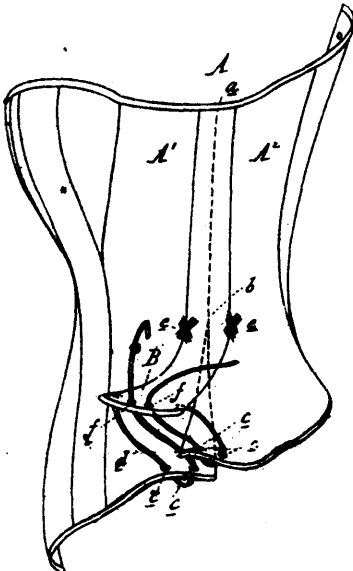
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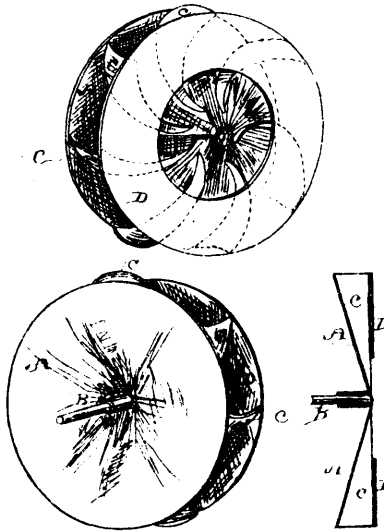
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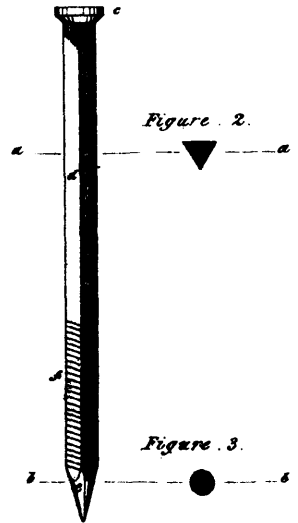
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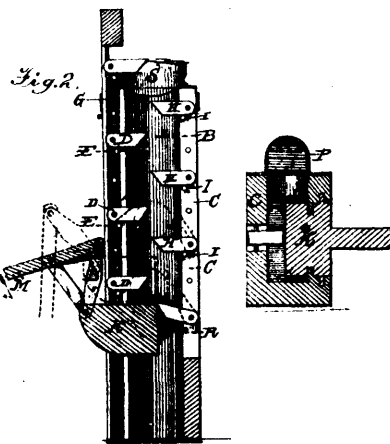
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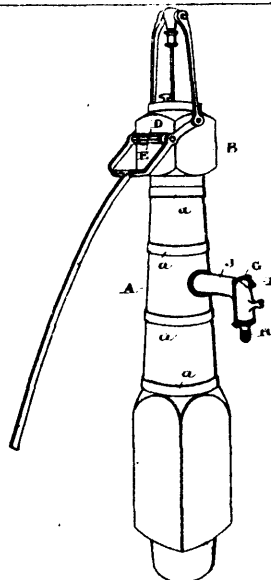
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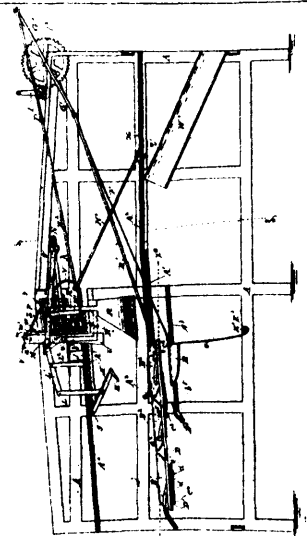
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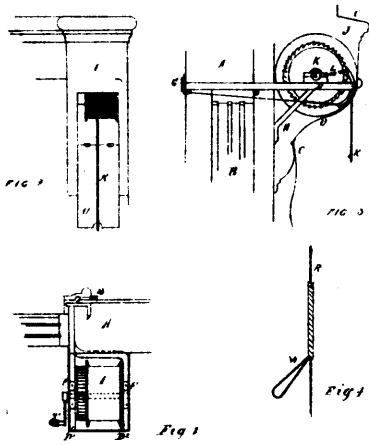
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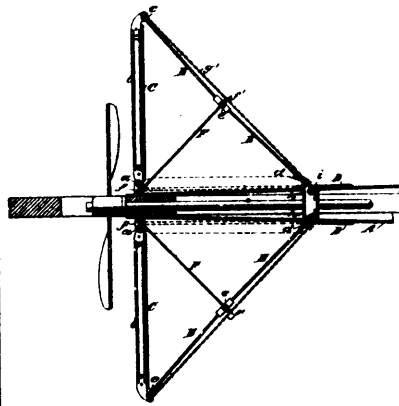
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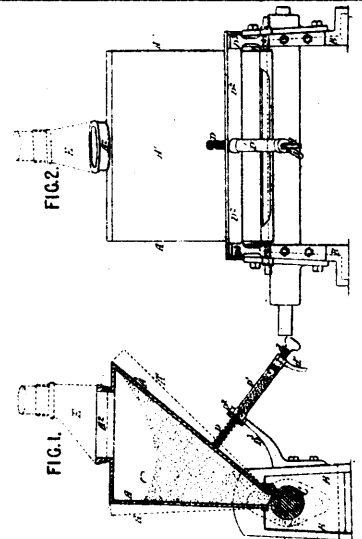
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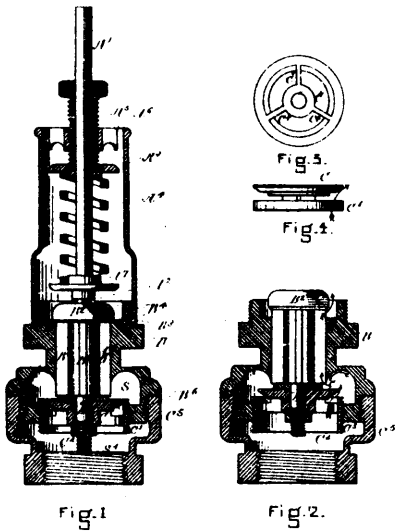
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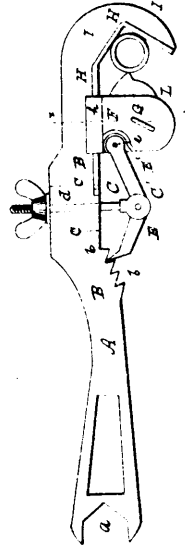
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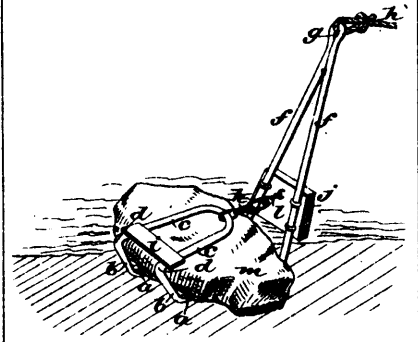
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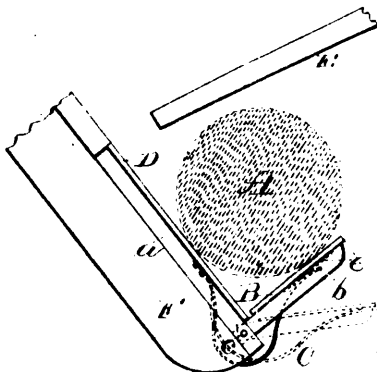
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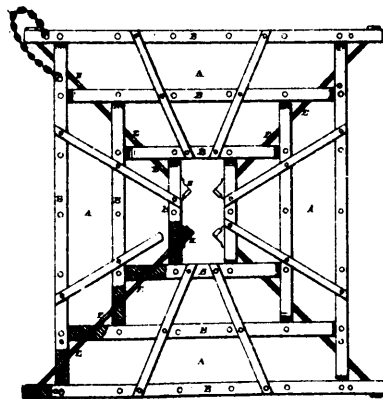
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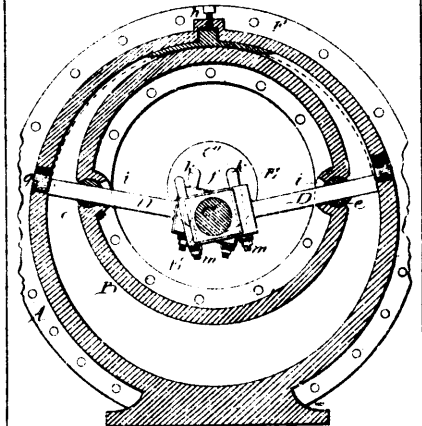
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No. 16,434. G. M. Sargent, Evanston, Ill., "Car brake shoe," 2nd March, 1883.

No. 16,435. The Canada Pulp Company, Limited, Montreal, Que., assignees, "Paper pulp and leather board from bark," 2nd March, 1883.

No. 16,436. The Canada Pulp Company, Limited, Montreal, Que., assignees, "Broad faced bar grinder," 2nd March, 1883.

No. 16,437. F. M. Lechner and J. A. Jeffrey, Columbus, Ohio, "Mining machine," (Ext. of Pat. No. 8492) 2nd March, 1883.

No. 16,438. C. A. Smith, Normalville, Ill., and F. D. Smith, New Carlisle, Ind., "Earth excavator and conveyor," 2nd March, 1883.

No. 16,439. G. W. Fuller, Norwich, Conn., "Dynamo electric machines," 6th March, 1883.

No. 16,440. G. W. Fuller, Norwich, Conn., "Dynamo electric machines," 6th March, 1883.

No. 16,441. J. A. Fleming, Denver, Col., "Post hole diggers," 6th March, 1883.

No. 16,442. R. P. Butchart, Owen Sound, Ont., "Lanterns," 6th March, 1883.

No. 16,443. J. W. Elliot, Toronto, Ont., "Saver," (Ext. of Pat. No. 8504) 6th March, 1883.

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No. 16,454. W. Vanderlip, Liberty, Ill., "Clothes driers," 7th March, 1883.

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No. 16,458. E. W. Anthony, Boston, Mass., "Heating stoves," 7th March, 1883.

No. 16,459. H. T. Johnson, Scio, N. Y., "Telephones," 7th March, 1883.

No. 16,460. W. A. Boland, Boston, Mass., "Apparatus for fastening buttons," 7th March, 1883.

No. 16,461. G. A. Kennedy, Coaticook, Que., "Tubular lanterns," 7th March, 1883.

No. 16,462. C. S. Cooke, N. Y., "Temporary binder for pamphlets," 7th March, 1883.

No. 16,463. The Canada Pulp Company, Limited, Montreal, Que., assignees, "Paper pulp from wood and other material," 7th March, 1883.

No. 16,464. N. S. Woodward, Sherbrooke, Que., assignee, "Automatic fog alarm," (Ext. of Pat. No. 8490) 7th March, 1883.

No. 16,465. R. Fulton and A. De Lano, Detroit, Mich., "Sheathing and roofing for railway cars," 8th March, 1883.

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No. 16,468. G. F. Butterfield, Stoneham, Mass., "Air cushions," 8th March, 1883.

No. 16,469. M. C. Cummings, Des Moines, Iowa, "Washing machines," 8th March, 1883.

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No. 16,471. G. F. Burkhardt, Boston, Mass., "Apparatus for drying malt," 8th March, 1883.

No. 16,472. J. W. Powers, Waukegan, Ill., "Pumps," 8th March, 1883.

No. 16,473. R. Butterworth and R. S. Bolles, Nashville, Tenn., "Vehicle top trimming," 8th March, 1883.

No. 16,474. R. D. Burr, Kingsborough, N. Y., "Gloves," 8th March, 1883.

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No. 16,476. C. H. Hall and R. P. Pattison, Chicago, Ill., "Hand lozenge cutter," 8th March, 1883.

No. 16,477. L. J. Stanton, F. D. Pierce and J. Stanton, Millbrook, Mich., "Harrow teeth," 8th March, 1883.

No. 16,478. The Minneapolis Harvester Works, Minneapolis, Min., assignees, "Grain binder," 9th March, 1883.

No. 16,479. The Massey Manufacturing Company, Toronto, Ont., assignees, "Horse rakes," 9th March, 1883.

No. 16,480. C. Kellogg and F. W. Cornell, Kalamazoo, Mich., "Stock cars," 9th March, 1883.

No. 16,481. R. Williams, Boston, Mass., "Sawing barrel hoops from poles," 9th March, 1883.

No. 16,482. W. J. Lloyd, W. W. Supplee and C. Walton, Philadelphia, Penn., assignees, "Lawn mower," (Ext. of Patent No. 9576) 9th March, 1883.

No. 16,483. E. N. Porter, Morrisville, and L. G. Burnham, Burlington, Vt., "Bracket piece for screen frames," (Ext. of Patent No. 13,385) 9th March, 1883.

No. 16,484. E. N. Porter, Morrisville, and L. G. Burnham, Burlington, Vt., "Bracket piece for screen frames," (Ext. of Patent No. 13,295) 10th March, 1883.

No. 16,485. J. J. Pennington, Henryville, Tenn., "Flying machine," (Ext. of Patent No. 8661) 10th March, 1883.

No. 16,486. The American Freight Car Heating Company, Portland, Me., assignees, "Apparatus for heating freight cars," 10th March, 1883.

No. 16,487. A. F. Collette, St. Luc, J. C. Uric, Chambly, Que., "Candle apparatus," (Ext. of Patent No. 9679) 10th March, 1883.

No. 16,488. O. J. Mitchell, Ingersoll, Ont., assignee, "Spring bed and mattress," (Ext. of Patent No. 8540) 12th March, 1883.

No. 16,489. G. A. Curtice, Hopkinton, New Hampshire, "Compound for preserving eggs," (Ext. of Patent No. 16,131) 12th March, 1883.

No. 16,490. G. A. Curtice, Hopkinton, New Hampshire, "Compound for preserving eggs," (Ext. of Patent No. 16,131) 12th March, 1883.

No. 16,491. L. B. Morgan and J. E. Wayt, West Liberty, Ohio, "Bread raising ovens," 12th March, 1883.

No. 16,492. J. Bartlett, O-hara, Ont., "Seed and grain drill distributor," (Re-issue of Patent No. 16,087) 12th March, 1883.

No. 16,493. F. G. Kay, in Trust, Allegheny, Penn., "Car stoves," 12th March, 1883.

No. 16,494. W. J. Copp, Hamilton, Ont., "Duplex and reversible stove shelf," (Ext. of Patent No. 8562) 12th March, 1883.

No. 16,495. W. Thomson, Toronto, Ont., assignee, "Sash regulator," (Ext. of Patent No. 8544) 12th March, 1883.

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No. 16,497. B. G. Dewe and W. L. Walker, Trenton, Ohio, "Iron fence," 13th March, 1883.

No. 16,498. P. M. Daignault, Montreal, Que., "Process for dressing and dyeing furs, wool, hair, and raw hides," 14th March, 1883.

No. 16,499. J. S. Sellon and E. Voelckmar, Hatton Garden, Eng., "Secondary batteries," 15th March, 1883.

No. 16,500. C. Ellery, Albany, N. Y., "Paper feeding device for printing presses," 15th March, 1883.

No. 16,501. T. Castle, Montreal, Que., "Permanent brick staining color," 15th March, 1883.

No. 16,502. P. Gendron, Toledo, Ohio, "Vehicle wheels," 15th March, 1883.

No. 16,503. O. D. Orvis, New York, N. Y., "Steam boiler and other furnaces," 15th March, 1883.

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No. 16,505. M. B. Perine, Conestogo, Ont., F. Howard, Etchemin, Que., "Anti moth bait," 15th March, 1883.

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No. 16,510. J. G. Winter, Detroit, Mich., "Gang circular saw mill," 17th March, 1883.

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No. 16,512. W. W. Jackson, Chicago, Ill., "Facet attachment or cask stoppers," 17th March, 1883.

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No. 16,516. C. H. Roberts, Lloyd, N. Y., "Preserving ensilage in silos," 17th March, 1883.

No. 16,517. A. L. Pratt, Kalamazoo, Mich., "Temporary binders," 17th March, 1883.

No. 16,518. H. A. Carson, Boston, Mass., "Earth moving and depositing apparatus," (Ext. of Patent No. 11,186.) 17th March, 1883.

No. 16,519. H. A. Carson, Boston, Mass., "Earth moving and depositing apparatus," (Ext. of Patent No. 11,186.) 19th March, 1883.

No. 16,520. B. F. Quimby, Boston, Mass., "Circular Bushes," 19th March, 1883.

No. 16,521. D. A. McDonald, Lacrosse, Wis., "Method of Steering Tow-Boats and Tows," 19th March, 1883.

No. 16,522. A. Barksdale, Statesville, N. C., "Fading Barrel," 19th March, 1883.

No. 16,523. W. F. Chamberlain and E. G. Windsor, Providence, R. I., "Light for Railway Car Platforms and Steps," 19th March, 1883.

No. 16,524. J. H. Campbell, N. Y., "Apparatus for Annealing Glass, &c.," 19th March, 1883.

No. 16,525. E. J. Kraetzer, Boston, Mass., "Fasteners," 19th March, 1883.

No. 16,526. R. R. Osgood, Troy, N. Y., "Dredge Dippers," 19th March, 1883.

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No. 16,528. D. W. Norris, Elgin, Ill., "Incased Can," (Extension of Patent No. 10,492.) 19th March, 1883.

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No. 16,530. P. G. Close, Toronto, Ont., assignee "Knitting Machine," 19th March, 1883.

No. 16,531. E. M. Bynton, N. Y., "Saw, Fole and Set," (Extension of Patent No. 8,549.) 20th March, 1883.

No. 16,532. E. M. Boynton, N. Y., "Saw Handle," (Extension of Patent No. 8,571.) 20th March, 1883.

No. 16,533. W. Russell, Dundas, Ont., "Trip for Harvester Bakes," (Extension of Patent No. 8,590.) 20th March, 1883.

No. 16,534. Gaud A. Keonholts, Buffalo, N. Y., "Spring Bed Bottom," 20th March, 1883.

No. 16,535. G. W. Brown, West Newbury, Mass., "Steam Engine Indicator, Piston and Spring," 20th March, 1883.

No. 16,536. A. W. Overmann, Chicago, Ill., "Cooking Vessels," 20th March, 1883.

No. 16,537. T. D. Galloway, Oshawa, Ont., "Gran Drills," 20th March, 1883.

No. 16,538. T. B. Howe, and A. H. Lee, Scranton, Penn., assignee "Furnace Grate," 20th March, 1883.

No. 16,539. C. S. Harmon, Chicago, Ill., "Lifting Jacks," 20th March, 1883.

No. 16,540. P. Pendleton, Berkeley Springs, W. V., and J. W. Denver, Wilmington, Ohio, "Railroad Ties," 20th March, 1883.

No. 16,541. G. H. Crosby, Somerville, Mass., "Steam Engine Indicators," 20th March, 1883.

No. 16,542. G. H. Crosby, Somerville, Mass., "Steam Engine Indicators," 20th March, 1883.

No. 16,543. W. Akon, N. Y., "Automatic Advertising Clock, 20th March, 1883.

No. 16,544. H. H. Baker, Plainfield, N. J., "Safety Friction Match," 20th March, 1883.

No. 16,545. A. W. Swift, Elmira, N. Y., "Lubricators," 20th March, 1883.

No. 16,546. J. Bosco, Montreal, Que., and F. Roseo, Ottawa, Ont., "Medicinal Compounds," 20th March, 1883.

No. 16,547. S. O. Shorey, Montreal, Que., "Overcoats," 20th March, 1883.

No. 16,548. J. J. Dewey, Lake City, Minn., "Harvesters," (Extension of Patent No. 8,555.) 20th March, 1883.

No. 16,549. A. A. Crosby, Rondont, N. Y., assignee, "Vehicles," (Extension of Patent No. 8,576.) 21st March, 1883.

No. 16,550. A. A. Crosby, Rondont, N. Y., assignee, "Vehicles," (Extension of Patent No. 8,576.) 21st March, 1883.