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INVENTIONS PATENTED.

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

No. 24,183. Method of Connecting and Supporting Movable Farm and other Fences. (*Manière de Relier et Supporter les Clôtures des Fermes et autres.*)

Thomas Penfound, Kincardine, Ont., 1st June, 1886; 5 years.

Claim.—The combination of post B, braces C, jointer blocks A and foot block D, constructed and arranged substantially as and for the purposes hereinbefore set forth.

No. 24,184. Manufacture of Waxed Ends for the use of Cordwainers, Harness Makers, or others. (*Préparation des Bouts Poissés pour les Cordonniers, Selliers ou autres.*)

William B. Arnold, North Abington, Mass., U.S., 1st June, 1886; 5 years.

Claim.—1st. The above described new article of manufacture composed of a string of vegetable or animal material, and fine wires twisted together, and having the wires extending beyond one or each end of the string, and there twisted together, to form at each end an inductor, as set forth. 2nd. The above described new article of manufacture or improved waxed end consisting of a string of vegetable or animal material and fine wires twisted together, and having the wires extending beyond one or each end of the string, and there twisted together, to form an inductor as explained, and such string covered or saturated with shoemakers' wax or its equivalent, all being substantially and for use as set forth. 3rd. The above described new article of manufacture consisting of a string and a fine wire or wires twisted together, and covered or saturated with shoemakers' wax, all being substantially as set forth, and provided with an inductor extending from one or each end of it, as specified

No. 24,185. Clothes Hook. (*Patère.*)

John Walker, Toronto, Ont., 1st June, 1886; 5 years.

Claim. A clothes hook constructed of wire having an upper arm A and a lower arm B, and the body C composed of two uprights, which connect the foremost arms A and B, and secured in position by the corrugated plate D and screws d, d', substantially as shown and described as a new manufacture.

No. 24,186. Brake for Vehicles, etc.

(*Frein pour Voitures, etc.*)

Adolph Argo, Chemnitz, Germany, 1st June, 1886; 5 years.

Claim.—1st. In a brake for railway and other vehicles, the combination of a disc or pulley connected to an axle or wheel of the vehicle, and a rope band or chain surrounding the said disc or pulley in one or more bights or loops so arranged that, when the said rope, band or chain is pulled, the friction of the revolving disc tightens the bight or loop, substantially as described and for the purpose specified. 2nd. In a brake for railway and other vehicles, the combination of a disc or pulley connected to an axle or wheel of the vehicle, a rope, band or chain provided with enlargements or projections at or near each end, and surrounding the said disc or pulley in one or

more bights or loops, and stops, rests or abutments, which resist the pull of the rope or band caused by friction between it and the revolving disc or pulley, substantially as described and for the purpose specified. 3rd. In a brake for railway and other vehicles, the combination of a disc or pulley connected to an axle or wheel of the vehicle, a rope, band or chain surrounding the said disc or pulley in one or more bights or loops, and a drum pulley or sheave operated by gearing to give an initial tension to the said rope, band or chain, to apply the brake, substantially as described. 4th. In a brake for railway and other vehicles, the combination of a disc or pulley connected to an axle or wheel of the vehicle, a rope, band or chain surrounding the said disc or pulley in one or more bights or loops, and a weight m held up by a catch connected to the buffer or guard iron, substantially as described and for the purpose specified. 5th. In a brake for railway and other vehicles, the combination of a disc or pulley connected to an axle or wheel of the vehicle, a rope, band or chain surrounding the said disc or pulley in one or more bights or loops, and springs to relax the said bights or loops, substantially as described and for the purpose specified. 6th. In a brake for railway and other vehicles, the combination of a disc or pulley connected to an axle or wheel of the vehicle, a rope, band or chain surrounding the said disc or pulley in one or more bights or loops enlargements or projections, at or near the ends of the said rope, band or chain, stops, rests or abutments to resist the pull of the rope, and means for giving an initial tension to the rope, substantially as described and specified.

No. 24,187. Mop and Brush Holder.

(*Manche de Torchon et de Brosse.*)

Isaac P. Deshon, Portland, Oregon, U.S., 1st June, 1886; 5 years.

Claim.—1st. In combination with the rollers B; mounted on spring frames B, a sliding arm for compressing said frames upon each other, a mop-holding device G having a ring g, adapted to slide upon the handle to which the spring clamps are secured, for the purpose of drawing the mop through the rollers B; substantially as shown and for the purpose set forth. 2nd. The combination of the handle A, spring clamps B, having rollers B; mounted thereon, a sliding cam clamp mounted on the spring clamps, a brush E, having a handle E; secured to the back thereof, said handle provided on each side with grooves e, with which the rollers B; are adapted to engage, so as to hold said brush in position, substantially as shown. 3rd. In a mop and brush holder, a mop-wringing device, a handle A having clamping frames secured thereto, said frames carrying at their lower ends rollers B;, a sleeve C provided with an eccentric cam, a mop-holding device secured at one end to the handle and provided at its lower end with a loop with bent ends, the mop being secured within the loop and adapted to be passed between the rollers B;, substantially as shown and for the purposes set forth.

No. 24,188. Paper Barrel. (*Baril en Papier.*)

James Cosgrove, Flatbush, N Y., U.S., 1st June, 1886; 5 years.

Claim.—1st. A paper keg or barrel made of two or more layers of paper, with five intervening bands of wood, one at each chine edge, one at the middle and one at each side of the bilge, substantially as herein shown and described. 2nd. A paper keg or barrel made of two or more layers of paper, with intervening bands of wood tacked and cemented between said layers, substantially as set forth. 3rd. A paper keg or barrel made with internal strengthening bands of wood extending circumferentially, with the grain running crosswise in the bands, substantially as set forth. 4th. A paper keg or package made of two or more overlying sheets of paper cemented together, with intervening bands of wood having the grain running crosswise and secured between the said sheets, substantially as set forth. 5th. A keg or package made of layers or sheets of paper with the intervening strengthening bands c, c' at the bilge, and stave-forming slits l extending from the edge of the sheet through said bilge-bands, substantially as shown and described. 6th. A keg or barrel made of a sheet or sheets of paper and provided with a grooved wooden band at each chine edge, secured to the paper to form the croze of the barrel, substantially as set forth. 7th. A keg or package made of two or more sheets or layers of paper with grooved bands o, o', placed between said sheet at the chine edges, and having the margin of the inner sheet rolled into said grooved bands, to turn the croze of the barrel, substantially as shown and described.

No. 24,189. Shaft Spring. (Ressort de Limonière.)

John F. Schwartz, Alma, Mich., U.S., 1st June, 1886; 5 years.

Claim.—1st. The combination of the side shaft-springs C, C', each connected intermediate of its extremities with a cross-spring, and the cross-spring provided with means of engagement with the vehicle body, whereby it may be vertically adjusted therewith, said side springs adapted at their extremities to be secured to the vehicle shafts, substantially as described. 2nd. The side-springs C, C', each connected intermediate of its ends with a cross-spring, said cross-spring provided with oscillatory means of engagement with a vehicle body, whereby it may be vertically adjusted therewith, said side-springs adapted at their extremities to the vehicle shafts, substantially as described. 3rd. The side-springs C, C', each connected intermediate of its ends with a cross-spring, said cross-spring provided with an oscillatory adjusting bolt, whereby it may be engaged with the vehicle body, said side-springs adapted at their ends to be secured to the vehicle shafts, substantially as described. 4th. The combination, with a vehicle body, of shafts pivotally engaged with the forward end of the body, side springs C, C', engaged at their extremities with said shafts, each of said shaft-springs connected intermediate of its ends with a cross-spring, said cross-spring adjustably engaged with said body, substantially as described. 5th. The combination, with vehicle shafts, of a pivotal support for the forward end of the vehicle body, and springs C, C', engaged at their extremities with said shafts, each of said shaft-springs connected intermediate of its ends with a cross-spring, said cross-spring provided with means of engagement with the vehicle body, whereby it may be vertically adjusted in connection therewith, substantially as described. 6th. The combination, with vehicle shafts, of a support for the forward end of the vehicle body, having an adjustable and a pivotal connection with said shaft-springs C, C', secured at their ends to said shafts, each of said springs connected intermediate of their ends with a cross-spring, said cross-spring provided with mechanism whereby it may be adjustably connected with the vehicle body, substantially as described. 7th. The combination, with a vehicle body, of shafts pivotally connected with the forward end of the body, springs C, C', secured at their extremities with said shafts, each of said springs connected with the vehicle body and spring-reliefs engaged with said body adjacent to said cross-springs, substantially as and for the purposes described.

No. 24,190. Planing or Weatherboard Machine. (Machine à Raboter ou à Lambris.)

George Lhoté, New Orleans, La., U.S., 1st June, 1886; 5 years.

Claim.—1st. In a planing or weather-board machine, the combination of a central supporting-frame with feed-rolls on vertical axes supported in bearings on either side of, and attached to said central frame, substantially as shown and described. 2nd. In a planing or weather-board machine, the combination, with a supporting-frame, of two side cutter-heads on vertical axes and provided with platens, said heads and platens being supported in adjustable slides movable transversely to the line of feed, substantially as shown and described. 3rd. The combination, in a planing or weather board machine, of feed-rolls on vertical axes, a top head and an under head on horizontal shafts, and two side heads on vertical axes, the said parts being supported by the frame of the machine and back of the feed-rolls, with the side heads located on either side of the line of feed and between the top and bottom heads, whereby a board may be planed while standing on its edges on two sides and both its edges at one operation, substantially as shown and described. 4th. The combination, in a weather-board machine, of feed-rolls on vertical axis, a top head and an under head, two side heads on vertical axes, and a saw on a horizontal shaft, said heads and saw being supported by the frame of the machine back of the feed-rolls, whereby a board may be planed on two sides and both edges and split or divided into two parts at one operation, substantially as shown and described. 5th. In a weather-board machine, the combination, with side cutter heads on vertical axes, of a saw on a horizontal shaft, located at or near the end of the machine, behind the feed-rolls and the cutter-heads, said saw being driven separate from, and independent of the shaft which drives the cutters, substantially as shown and described. 6th. In a planing or weather-board machine, the combination, with the frame on which the side cutter-heads are supported on vertical axes, of a saw-table detachably fastened thereto, and having bearings for a saw on a horizontal shaft, said table and saw being located in the rear of said frame and back of the cutter-heads, substantially as shown and described. 7th. In a planing or weather-board machine, the combination, with a single middle frame A supporting the feed-rolls, and having an offset A', of a double frame E supporting the side heads and fastened to the feed-roll frame, substantially as shown and described. 8th. In a planing or weather-board machine, the combination, with a single middle frame A supporting the feed-rolls, and having an offset A', of a double-frame E supporting the side heads and fastened to the feed-roll frame, substantially as shown and described.

No. 24,191. Loop for Garments, etc.

(Gause pour Vêtements, etc.)

Thomas Lamb, and Joseph D. Morley, Philadelphia, Pa., U.S., 1st June, 1886; 5 years.

Claim.—1st. A loop formed with a stitch, whereby it is secured to a garment, fabric, or article to which it is applied, substantially as described. 2nd. A combined loop and stitch, substantially as and for the purpose set forth. 3rd. A loop and stitch formed by continuous operation, substantially as described.

No. 24,192. Account Book or Holder.

(Livre ou Serre-Facture.)

Abram D. Wilt, Dayton, Ohio, U.S., 1st June, 1886; 5 years.

Claim.—The account book or holder, consisting of a cover inclosing

a series of leaves and a series of envelopes detachably secured to said leaves, said envelopes having thereon a series of lines forming columns for the entry of an account, and adapted to receive a name and address, substantially as described.

No. 24,193. Dumper Regulator.

(Régulateur de Régistre.)

Charles A. McDonald, Portland, Oregon, and Charles W. Townsend, Newburgh, N.Y., U.S., 1st June, 1886; 5 years.

Claim.—1st. In dumper and other valve regulators for steam boilers and other purposes, the combination, with the valve case G, the regulator cylinder E, its piston F and connection A, of the pressure valve H, the centering spindle M, the spring O, the follower S and the hollow adjusting screw L, substantially as shown and described. 2nd. The piston F of the regulator cylinder, provided with an escape aperture through it, in combination with a drain pipe connected with said cylinder, on the reverse side or end, to the inlet opening through which the controlling gas or vapor is admitted to operate the piston, essentially as described.

No. 24,194. Key Ring. (Clavier de Clé.)

Theodoro W. Henry, Sanford, Fla., U.S., 1st June, 1886; 5 years.

Claim.—The key-ring, consisting of three out rings, two of which are flat and of the same diameter, and provided with projections on the inside, and the third ring or sheath inclosing the other two, as shown, and tightly binding them against accidental displacement, all substantially as described.

No. 24,195. Bustle. (Tournure.)

Kones F. Rice, Eureka Springs, Ark., U.S., 1st June, 1886; 5 years.

Claim.—1st. As an improved article of manufacture, a bustle, comprising a series of graduated flexible rings, of rubber, or like material, the curved rods D, Di passing through the body of the rings and connected at their ends beyond the end rings of the bustle, a waist band E passed through the connected ends of the rods and one or more of the bustle rings, and a flexible strap C secured to the rear ends of the rings and the waist band C, substantially as described. 2nd. As an improved article of manufacture, a bustle, comprising a series of graduated flexible rings of rubber, or like material, the curved rods D, Di passed through the body of the rings at the front sides of said rings, said rods being connected at their ends, the waist band C passed through the connected ends of the rods, and one or more of the bustle rings, a flexible band or strap C riveted at its ends to the waist band, and staples b, to secure the strap C and rings together at the rear ends of the latter, substantially as described.

No. 24,196. Hand Grenade Fire Extinguisher. (Grenade à Main Extincteur d'Incendie.)

Arthur Jones, Chicago, Ill., U.S., 1st June, 1886; 5 years.

Claim.—1st. The herein described hand grenade, consisting of a glass bottle or receptacle having one or more flat sides, and formed with a neck or shaft projecting outward from the flat side at a slight angle with the main body, and of the same form in cross section, substantially as and for the purpose set forth. 2nd. In a hand grenade, the bottle having an extension or neck formed with a circumferential groove, in combination with a securing-band b secured in said groove, the main bodies of the receptacles having one or more flat sides and formed with their necks or shafts projecting outward from the flat side at a slight angle with the main body, whereby the necks are held together compactly while the main bodies are slightly separated to facilitate breaking, substantially as shown and described.

No. 24,197. Dynamo-Electric Machine.

(Machine Dynamo-Electrique.)

Charles Batchelor, New York, N.Y., U.S., 1st June, 1886; 5 years.

Claim.—1st. In a commutator for a dynamo-electric machine, the combination of a cylindrical metal body having a continuous surface, an insulating wrapping for said body, and conducting bars placed thereon, substantially as set forth. 2nd. In a commutator for a dynamo-electric machine, the combination of a cylindrical metal body having a continuous surface, a wrapping for said body of paper impregnated with linseed or other drying oil, and conducting bars placed thereon, substantially as set forth. 3rd. In a commutator for a dynamo-electric machine, the combination of a cylindrical metal body having a continuous surface, an insulating wrapping for said body, and conducting bars placed thereon, each having an insulating wrapping upon its bottom and sides, substantially as set forth. 4th. In a commutator for a dynamo-electric machine, the combination of a cylindrical metal body having a continuous surface, a wrapping for said body of paper impregnated with linseed or other drying oil, and conducting bars placed thereon, each wrapped upon its bottom and sides with the same material, substantially as set forth. 5th. In a commutator for a dynamo-electric machine, the combination of the cylindrical metal body having a continuous surface and provided with a flange at one end and a nut or screw-ring at the other, the bars resting upon the surface of said cylinder, and the loose insulated metal rings between the ends of said bars and said flange and nut or ring, substantially as set forth. 6th. In a commutator for a dynamo-electric machine, the combination, with the cylindrical metal body having a continuous surface, of the bars resting upon the surface thereof, the tightening nut or screw-ring and the keyed ring between the nut and bars, substantially as set forth. 7th. In a dynamo-electric machine, the combination, with the commutator body and the bars thereon, of the insulation at the ends of said bars projecting above their surface, substantially as set forth.

No. 24,198. Lumber and Brick Drier.

(Sécherie à Bois et à Brique.)

William E. Colo, Montgomery, Ala., U.S., 1st June, 1886; 5 years.

Claim.—1st. In a drier, a stackless flue having a series of perforations in the lower halves of its side walls, and having an imperforated top and end wall, substantially as specified. 2nd. In a drier, the combination of two stackless flues arranged in line with each other, and having imperforated tops or upper side walls and perforations in the lower halves of their side walls, with a solid wall separating the flues from each other, substantially as shown and described. 3rd. In a drier, the main portion A having nearly closed sides, ends and top, and an open flooring B, in combination with the flues E, E', separated by a solid wall H, and provided with perforations E, in said flues, substantially as shown and described. 4th. In a lumber drier, a stackless flue having communication through the lower portion thereof, with the main portion of the drier, substantially as described. 5th. In a lumber drier, a stackless flue, in combination with a main portion provided with an open floor, and with eight openings between the floor and the flue, substantially as specified.

No. 24,199. Circular Saw Mill.

(Scierie à Scies Rondes)

Robert B Holt, Allensville, Ky., U.S., 1st June, 1886, 5 years.

Claim.—In a circular saw mill, the combination, with the arched support having circumferential flanges, of a saw carrying shaft extending across the same in movable bearings, toothed racks moving vertically in the openings of said supports upon which the bearings rest, a lower shaft bearing pinions which engage the racks for adjusting the same, the operating lever and its pivoted dog, the actuating pinion and the detent by which it is engaged, all substantially as shown and for the purpose described.

No. 24,200. Lemon Squeezing Machine.

(Pressoir à Citron.)

George Crawford, Hamilton, Ont., 1st June, 1886; 5 years.

Claim.—1st. In a lemon-squeezing machine, the combination of the metal standard A, provided with two projections a, the lemon-squeezer E attached to the rack bar E', which moves by means of the segment wheel F and its handle G, cap J and the coil spring I, substantially as and for the purpose hereinbefore set forth. 2nd. The combination, in a lemon-squeezing machine, with the standard A, segment-wheel F handle G, spring I, cap J, bar E', lemon-squeezer E, a holder B, which supports the cup c, and the convex perforated plate D, the whole arranged and combined substantially as and for the purpose hereinbefore set forth.

No. 24,201. Can Opener.

(Cisailles à Boîtes Métalliques.)

The Thacher Belt Fastener Company, Cleveland (Assignee of Thomas H. Way and Frank X. Way, Springfield, Ohio, U.S., 1st June, 1886; 5 years.

Claim.—1st. In a can opener, a frame having a longitudinal slot therein, a point at one end of said frame, and an adjustable cutter in said slot, said frame being provided with a curved handle at right angles to the plane of the cutter, said handle being extended at an angle to the frame in the plane in which it travels and turned back, substantially parallel with said frame, as set forth. 2nd. The combination, with a frame having a point at one end and provided with the longitudinal slot, with an adjustable cutter thereon, of the handle B and the rear knife c, substantially as specified. 3rd. The combination, with the frame having a point at one end, and a curved handle at the other, and an adjustable cutter on said frame, of a cutter e and a guide f located at or near the junction of the said handle and frame, substantially as specified. 4th. The combination, with the frame and the curved handle joined thereto, of the pivoted cutter e, stop e', and guide f located at or near the junction of said handle and frame, substantially as set forth. 5th. The combination, with the frame provided with the longitudinal ribs and slot, an adjustable cutter located between said ribs, the pivoted cutter e, guide f and angular handle B, substantially as set forth.

No. 24,202. Nut Lock. (Arrête-Ecrou.)

Benjamin Carrier and John Fluetto, Lewiston, Me., U.S., 1st June, 1886; 5 years.

Claim.—1st. In a nut lock, the oblong screw c, having its faces d, e threaded, and the faces f, A flattened or smoothed, as described and shown. 2nd. In a nut lock, jam nut b having mortises i, as shown, and nut a having oblong centre hole g, grooves m, loverspring k, catch J, handle l and pin s, for keeping it in position, as shown and described and for the purposes set forth. 3rd. In a nut lock, the combination, with a bolt having screw-threaded faces d, e, and faces f, A, as shown, of the nut a and d, having mortises i, grooves m, spring k, handle l, catch J, pin s and oblong centre hole g, substantially as and for the purposes described and shown.

No. 24,203. Loading Apparatus for Ordnance. (Appareil pour Charger les Canons.)

Lignell V. Urton (Assignee of William R. Elliott), Kansas, Mo., U.S., 1st June, 1886, 5 years.

Claim.—1st. A loading device for ordnance, consisting of a disk fitting the bore of the piece, provided with means of connecting the cartridge specially constructed for that purpose, said disk having a stem projecting through the breech in line with its bore. 2nd. A loading device for ordnance, consisting of a disk or head fitting the bore, having a tubular stem projecting through the breech and containing the firing needle, having a passage through said head. 3rd. A loading device for ordnance, consisting of a head or disk, capable of being moved along the bore of the piece, and provided with means for attaching thereto a specially constructed cartridge. 4th. The combination, with a piece of ordnance, of a disk D, recess d, tubular stem D, firing pin E, bearings c, spring E', and chain E". 5th. The combination of a piece of ordnance breech perforation C, tubular

stem D, head D', dovetailed recess d, firing pin E, bearings c, spring E', cartridge base F, dovetailed projection f and lubricator G. 6th. In combination, with a loading and firing device for ordnance, a cartridge having a base F with a dovetailed projection, by means of which it can be connected to a draw or loading rod, and a lubricator G, all substantially as shown and described and as and for the purpose set forth.

No. 24,204. Sickle Bar for Harvesters, etc.

(Souche pour Lames de Moissonneuses, etc.)

Earl Boyce and Bent R. Bentson, Palisade, Dak., U.S., 1st June, 1886, 5 years.

Claim.—1st. In a sickle bar, the combination of a finger-bar having the usual fingers or guards and the usual groove for the cutter-bar, and formed with a groove parallel to the groove for the reciprocating cutter-bar, with a lower cutter-bar fitting in the said groove, and having cutters registering with and fitting into the slots of the fingers or guards, as and for the purpose shown and set forth. 2nd. In a sickle-bar, the combination of a finger-bar having the usual fingers or guards and the usual groove for the reciprocating cutter-bar, and formed with a groove parallel to the said groove and merging with its rear edge into the same shorter than the groove for the reciprocating cutter, with a cutter-bar fitting in the shorter groove, and having cutter blades registering with and fitting into the slots of the fingers or guards, as and for the purpose shown and set forth. 3rd. In a sickle-bar, the combination of a finger-bar having the usual fingers or guards, provided with recesses or notches in the forward ends of their slots, and formed with a shorter groove parallel to the groove for the reciprocating cutter-bar, merging with the rear edge into the said groove, with a bar fitting into the shorter groove, and having cutters registering with the fingers or guards, and provided with tongues at their outer ends fitting into the recesses in the ends of the slots of the fingers, and a reciprocating cutter-bar sliding in the groove of the finger-bar and bearing against the rear edge of the lower bar, as and for the purpose shown and set forth.

No. 24,205. Rotary Fish Net. (Truble Tournant.)

Benjamin W. Clark, Herndon, Va., U.S., 1st June, 1886; 5 years.

Claim.—1st. A rotary dipping net, having buckets formed between partitions, which radiate from the axis of the shaft which forms the centre of motion to said wheel, and sides formed of flanking disks, the outer edges of which are concentric to the axis of said rotary net, substantially as and for the purpose set forth. 2nd. The rotary dipping-net, substantially as described, constructed with buckets formed from rotating disks and radiating wings or partitions, the latter cupping inward at their free ends to form barriers to the back movement of the fish, in combination with the double deflecting chutes which form the bottom of said buckets, all arranged as specified. 3rd. The combination, with the rotary dipping-net formed as described, of the apron P, the adjusting lever r and supporting boats N, O, all arranged as and for the purpose set forth.

No. 24,206. Adjustable Pool Rack, Ball Spotter and Game Register Combined. (Porte-Balle Trianglé et Marqueur de Billard Combinés.)

Thomas M Walker, Bellefontaine, Ohio, U.S., 1st June, 1886; 5 years.

Claim.—1st. The combination of the triangle, with the racks at each opposite sides thereof, and a suitable support for the racks and triangle, the support being adapted to be raised and lowered, carrying the racks and triangle with it, substantially as shown. 2nd. The combination of the slotted support, the slide and counterweight, with the triangle and the racks which are secured to opposite sides thereof, substantially as described. 3rd. The combination of a suitable support, the triangle, the two racks connected thereto, and the wires which act as stops to keep the balls in place in the racks, substantially as set forth. 4th. The combination of the slotted support, the slide and block which move vertically thereon, the spring, the dog connected to the lower end of the spring, and the notched slide placed in the register, substantially as specified. 5th. The combination in a single apparatus of an automatic game-register, a triangle, the ball-racks connected thereto and a counter-weight for holding these parts suspended in any desired position, substantially as shown.

No. 24,207. Bench Hook. (Mentonnet)

Edward C. Cole (Assignee of Aaron J. Tyler), Albion, N.Y., U.S., 1st June, 1886; 5 years.

Claim.—1st. A movable bench hook, combined with a clamping arm, and runcle joint operating thereon, substantially as specified. 2nd. A movable bench hook, combined with a suitable bed plate or support, a clamping arm, a runcle joint operating said arm, and a screw operating said joint and having a head seated in said plate, substantially as specified. 3rd. A movable bench hook, combined with a suitable bed plate or support, a clamping arm, a runcle joint connected thereto, a screw operating the joint and a cross-shaped head on said screw seated in the said bed plate, substantially as specified.

No. 24,208. Window Screen. (Ecran de Fenêtre.)

Edmund W. Donovan, John S. Macleod, Detroit, Mich., and Leon N. Caron, Windsor, Ont., 1st June, 1886, 5 years.

Claim.—The housings E, E', constructed as described, and the covering-board F, in combination with an automatic roller and a flexible screen B, substantially as and for the purpose set forth.

No. 24,209. Belt Fastener. (Agrafe de Courroie.)

The Smith Belt Hinge Company (Assignee of Eugene C. Smith), New York, N.Y., U.S., 2nd June, 1886; 5 years.

Claim.—As an improved article of manufacture, a skeleton strip of metallic belt fasteners, consisting of a skeleton body provided with teeth at opposite points along its edges, which stand at an acute angle to the body, and having enlarged openings along its centre at points opposite the spaces between said teeth, whereby the strip may be readily cut into fasteners of suitable lengths on transverse lines passing between the teeth and the aforesaid openings, substantially as described.

No. 24,210. Conveyor. (*Vit sans fin*)

Charles H. Morgan, Buffalo, N.Y., U.S., 2nd June, 1886; 5 years

Claim.—1st. The combination, with a conveyor shaft, of reversible flights, angular bearings or supports, which determine the angular position of the flights on the shaft and fastenings, whereby the flights are detachably secured in either or several predetermined positions, substantially as set forth. 2nd. The combination, with a conveyor shaft provided with angular openings *h*, of the flights *B* provided with fastening bolts *d*, having angular shanks *c* which enter the angular openings *e* and hold the flights in the desired inclined position, substantially as set forth.

No. 24,211. Steam Engine. (*Machine à Vapeur*)

Benjamin T. Webb, Beaufort, N.C., U.S., 2nd June, 1886.

Claim.—In a steam engine, the combination, with the main cylinder piston and piston-rod of the engine, of a yoke embracing a friction wheel on the main shaft of the engine, and one or more steam-actuated pistons for bringing the yoke into engagement with the sides of the friction wheel, substantially as herein specified. 2nd. The combination, with the steam cylinder *A* and its piston and piston-rod, of a yoke *I* having parallel side bars *J*, *J*, and connected movably with the piston-rod, steam-cylinders *N*, *N*, pistons *O* and friction rollers *Q*, and steam pipes *g*, *g*, connecting the cylinders *N*, *N* with opposite ends of the main cylinder *A*, as herein specified. 3rd. The combination, with the cylinders *N*, *N* and steam-pipes *g*, *g*, leading thereto, of cross-pipes *i*, *i* and valves *h*, *h*, substantially as herein shown and described. 4th. In a steam engine, the combination of the main cylinder *A* and its piston and piston-rod, the yoke *I*, friction-wheel *L*, cylinders *N*, *N*, pistons *O* and friction rollers *Q*, the pipes *g*, *g*, cross-pipes *i*, *i* and the valves *h*, *h*, as herein specified. 5th. In a steam engine, the combination, with the main cylinder *A* and its piston and piston-rod, of the standard *F*, yoke *I*, friction-wheel *L*, cylinders *N*, *N* and their piston pipes *g*, *g*, connecting the cylinders *N*, *N* with opposite ends of the main cylinder *A*, and the tappet *R*, valve-rod *S* provided with collars *k*, *k*, the lever *T* and slide-valve *C*, substantially as specified.

No. 24,212. Swinging Centre Board for Vessels. (*Semelle de Dérive à Pentures pour Bateaux.*)

James A. Deering, Gloucester, Mass., U.S., 2nd June, 1886; 5 years.

Claim.—1st. The same and having their upper ends screw-threaded, a screw-threaded gear-wheel *f* through which the said rods pass, the gear-wheel *f* meshing with the gear-wheel *d*, the centre board *B* hinged to the lower ends of said rods, and means for guiding the centre board as it is raised and lowered, substantially as shown and described. 2nd. The combination of the rods *c*, having their upper ends screw-threaded, the screw-threaded gear wheels *d* through which the said rods pass, the gear-wheels *h* meshing with the gear wheels *d*, the centre board *B* hinged to the lower end of the rods *c*, and the tubes *e* surrounding the said rods, substantially as herein shown and described. 3rd. The centre board *B* hinged to the rods *c*, in combination with the guide-rods *a* and jointed rods *e* attached to the lower edge of the centre board *B*, and passed through the eye *e* for staying the lower edge of the centre board, substantially as shown and described.

No. 24,213. Wood Working Machine.

(*Machine à Travailler les Bois.*)

Delphis Picard, Montreal, Que., 2nd June, 1886; 5 years.

Claim.—In a wood-working machine, the combination of shafts *L*, *M*, *N*, wheels *T*, *W*, table *J*, feeder *O*, clutch *Q*, and weight *e*, with frame *K*, table *G*, the whole as above described and for the purposes set forth.

No. 24,214. Piston Packing.

(*Garniture de Piston.*)

William C. McTyre, Hatochabbee, Ala., U.S., 2nd June, 1886; 5 years.

Claim.—The improvement in pistons, substantially as herein described, consisting of the body formed in a single piece provided with an annular peripheral groove, the ring seated in the annular groove and made in sections, the ends of which are formed parallel with the line of motion of the piston, and are connected by interlapping tongue joints, and springs held within the groove of the body and engaging the ring sections directly below the joints of the said sections, all arranged, substantially as and for the purposes specified.

No. 24,215. Rotary Engine for Steam or Water Power. (*Machine Rotatoire à Vapeur ou à Eau.*)

Charles Dawson, Peterborough, Ont., 2nd June, 1886; 5 years.

Claim.—1st. The revolving piston contained within a cylinder bored so that a line shall be formed on one side of the said piston, in combination with blades adjustably held in the piston, substantially as and for the purpose specified. 2nd. A revolving piston *A* provided with adjustable blades *F* radiating from its centre, the said piston being contained within a cylinder bored so as to leave a line on one

side of the piston, in combination with the cam or cams *G*, arranged substantially as and for the purpose specified. 3rd. A revolving piston *A* contained within a cylinder *C*, bored so as to leave a line *a* between the ports *D* and *E* on one side of the piston *A*, in combination with the blades *F* adjustably held in the piston *A*, and actuated by the stationary cam *G*. 4th. A revolving piston *A* contained within a cylinder *C*, bored so as to leave a line *a* between the ports *D* and *E* on one side of the piston *A*, in combination with the blades *F* adjustably held in the piston *A*, the springs *b* placed between the blades *F* and cam or cams *G*, substantially as and for the purpose specified. 5th. A revolving piston *A* contained within a cylinder *C*, bored so as to leave a line *a* between the ports *D* and *E* on one side of the piston *A*, in combination with the blades *F* and cam or cams *G*, the blocks *e* held against the blades *F* by the spring *f*, substantially as and for the purpose specified. 6th. The revolving piston *A* contained within the cylinder *C*, bored as specified, a flange *h* formed on the piston head *A* to butt against the cylinder *C*, in combination with the cylinder head *H* shaped so as to leave a space *g* between it and the piston, which space is connected to the steam port *D* by the small steam port *d*, substantially as and for the purpose specified. 7th. The revolving piston *A* provided with adjustable blades *F* radiating from its centre, the said piston being contained within a cylinder bored so as to form a line on opposite sides of the piston *A*, in combination with the cam or cams *G*, arranged substantially as and for the purpose specified.

No. 24,216. Grain Drill Attachment.

(*Appareil de Semoir en Ligne.*)

William C. Lathrop, Milton Centre, Ohio, U.S., 2nd June, 1886; 5 years.

Claim.—1st. An attachment for grain drills comprising a roller supporting frame, provided near its rear end with bearing for such roller, and a collar adapted to embrace the drill tooth and supported in the frame in advance of such bearing, substantially as set forth. 2nd. In an attachment for grain drills, a roller supporting frame provided near its rear end with bearings for the roller, a collar journaled in the frame in advance of the bearings and fitted to embrace the drill tooth, the frame being projected in advance of such collar to form a stop-extension, substantially as set forth. 3rd. The combination of a drill tooth, a collar embracing such tooth, and provided with a set-screw by which it may be held at and desired point thereto, and a roller journaled in the said frame in rear of the collar, substantially as set forth. 4th. In a roller attachment for grain drills, the combination, with the frame provided with the bearings for the roller, of a collar fitted to embrace the drill tooth, and provided with an internal binding point, and having opposite said point a threaded opening fitted to receive a clamping screw, substantially as set forth. 5th. The combination of the drill tooth, the roller supporting frame pivotally connected therewith, and provided with an extension forward of the pivotal support, and a roller journaled in the said frame in the rear of the tooth, substantially as set forth.

No. 24,217. Vehicle Gear.

(*Train de Voiture.*)

John N. Brown, New London, Ct., U.S., 2nd June, 1886; 5 years

Claim.—1st. A crank axle composed of axle-shanks provided at their outer ends with axle-spindles, and at their inner ends with perforated ears, a depressed axle-body and dependent arms connecting said body with said axle-shanks, said parts being integral and in the same vertical plane, substantially as described. 2nd. The combination of a crank-axle composed of shanks provided at their outer ends with axle-spindles, and at their inner ends with perforated ears, a depressed axle-body and dependent arms connecting said body with said axle-shanks, said parts being integral and in the same vertical plane, pivoted links connected to said ears, and a spring connected to said links and in the same vertical plane with said axle body, substantially as described. 3rd. A vehicle gear consisting of a suitable axle, a semi-elliptic spring pivotally connected at each end with said axle, substantially as described, an inverted semi-elliptic spring secured centrally to said axle spring, side bars attached to the free ends of said inverted springs, and bars extending from side bar to side bar or similar means for supporting the body, all being combined substantially as and for the purpose specified.

No. 24,218. Car-Coupling. (*Attelage de Chars.*)

Henry S. S. Copland and James C. Gilmour, London, Eng., 2nd June, 1886; 5 years

Claim.—1st. The shackles *A*, *A* with their upper spurs *g*, *g*, lower spurs *f*, *f*, projecting shoulders *h*, *h* and lugs *i*, substantially as set forth and illustrated. 2nd. The shackles *A*, *A* with their upper spurs *g*, *g*, lower spurs *f*, *f*, projecting shoulders *h*, *h* and lugs *i*, combined with the shafts *e*, *e*, and the uncoupling device consisting of the levers *C*, *C*, *D*, *D*, *X*, *X*, and the operating handles *b*, *b*, substantially as set forth and illustrated. 3rd. The uncoupling device, consisting of the shafts *e*, *e*, levers *C*, *C*, *D*, *D*, *X*, *X*, and the operating handles *b*, *b*, substantially as set forth and illustrated.

No. 24,219. Tubular Lantern.

(*Lanterne Tubulaire.*)

George A. Kennedy, Coaticook, Que., 2nd June, 1886; 5 years.

Claim.—1st. The combination of the cistern *A*, post *A*, tubes *C*, *C*, joint *c*, chamber *C*, tube *D*, bracket *E*, plate *F*, globe *G*, clamp *H*, stop *I*, lug *J*, slot *d*, cover *K*, stem *k*, and spring *K*. 2nd. The combination of the cistern *A*, tubes *C*, *C*, chamber *C*, cover *K*, stem *k*, and spring *K*. 3rd. The combination of the cistern *A*, tubes *C*, *C*, joint *c*, and hot air chamber *C*. 4th. The combination of cistern *A*, tubes *C*, joints *c*, and tubes *C*. 5th. The combination of the cistern *A*, and post *A*. 6th. The combination of the hot air chamber *C*, wire *K*, tubular stem *k*, and globe cover *K*. 7th. The combination of a tube *C*, hinge tube *D*, slot *d*, bracket *E*, plate *F*,

clamp H, stop I, and lug J. 8th. The combination of the hinge, tube D, arm E, plate E, burner B, and clamp H. 9th. The combination of a tube C, hinge barrel D, bracket E, plate F, clamp H, stop I, and cover K. 10th. The combination of the tube D, slot A, lug J, and tube C. 11th. A tubular lantern having its globe supported upon one perforated plate, secured flexibly to a tube adapted to rotate upon one of the upright air tubes, the globe held at the top by a flexible bracket or clamp, and the tube held down by a sliding globe cover engaging a projection. 12th. In a tubular lantern, a hinge joint formed upon one of the upright tubes by a tube or connected portion of tubes, adapted to move upon the air tube and having attached thereto the globe plate and clamp. 13th. In a tubular lantern, a sliding globe cover controlled by a thumb spring, and adapted to engage a projection on a movable tube centered upon one of the air tubes. 14th. A tubular lantern having upon one of its air tubes a tube or barrel in one or more pieces, adapted to move freely thereon as upon a pin or center, and provided with the means of carrying a globe, all substantially as shown and described and as and for the purpose set forth.

No. 24,220. Railway Frog.

(*Rail de Raccordement.*)

Isaac A. Perry, Wilmington, Del., U.S., 2nd June, 1886; 5 years.

Claim.—1st. The combination of the base, the point made in two parts, each having a portion adapted to an undercut recess in the base, and a transverse key, whereby movement of the parts in order to release them from said recesses is prevented, all substantially as specified. 2nd. The combination of the wing-rails, and transverse clamp bars connecting said rails at the centre and near each end, all substantially as set forth. 3rd. The combination of the base having a pivot opening with the wing-rails, and a clamp therefor having a projection adapted to said pivot opening, all substantially as specified. 4th. The combination of the base having a pivot opening, the wing-rails, the clamp having a pivotal projection, the confining bolt and the retaining key, all substantially as specified. 5th. The combination of the wing-rails, with a clamp bar comprising opposite recessed shoes adapted to the rails, and a hooked tie-bar passing through the recesses of the shoes, and engaging with said shoes, all substantially as set forth.

No. 24,221. Velocipede Waggon.

(*Wagon Velocipede.*)

Henry Lacasse, Auburn, N.Y., U.S., Atphonse Lumoges and Joseph D. Couture, Montreal, Que., 2nd June, 1886; 5 years.

Claim.—1st. The combination of the drive-wheel frame, the bars for connecting the same extending backwardly therefrom, the saddle supporting bar pivotally supported by said bars, the rearwardly diverging bars connected to each side of the saddle-bar, and vehicle body supported by said rearwardly-diverging bars, substantially as and for the purpose set forth. 2nd. The combination of the drive-wheel frame, the saddle-bar connected with said frame and having an upwardly-extending pin formed upon its rear end, the saddle hinged to said bar and having a socket formed therein to receive the pin, and elastic cushion interposed between the pin and saddle, substantially as and for the purpose set forth. 3rd. The combination of the drive-wheel axle, carrying the pedals having a sprocket-wheel connected therewith by means of a tight and loose connection, a shaft carrying hand-crank having a sprocket-wheel keyed thereto, and a drive-chain connecting the two sprocket-wheels, whereby the chains are held stationary when the sprocket-wheel is disconnected from the axle, substantially as described. 4th. The combination, with the drive wheel and its frame, of the sprocket-wheel supported on a crank shaft at the upper part of the drive-wheel frame, the sprocket-wheel fitted loosely on the drive-wheel shaft, the splines to pass through the hub of the drive-wheel into the sprocket-wheel, the drive-chain connecting the sprocket-wheel and the pedals to the drive-wheel, substantially as described. 5th. The combination, with the drive-wheel and its frame, of the rod having its opposite ends secured at opposite sides of the said frame and extended forward of the drive-wheel, and the draft-rod hinged to said rod, substantially as described. 6th. The combination, with the drive-wheel and its frame, of the disk secured to the shaft of the drive-wheel, the bifurcated pedals secured to the same shaft and provided with an angular pawl to engage with said disks, and the springs to retract said pedals after they have been depressed, substantially as described.

No. 24,222. Heating Attachment for Stoves.

(*Poêle-Sourd.*)

Lester L. Bond, (assignee of Michael G. McGuire,) Chicago, Ill., U.S., 4th June, 1886; 5 years.

Claim.—1st. The suspension pipe-section A having the lateral tubular neck F and upward tubular shank or extension F₂, in combination with a register H at the bottom on the pipe-section, the partition B extending past the neck and into the tubular shank or extension, and the damper E pivoted to the upper end of the partition, substantially as described. 2nd. The tapering pipe-section A having its largest diameter at the bottom, and provided with the bottom register H and tubular neck F, in combination with the partition B extending above the neck, and a damper E also above the neck, substantially as described. 3rd. The suspended pipe-section A having one or more driving flues, and one or more ascending flues, in combination with the bottom register H and the register I in the upper portion of the pipe-section, substantially as described.

No. 24,223. Roller Mill.

(*Moulin à Moudre.*)

Richard K. Noye, (assignee of Charles H. Morgan,) Buffalo, N.Y., U.S., 4th June, 1886; 5 years.

Claim.—1st. The combination, with the bearings, of the adjustable roller, and the levers E connected with said bearings, of a movable

yoke or frame H connected with the adjacent ends of said levers, a stop I against which the yoke rests, a pivoted spreading lever J, and a rod L connecting the lever J, with the yoke of frame H, substantially as set forth. 2nd. The combination, with the bearings of the adjustable roller, and the levers E connected with said bearings, of a screw threaded stud G, a yoke H mounted on said stud a pivoted spreading lever J, a rod L connecting the lever J with the yoke or frame H, and a screw-nut I applied to the stud G, substantially as set forth. 3rd. The combination, with the levers E and stud G, of the yoke H pivoted, spreading lever J provided with an edge K connecting rod L, and a screw nut having a notched edge adapted to interlock with the edge of the spreading lever, substantially as set forth.

No. 24,224. Waggon. (Wagon.)

Solomon E. Oviatt, O. F. Barnes and James J. Baird, Lansing, Mich., U.S., 7th June, 1886; 5 years.

Claim.—1st. The combination with a bolster and reach, of a T-plate engaged therewith, with an axle engaged with a recessed plate K, and an eye-plate M, a bolt engaging the T-plate and the recessed plate together, and a brace-rod connecting the reach with said eye-plate, the construction being such that the line of oscillation will be in the rear of the bolster and axle, substantially as described. 2nd. A stake constructed with a fixed lower section adapted to be secured to the bolster, and provided with a hook and ring, and side flanges, and a removable section provided with a socket to receive said fixed section, substantially as described.

No. 24,225. Ore Concentrator.

(*Concentrateur de Minéral.*)

Ellis W. Sinclair, Tombstone, Ariz., U.S., 7th June, 1886; 5 years.

Claim.—1st. In an ore-concentrator, the combination with the end-wise and laterally vibratory box B, having a double inclined bottom c, d, and discharge openings a, b, of plate Q provided with the thin inclined agitator fingers R, K having an endwise movement contrary to that of the concentrator-box, substantially as described. 2nd. The concentrator box B having openings a, b, and a bottom composed of two inclines c, d, one of which is wider and higher than the other and is provided with a longitudinal rib or flange e on its upper edge, substantially as described. 3rd. The concentrator-box B, having discharge openings a, b, extending nearly or quite the whole length on each side, a bottom composed of the inclines c, d, a bar B₁, and a longitudinal division, plate S, suspended vertically from said bar B₁, substantially as described. 4th. The combination, with the concentrator box B, having an ore discharging opening a extending along one side of the rod L, having eccentrics L₁, L₂, the eccentric straps M, M, the gate O attached to said straps, and the bolts N₁, N₂, and hand-wheels N, N, substantially as described. 5th. The combination, with the concentrator box B and adjustable gate O, of the trough or spout V attached to and movable with said gate, substantially as described. 6th. An ore concentrator comprising the frame A, vibratory concentrator box B having discharge openings a, b, double inclined bottom c, d, division plate S and adjustable gate O, the movable plate Q carrying fingers R, R, the shaft C having pinion G and eccentrics D, D, Dr, the rods N, N, N₁, N₂, the castings on the box B, the shaft I carrying a gear H and cams K, K, and the adjustable spring k, substantially as described.

No. 24,226. Stool for Pianos, etc.

(*Banc pour Pianos, etc.*)

Archibald C. Haynes, Philadelphia, Penn., U.S., 7th June, 1886; 5 years.

Claim.—1st. A stool having a seat with an adjustable back, the frame of said seat having grooved sides and bottom, and said back having side pieces which are formed with tongues and provided with set screws, substantially as described. 2nd. A stool having a seat which is adjustably connected with the base of the stool by means of a ratchet on the stem of the seat, and a pawl on the base, said pawl having a handle or button, operating substantially as described. 3rd. A stool having a seat provided with a depending stem and a base receiving said stem, said stem having a ratchet, said base being provided with a pawl and lips on which the handle or head of the pawl may be rested, substantially as described. 4th. A stool having a vertically adjustable seat, a base receiving the depending stem of said seat, a holding ratchet and pawl, and a laterally tightening screw, substantially as described. 5th. A stool having a foot-rest whose supporting arm is connected with the base of the stool, substantially as described. 6th. A stool having a base provided with a boss T and screw T₁, and a foot-rest supported on an arm which is fitted to said boss, substantially as described. 7th. The foot-rest D provided with a pawl V, in combination with an arm S having a ratchet U, substantially as described. 8th. The support for the foot-rest of a stool, having a foot Y at the bottom, substantially as described.

No. 24,227. Fire-Escape Tower.

(*Tour de Sauvetage en cas d'Incendie.*)

Christopher Clarke, Northampton, Mass., U.S., 7th June, 1886; 5 years.

Claim.—1st. The within-described improvement in fire-escape towers, consisting of the arrangement within a tower and around a common axis of two or more spiral passageways having separate entrances and exits, and each constructed to have no intermediate passageway leading thereto from beginning to end, and each to have no possibility of exit therefrom from end to end, for the purpose as set forth. 2nd. In a fire-escape tower, the combination and arrangement within a tower and around a common axis of two or more spiral passageways adapted to be each inaccessible from the others, and to be each smoke-tight and isolated from the others, for the purpose set forth.

No. 24,228. Heating Lamp.*(Calorifère à Lampe.)*

August F. Zimmerling, Milwaukee, Wis., U.S., 7th June, 1886; 5 years.

Claim.—1st. The combination, in a heating-lamp, of a vapour-burner free from any wick, and a wick burner surrounding the latter, and a draft-tube surrounding the wick-burner and below the vapour-burner, substantially as set forth. 2nd. The combination, in a heating-lamp, of a vapour-burner free from any wick, and a wick-burner surrounding the latter; and an outer draft-tube with a deflector parallel with the top of the wick, and an air-shield above said wick but below the top of the vapour burner, substantially as set forth. 3rd. The combination, in a heating-lamp, of draft and wick tubes F, F₁, F₂, with the chamber G, reservoir B and pipe frame reservoir to chamber wick-raiser *g'*, with shank *g* and screw-bolt H passing through shank *g'*, substantially as set forth. 4th. In a heating-lamp, the combination of the tubes F, F₁, F₂, one within the other and of diminishing length, upright tube C, coupling D, reservoir A, tube C, valve-shaft *d*, packing K, needle-valve *d'*, bushing *a*, housing *d*, and tip *e*, with shield E and burner E', substantially as set forth.

No. 24,229. Weight Motor. (Moteur à Peste.)

John Henry, Minnedosa, Man., 7th June, 1886; 5 years.

Claim.—1st. The combination of the drum shaft B, drum B₁, spur wheel B₁, ratchet wheel *b*, winding shaft D, pinion D₁, spring D₁, pin *d*, pawl *d*, speed gear E E₁, driving shaft F, pinion F₁, pulley F₁, brake wheel F₁, fly wheel F₁, strap G, lever G₁, and weight G₂. 2nd. The combination of the shaft B, drum B₁, wheel B₁, pinion D₁, shaft D, spring D₁, and pin *d*. 3rd. The combination of a winding drum B, a weight and transmitting motion, by means of a train of multiplying gear to a driving shaft carrying belt pulley and fly wheels, and covered by a brake F₁, G, G₁ G₂. 4th. The combination of the driving shaft E, pinion F₁, pulley F₁, fly wheel F₁, strap G, lever G₁, and weight G₂. 5th. The brake mechanism F₁, G G₁ G₂, in combination with a drum actuated by weight and connected by multiplying gear to the shaft to which said brake mechanism is applied, all substantially as shown and described and as for the purpose set forth.

No. 24,230. Art of Treating Certain residual Liquors to obtain useful Products therefrom. (Mode de Traitement de certains résidus de Liqueurs pour en Tirer des Produits utiles.)

George L. Wigg, Matthew Steele and Walter J. Wigg, Runcorn, Eng., 7th June, 1886; 5 years.

Claim.—1st. Obtaining pure sulphate of lime, by mixing together and agitating the residual liquor obtained in the precipitation of copper by the wet process, and the residual chloride of calcium liquor obtained in the manufacture of chlorine by the Weldon process, washing the precipitate with hydrochloric acid, and pressing and heating the same as required. 2nd. Obtaining oxide of iron from the clear liquor resulting from mixing, and agitating the residual liquors above mentioned by the addition of milk of lime thereto, the precipitate so obtained being oxidized by the injection of an oxidizing agent, and afterwards furnace to obtain the desired colour.

No. 24,331. Shield for the Knees of Trousers.*(Renfort pour les Genoux des Pantalons.)*

Bramard T. Olcott, Keene, N.H., U.S., 7th June, 1885; 5 years.

Claim.—A sheet of perforated flexible glossy material, secured on the inner side of the knee portion of trousers by means of buttons, studs or other means, substantially as herein shown and described and for the purpose set forth.

No. 24,232. Cap and Anchor for Metallic Roofing. (Chapeau et Tirant pour les Ardoisiers.)

Benjamin F. Caldwell, Wheeling, W.V., U.S., 7th June, 1886. 5 years.

Claim.—1st. The combination of the cap, angular in cross section to form two flanges approximately at right angles to each other, and one of the flanges having its edge turned inward to form a longitudinal guide groove, with the anchor having one end angularly bent to form two arms, one engaging the guide-groove, and the other bearing against the opposite flange of the cap, said anchor being adjustable along the length of the cap, substantially as described. 2nd. The combination of the angular cap comprising two flanges standing approximately at right angles to each other, and one flange having its longitudinal edge turned inward, with the anchor having one end bent into an angle, the apex of which fits the angle of the cap and constituting two arms, one engaging the inward turned flange, and the other bearing against the opposite flange of the cap from the angle of the latter to its outer edge, substantially as described.

No. 24,233. Corner or Plate Attachment for Extension Window Screens. (Cornière ou Joint pour Ecrans de Fenêtres à Rallonge.)

Edward N. Porter, Burlington, Vt., U.S., 7th June, 1886, 5 years.

Claim.—1st. The combination of the frames A, B, of an extensible screen, with a corner-plate which is secured to one side of one of the frames at its corner, and which is provided with an angular projection C, which extends over a portion of the other frame and catches in a groove *e*, substantially as shown. 2nd. The combination of the

frame A, B, of an extensible screen, with a bar-plate which is secured to one side of the horizontal bars of one of the frames, and which is provided with an angular projection C, which extends over a portion of the other frame and catches in a groove *e*, substantially as shown. 3rd. The projection C, having its shoulder *b* firmly attached to or cast upon a metallic corner-brace, or to a bar-plate, which is so fastened to the inner face of one of the horizontal or sliding bars of one screen frame, that its free end *d* may enter and freely move in a groove in the interior face of the corresponding bar of the other screen frame, for the purpose of combining the frames together and enabling them to easily slide upon each other, substantially as described.

No. 24,234. Door Spring. (Ressort de Porte.)

Robert Adams, Southwark, Eng., 7th June, 1886; 5 years.

Claim.—1st. The method of utilizing the force of compressed or extended springs *d, d*, in combination with the bent levers *c, c*, having shifting fulcrums *c, c*, power centres *c, c*, working roller terminals *c, c*, and adjusting screws *c, c*, the springs *d, d*, severally operating between the centres *c* and *d* and oscillating with the levers, substantially as and for the purposes described. 2nd. The combination of the springs *d, d*, and bent levers *c, c*, with the piston *e* working in the cylinder *f*, controlled and operating substantially as described. 3rd. The method of checking and producing silent action in the closing of doors by means of a piston in a pneumatic cylinder *g*, lever *h* pivoted to the fixed plate *h*, the cross-head being guided in the slotted plate *g*, and the screw *g*, substantially as described and for the purpose set forth. 4th. A door closing mechanism, composed of the lever *i*, the revolving nut *j*, of which is formed as shown, and receives pressure from the rising nut K, such pressure being produced by springs *l*, having antifriction balls fitted thereto, substantially as and for the purposes described. 5th. The method of adjusting self-closing doors by means of the shoe *o*, having an adjustable bar *p*, capable of receiving lateral motion in the shoe by the screws *q, q*, and *q*, substantially as described. 6th. The rectangular radial piston *r, r*, whereby oil or other fluid is confined, substantially as described and for the purpose set forth. 7th. In the herein described door-closing mechanism, the adjusting screws *c*, substantially as and for the purposes described. 8th. In the above described mechanism, the screws *d*, in combination with the nuts *d* and screws *l*, for the purpose of adjusting the tension of the springs, substantially as described. 9th. In mechanism of the description aforesaid, the means of mounting the springs between centre points, substantially as described. 10th. The means herein shown for the reduction of friction by the rolling contact of the lever *c* and the surface at *c*, substantially as described. 11th. In the above described mechanism, the means of throttling and controlling the escape of the oil or other substance from under the piston *e*, by the screw *f*, substantially as described. 12th. In the above described door operating mechanism, the means of operating the throttling device on removal of the cover plate *o*, whereupon the regulating screw can be reached, substantially as described. 13th. In mechanism of the description aforesaid, the screw-headed pin inserted in the passage *x*, substantially as described. 14th. The method of utilizing the force of a single spring and adjusting the same, substantially as herein described and shown.

No. 24,235. Stock Car. (Char à Bestiaux.)

George Crossman, Lancaster, Penn., U.S., 7th June, 1886, 15 years.

Claim.—1st. As an improved conveyance for transporting stock, a car having partitions hinged to the side and constructed to be folded back against its side, or opened out across it to form stalls, said partitions, when open, extending out but a part of the length of the stall to permit animals to pass through and in front of the stalls already occupied, substantially as specified. 2nd. The combination, in a stock car, having partitions hinged to the side and extending out but a part of the length thereof when open to form stalls, of flexible connections between the swinging ends of said partitions and the feed trough or manger, whereby the said partitions are held open, substantially as herein more fully specified. 3rd. The combination, in a stock car, of a longitudinal pipe depending from the roof of the car, extending over and near the backs of the animals, and secured at the desired height to utilize the heat from the bodies of said animals to prevent the freezing of water therein, and at the same time serve as a kicking beam, substantially as specified.

No. 24,236. Machine for the Manufacture of Handles for Walking Sticks, etc. (Machine pour Fabriquer les Poignées des Cannes, etc.)

Benjamin Acton, Brinscombe, Eng., 7th June, 1886, 5 years

Claim.—1st. A handle-making apparatus, provided with a holder secured to spindle working in adjustable bearings, and actuated by a hand lever, as hereinbefore described. 2nd. A handle-making apparatus, provided with a revolving cutter spindle running in adjustable bearings, and working in guide slots in headstock ends and actuated by hand lever, as hereinbefore described.

No. 24,237. Spinning and Twisting Machine. (Machine à Filer et à Retordre.)

William Baird, Almonte, Ont., 7th June, 1886; 5 years.

Claim.—1st. The combination, with the spindles whirling driving-cylinder and driving-bands, of a spinning and twisting machine, of a support below the bands, elastic wire arms secured to said support, and pulleys journaled in the free ends of the said arms, substantially as herein shown and described. 2nd. The combination, with the spindles, their whirls, the driving-cylinder and the spindle-driving belt, of a spinning and twisting machine, of a sliding plate spring arms secured to said plate, pulleys journaled in the free ends of said arms, and means for sliding said plate, substantially as herein shown and described. 3rd. The combination, with the spindle G, the rub

ber whirls F, the driving-cylinder H and the band E, of the plate C, the spring-arms B secured to said plate and having twists *b*, and the pulleys A journalled in the free ends of said arms, substantially as herein shown and described. 4th. The combination of elastically supported tension-pulleys A, A, base-plate C to which they are connected, a support for plate C and a lever I jointed to plate C and adapted for operation to shift the tension-pulleys, substantially as herein set forth.

No. 24,238. Gate. (Barrière.)

Daniel Slauson, Monticello, Iowa, U.S., 7th June, 1886; 5 years.

Claim.—1st. A gate hanger, comprising plates D, D₁, plate D having an inwardly projecting flange *a*, and both plates having projecting lugs *b* and a roller journalled between the lugs *b*, substantially as set forth. 2nd. The combination, with a gate and a gate-post provided with pintles, of a triangular frame carrying a journalled roller at its forward end, the plates D, D₁ secured to the said frame, plate D having a flange *a* provided with an opening corresponding to one of the gate-post pintles, the lugs *b* projecting from the plates D, D₁, a roller journalled between the said lugs and the plate S secured to the lower part of the said frame, and provided with an opening corresponding to another of the gate-post pintles, substantially as set forth.

No. 24,239. Railway Station Signal.

(Signal de Station de Chemin de Fer.)

Arthur A. Sprague, San Rafael, Cal., U.S., 8th June, 1886; 5 years

Claim.—1st. In a station-signal, a colored board or target supported horizontally at right angles from the railway track, in combination with wings hinged at one end upon either side of the colored target, and having a mechanism connecting with a lever inside of the station house, whereby the wings may be opened to expose the signal or close and conceal it, substantially as herein described. 2nd. In a station-signal, a horizontally-supported colored board or target, the supplemental wings hinged upon opposite sides of said target, a rod connecting with a lever so that it may be moved out parallel with and beneath the target, and the rods N connecting it with the hinged wings whereby they may be opened and closed, substantially as herein described. 3rd. In a station-signal, a horizontally supported lamp-case having the colored lenses constructed to move so as to cover or expose the lamp, a similarly colored signal board or target corresponding with and placed below the lamp-case, in combination with a lever swinging upon its fulcrum pin within the station-house, connected with the lenses within the lamp and with the hinged wings, whereby the signal-target may be exposed simultaneously with the colored light, and concealed at the same time when the colored light is concealed, substantially as herein described. 4th. In a station-signal, a lamp-case containing movable colored lenses, and a similarly colored signal board or target with hinged wings upon opposite sides, a means for opening and closing said wings to expose or conceal the target simultaneously with the exposure or concealment of the colored lenses, a lever within the station-house by which the two are simultaneously operated, and corresponding colored disks or marks at the opposite ends of its travel, whereby the position of the signal may be indicated, substantially as herein described.

No. 24,240. Portable Stove-Pipe Shelf.

(Console de Tuyau de Poêle Portative.)

Everton Barnard, Albany, N.Y., U.S., 8th June, 1886; 5 years

Claim.—The vertical standard C, having its marginal side portions *d*, *d*, curved or flared rearwardly, and provided with the forwardly-extended foot *b*, in combination with shelf D resting on the upper end of said standard, and secured by lugs *g*, *g*, to said standard, and brace E connected with both the said standard and shaft, and devices connected with the shaft for clamping the same to the pipe, all substantially as described for operations and purposes set forth.

No. 24,241. Car-Coupler. (Attelage de Chars.)

Duncan K. Eastman, Charlestown, N. H., U. S., 8th June, 1886. 5 years.

Claim.—1st. In a device for coupling cars, the combination, with the draw-head having its lower wall slotted vertically and laterally, of the jaw I arranged therein, having its forward upper side curved upwardly and rearwardly to a transverse shoulder *f*, and provided in the said curved portion with a vertical longitudinal slot *p* adapted to receive a link-engaging hook, substantially as specified. 2nd. The combination, with the draw-head having its lower wall provided with a pivoted jaw I, as described, of the guide arranged in the upper wall thereof, and the pivoted jaw D having its forward longitudinal portion provided with a hook adapted to enter the slot in the said jaw, substantially as specified. 3rd. The combination of the draw-head, the link engaging jaw cam lever N, the rods for operating the same, and the gimbal-joints connecting the hand-levers or rods with the pivoted rod of the link-engaging jaw, substantially as specified. 4th. In a car-coupler, the combination, with the draw-head having the slide-way and the link engaging jaw, arranged as described, of the slide, its friction-spring, slotted hand-levers connecting said slide, and the swivelled brackets supporting the said levers, all adapted to operate substantially as set forth.

No. 24,242. Water Cooler. (Fontaine.)

James O. Brookbank, Driftwood, Penn., U. S., 8th June, 1886; 5 years.

Claim.—1st. In a water-cooler, the conical base B rigidly secured to the sides of the water-receptacle, and provided at its lower portion with an exit pipe which is provided with a stop-cock, and a faucet *a*, substantially as shown and for the purpose set forth. 2nd. In a water-cooler, the receptacle A having a conical-shaped bottom, a pipe attached to the terminal portion of said cone, which extends to the exterior of the cooler, and faucets *a*, *a*, the parts being organized substantially as shown and for the purpose set forth. 3rd. In a water-

cooler, the receptacle A having a conical-shaped bottom, a pipe *b* attached to the lower portion of the cone and extending through the base of the cooler, said pipe being provided with a stop cock *c* and a faucet located above the conical-shaped bottom, substantially as shown and for the purpose set forth.

No. 24,243. Machine for Cutting Meat, etc.

(Machine pour Hacher la Viande, etc.)

John G. Baker, Philadelphia, Pa., U.S., 8th June, 1886; 5 years

Claim.—The combination of the casing and the feed screw having a knife, and carrying at its outer end a Journal *d*, with a perforated end plate A against which the knife cuts, the said perforated plate having a bearing *x* for the said journal, substantially as set forth.

No. 24,244. Sawing Machine. (Sciérie.)

John H. Whitaker, Davenport, Iowa, U.S., 8th June, 1886. 5 years.

Claim.—1st. The combination, with the tubular saw and its hollow saw bar *rel*, of a hollow or tubular stock guide extending into the saw mandrel and fitting closely to its inner walls, and a support for the same rigidly connected to the frame work outside the mandrel, substantially as shown and described. 2nd. The combination, with the tubular saw and its hollow saw mandrel recessed upon its outer periphery to receive the driving belt, of a cover C₁ for the same extending over the top of the saw mandrel, and covering and protecting the belt from the contact of the sawed stock, as set forth. 3rd. The combination, with the tubular saw and its hollow saw mandrel recessed upon its outer periphery to receive the driving belt, the journal boxes composed of stationary sections *b* and removable block *br*, and the saw mandrel cover C₁ secured by the same bolts that pass through the sections *br* of the journal boxes, as described.

No. 24,245. Track Lifter. (Lever de Voie)

James W. McDonald and Robert D. Bathgate, Winnipeg, Man., 8th June, 1886; 5 years.

Claim.—1st. In a track lifter, the combination, with the hand car A, of the jacks F, the plank G, the cross beam E supported on the platform of the hand car A, and the automatic grip H, substantially as shown and described. 2nd. In a track lifter, the hand car A, the jack F, the plank G, the cross-beam E, and the standards D, in combination with the levers L, the chains M, and the pulleys M₁, substantially as described. 3rd. In a track lifter, the hand car A, the jacks F, the plank G, the cross-beam E, and the support D, in combination, with the grips H, each consisting of the levers H₁ and H₂, fulcrumed to a bracket I attached to the sides of the platform B, and connected with the cross-beam E by the rods J, screw eye J₁, and nut J₂, substantially as shown and described. 4th. In a track lifter, the hand car A, the jacks F, the plank G, the cross-beam E, the supports D, the bolts D₁, and the nuts D₂, in combination with the grips H, the rods J attached to the cross-beam E, and the brackets I, substantially as shown and described. 5th. In a track lifter, the hand car A, the supports D, the bolts D₁, the nuts D₂, the grips H, the rods J attached to the cross beam E, the brackets I, the cross-beam E, and the plank G, in combination with the jack F having the cylinder F₂ provided with a base plate F₅, the plunger F₃ provided with the plate F₄, and having a device for operating the said plunger F₃, substantially as shown and described. 6th. In a track lifter, the cross-beam E, and the plank G, in combination with the jack F consisting of the cylinder F₂, provided with the base plate F₅, the plunger F₃ provided with the plate F₄, the handle lever F₁, the arm T, the lifting lever T₁, the retaining lever T₂, and of a device for throwing the levers T₁ and T₂ in or out of gear with the plunger F₃, substantially as shown and described. 7th. The jack F, consisting of the cylinder F₂, the plunger F₃, the lever F₁, the arm T, the lifting lever T₁, and the retaining lever T₂, in combination with shaft U, the arm U₁, and the handle U₂ having the lug U₃, substantially as shown and described. 8th. The combination, with a hand car, of a frame mounted on said car, grips suspended from the frame and jacks attached to the frame, substantially as shown and described. 9th. The combination, with a hand car and a suitable frame mounted thereon, of track grips suspended from the frame, and of jacks having their pistons connected to said frame, substantially as shown and described. 10th. The combination, with a hand car, of a beam mounted to have a short vertical movement upon standards on the car, of track grips suspended from the beam, and of jacks having their pistons connected to said beam, substantially as shown and described. 11th. The combination, with a hand car, a frame mounted thereon, track grips suspended from said frame, and forks having their pistons secured to said frame, of a windlass and chains connected with said forks, substantially as shown and described.

No. 24,246. Button Fastener Setting Machine. (Machine à Poser les Boutons.)

The American Button Fastener Company, New Britain, Ct., assigned to Francis H. Richards, Springfield, Mass., U.S., 8th June, 1886; 5 years.

Claim.—1st. The combination, in a button fastener setting machine, having a driver channel, substantially as described, of a driver, a grooved magazine, substantially as described, supplying fasteners to said channel above the driver, and a spring stop located above the groove of said magazine and projecting into said channel, substantially as set forth and for the purpose specified. 2nd. In a button-fastener setting machine, the combination of slide S, and magazine M, formed substantially as described, having between them channel 26, driver D, spring stop 43 located above the groove of said magazine, and a spring for operating said stop, all constructed and arranged to operate, substantially as set forth. 3rd. In a button fastener setting machine, the combination of magazine M having groove *u*, and a spring detent adapted to bear against the fasteners in said groove, substantially as set forth. 4th. In a button fastener setting machine, the combination of slide S, and slide cap I, provided with means, substantially as described, whereby said cap is held against said slide, substantially as set forth. 5th. In a button-fastener setting machine, the

combination of slide S having the depression for the point of a screw cap 1, and conical pointed screw 27, substantially as set forth. 6th. The combination of tube M having groove G, slotted tube 35, piston 50 having wing 51, spring 52, and means, substantially as described, for drawing back and for turning said piston and thereby said tube 35, substantially as set forth. 7th. The combination of a framework having channel 23, magazine M having groove G, latch 60 pivoted at one end to said magazine, and set inclined to said groove, and a spring operating said latch, substantially as set forth. 8th. The combination in a button-fastener machine, of magazine M, grooved and slotted substantially as described, latch 60 having pin 63 fitting into a notch 64 in said magazine, and tube 37 holding said latch in place, substantially as set forth. 9th. The combination, in a button-fastener machine, of tube 35 having a fixed position, and a slot 45 on the upper side thereof, magazine H having groove G, and means, substantially as described, for locking said magazine to have and for turning it from having its slot first on the upper side and then on the lower side, whereby the fasteners may be put into said groove points down and then inverted and locked therein, substantially as set forth. 10th. The combination, with a framework, of screw C adjustably fixed in said frame, and having point b, slide S having its upper bearing in said framework and its lower bearing on said screw-point, and a driver D sliding in said slide and having its downward stroke stopped by said point, substantially as set forth. 11th. In a button-fastener setting machine, the combination of a framework having a driver channel, substantially as described, a slide having a movement in the direction of and carrying a setting die over said channel, a driver operating to force fasteners through said channel against said die, and connecting mechanism, substantially as described, for operating said driver and die, substantially as set forth. 12th. The combination of a reciprocating driver gearing, substantially as described, for operating said driver, and a stop key acting in connection with said gearing to lock said driver, substantially as set forth.

No. 24,247. Button Fastening Staple for Boots and Shoes. (*Agrafe de Bouton de Chaussure.*)

The Peninsular Novelty Company, Grand Rapids, Mich., (assignee of John H. Vinton, Boston, Mass.,) U.S., 8th June, 1886; 5 years.

Claim.—1st. As an article of manufacture, a button-fastening staple composed of wire, the legs of which are provided with V-shaped points broader than the diameter of the wire from which the staple is made, the cutting edges of both of said points being substantially at right angles to the length of the staple head, substantially as described. 2nd. A staple-fastener or leather-work, it having V-shaped points spread wider than the diameter of the wire, and set at one side of the center of the wire forming the legs above the point to thus compel the staple to clinch uniformly in the desired direction, substantially as described.

No. 24,248. Process and Apparatus for Treating Metals, Alloys, etc., by Electrolysis. (*Procédé et Appareil de Traitement des Métaux Alliages etc., par l'Electrolyse*)

The Cassel Gold Extracting Company, Glasgow, Scotland, (assignee of Henry R. Cassels, London, Eng.,) 9th June, 1886; 5 years.

Claim.—1st. The use of a drum containing carbons forming the positive pole, such drum being mounted upon a hollow shaft, the ends of which pass into tanks forming the cathode, the drum being caused to revolve by suitable gearing and that portion of the shaft within the tanks being perforated and its outer surface well insulated and covered with asbestos or other suitable material. 2nd. An apparatus having a drum fixed upon a hollow shaft, as described. 3rd. A drum, as described, fixed upon a hollow shaft, which shaft serves as cathode and axis for the drum. 4th. An apparatus having a hollow shaft, provided with holes and covered with asbestos or other suitable material, as and for the purpose specified. 5th. A hollow shaft, as described, having the archimedean screw or screws, for causing the solution to circulate, and for the removal of the shimes. 6th. An apparatus having two standards serving as tanks, in which the hollow shaft ends passing through shifting boxes, as and for the purpose specified. 7th. An apparatus having the stuffing boxes, as and for the purpose specified. 8th. Means of conveying a current of electricity into a revolving apparatus, as described, which consists in connecting the carbons by means of metallic rods or bands which are soldered to the ends of the carbons, the said bands or rods being connected with one pole of the source of electricity by means of brushes or rollers otherwise, while the shaft on which the drum is mounted may be connected with the other pole or the standards in which such shaft ends may be connected therewith. 9th. Means of separating the hollow shaft, serving as cathode from the carbons, serving as anodes which consists in providing said shaft with a covering of insulating material, and asbestos or other suitable materials, as and for the purpose specified. 10th. The use of a drum containing carbons forming the positive pole, the ends of such drum being provided with openings covered with asbestos or other suitable material, and over which fit the open ends of a shaft connected to the drum with which it is caused to revolve, and the opposite ends of which shaft terminate in tanks and form the cathode. 11th. In the apparatus described in claim 10, providing the ends of the shaft which are connected to the drum, with openings fitted with valves acting automatically as the drum revolves, as and for the purpose specified. 12th. The use in the apparatus described, in claim 10, in place of the hollow shaft on which the drum is mounted, of iron caps fitting over the asbestos which covers the opening in the ends of the drum, and such caps serving as cathode, as and for the purpose specified.

No. 24,249. Sewing Machine Attachment. (*Panier pour Machine à Coudre.*)

The Empress Sewing Machine Company, (assignee of Charles A. Dearborn,) Toronto, Ont., 8th June, 1886; 5 years.

Claim.—A semicircular basket C having a flat side a, in combination with the hooks E and frame D, substantially as and for the purpose specified.

No. 24,250. Gun Case. (*Etui de Fusil.*)

George Beacock and John K. Fairborn, Brockville, Ont., 8th June, 1886; 5 years.

Claim.—1st. A gun case having the tubular body A formed of a single piece of rawhide or leather moulded to shape, and the longitudinal edges sewn together, substantially as set forth. 2nd. A gun case consisting of the tubular body A and seamless caps C and D, severally made of a single piece of rawhide or leather, substantially as set forth. 3rd. A gun case composed of the tubular body A and seamless caps C and D, severally made of a single piece of rawhide or leather and having a partition J, substantially as set forth.

No. 24,251. Device for Transmitting Power. (*Appareil de Transmission de la Force.*)

William L. Miller, Chillicothe, Ohio, U.S., 8th June, 1886; 5 years.

Claim.—1st. The combination of a base frame, a frame surmounting and pivoted to the base frame, a shaft journalled in said surmounting frame and having a pulley fixed thereon, a pulley secured to said shaft by universal connection, a belt passed over said pulley, and fixed guiding breakots secured to the base frame between which said pulley revolves, substantially as and for the purposes set forth. 2nd. The combination, with a pivoted frame, a shaft journalled therein, and a pulley having universal connection with said shaft, of a base frame having cut-away portions and a bolt, all constructed and arranged to operate, substantially as set forth. 3rd. In combination with a shaft, a driving pulley thereon, and a pivot bar in said pulley, occupying a slot in said shaft, substantially as set forth. 4th. In combination with a shaft, a driving pulley thereon, pivot bar in said pulley occupying a slot in said shaft, and check pieces on said shaft on each side of said bar, substantially as set forth. 5th. In combination with a slotted shaft, and a pulley having pivot-bar arranged to occupy the slot in said shaft, a ring for retaining such pivot bar within the pulley, substantially as set forth. 6th. In combination, with a shaft, a pulley connected by universal joint thereto, guides for said pulley to maintain its rotation in the same plane, and idle rollers for guiding the driving bolt to said pulley, substantially as described.

No. 24,252. Cutlery Handle. (*Manche de Coutellerie.*)

Richard N. Oakman, Jr., Turner's Falls, Mass. (Assignee of James D. Feary, Bridgeport, Ct.,) U.S., 8th June, 1886; 5 years.

Claim.—The herein described improvement in handle for table cutlery, consisting in a metal handle cast directly upon the heel end of the blade, the handle portion cast hollow, the butt end open, and with a longitudinal web between the two sides, the butt end closed by a cap to complete the handle, substantially as described. 2nd. The method herein described for forming cutlery handles, consisting in casting a tubular handle upon the heel end of the blade and upon a metal core, whereby the butt end of the handle is left open and then striking the handle between dies while the core still remains in the handle, substantially as described.

No. 24,253. Boiler for Treating Wood, etc., for Paper and other Pulp. (*Chaudière pour le Traitement du Bois, etc., pour la Pâte à Papier et autre.*)

Charles C. Springer, Boston, Mass., U.S. (Assignee of John Makin, Beilfield, Eng.,) 8th June, 1886; 5 years.

Claim.—1st. In a boiler for the treatment of wood and other fibre yielding material for paper pulp and other uses, a boiler combined with a compound lining composed of two metals having different rates of expansion or contraction, the metal having the least expansion constituting the foundation plate for the compound lining, the metal of greatest expansion or least contraction constituting the sides or faces of the compound lining, and being composed of lead or equivalent acid-resisting or non-corrosive material, the latter metal being tied or anchored to the foundation plate at frequent intervals to thus obviate the objectionable creeping of the metal or of greatest expansion, substantially as described. 2nd. In an apparatus for the production of paper pulp, the combination, with a boiler, of a compound lining composed of a foundation plate of hard metal or iron, and a soft or more easily fused acid-resisting metallic face applied to the foundation plate and anchored or tied to it at frequent intervals to neutralize or overcome the creeping of the lining within the boiler, substantially as described.

No. 24,254. Fluid Pressure Engine Applicable as a Liquid Meter or Pump. (*Machine à Pression Atmosphérique Applicable comme Compteur à Liquide ou comme Pompe.*)

William A. G. Schonheyder, London, Eng., 9th June 1886; 5 years.

Claim.—A fluid pressure engine, applicable as a liquid meter or pump, wherein three or more cylinders or pistons within a casing are linked to one crank, and are mounted on pivots of oscillation, and have passages with facings that bear against stationary port facings, constructed and operating substantially as herein described.

No. 24,255. Lantern. (*Lanterne.*)

Luther B. Wood, Omaha, Neb., U.S., 9th June, 1886; (Re-issue of Patent No. 21661.)

Claim.—1st The combination, with a lantern, of the bent tubes E consisting of the long arms e extending to the upper end of the lantern, the short arms c extending above the wick tubes, and the bent portions being within the oil-vessel, substantially as set forth. 2nd. A lantern, constructed with two bent tubes E, formed with long and short arms e, c, the bent portions being within the oil-chamber, and the short curved pipes b held to turn on the short arms c and having flaring mouths e extending over the wick-tubes, substantially as set forth.

No. 24,256. Iron Harrow. (Herse en Fer.)

Austin Callender, Clinton, Ont., 10th June, 1886; 5 years.
Claim.—1st The combination, in an iron harrow, of bars and braces F, E, H and tooth T and locks L made to receive bars, these locks having holes or recesses running through them at right angles to the teeth. 2nd. The teeth T, having on them a bend at right angles on the upper end, with recess or groove made therein with lips above and below for resting and locking under and over bars F and 3rd. The combination, by which all the parts of the harrow are tightened by pressing open the angles or diamonds so formed in close position to the extreme width of the angles or diamonds allowed by lock L and tooth T, substantially as and for the purpose hereinbefore set forth and described.

No. 24,257. Knob Attachment.

(*Broche de Bouton de Porte.*)
Williston T. Alvord, Bridgeport, Ct., U.S., 10th June, 1886; 5 years.
Claim.—In a knob attachment, the combination, with the sheeks provided with heads, as described, of a hub, whose central longitudinal opening is as follows: in the centro a recess, within which one of the heads may turn upon either side thereof, a second recess formed by cavities in the walls, and corresponding with said heads and upon either side of the last-named recesses openings cut through the ends of the hub, also corresponding in shape to the heads, and having angles or corners coinciding with each alternate angle or corner of the recess next within, substantially as set forth.

No. 24,258. Bottle Stopper.

(*Bouchon de Bouteille.*)
William Painter, Baltimore, Md., U.S., 10th June, 1886; 5 years.
Claim.—1st. A bottle-stopper, consisting of a disk of flexible material, cup-shaped, placed in the bottle neck, with its convex side inward and its concave side outward, and with its edge abutting against the bottle-neck, whereby internal pressure upon said stopper will be transmitted as lateral pressure against the bottle-neck and resistance to displacement will increase with an increase of internal pressure, as set forth. 2nd. A bottle, provided with a groove recess or cavity within its neck, combined with a stopper consisting of a flexible disk, cup shaped, having its convex side inward and its concave side outward and its edges seated in said groove, substantially as and for the purpose set forth. 3rd. The combination of a bottle provided with a neck-opening, and a cup-shaped stopper of flexible material seated therein with its convex side inward and concave side outward, substantially as set forth. 4th. A bottle-stopper, consisting of a disk of flexible material, capable when compressed circumferentially in arched form of resiliency toward a less arch, and adapted to be forced into the bottle mouth with its convex side inward and its concave side outward with its edge abutting against the bottle-neck, said disk being provided with a lug whereby it may be extracted, substantially as set forth.

No. 24,259. Centrifugal Speed Indicator.

(*Indicateur Centrifuge de la Vitesse.*)
Henry Herden, Wellsboro, Pa., U.S., 10th June, 1886; 5 years.
Claim.—1st. In an indicator, the combination, with a shaft carrying a weighted lever, of the spring opposing the movements of said lever and connected to a spindle, said spindle also being connected to said lever and carrying an index, substantially as set forth. 2nd. In a speed indicator, the combination of the slotted shaft C, the two-armed lever E and weights G, G' attached thereto, the spindle J, means for connecting the spindle with the weighted lever, a spring H connected with the spindle and an index n carrying by the end of the spindle, substantially as herein specified. 3rd. In a speed indicator, the combination of the shaft C, the two-armed weighted lever E, the cord c, rod b, slide f, cord h, drum i, spindle j, snail l, cord k and spring H, substantially as herein specified. 4th. In a speed indicator, the combination, with a weighted lever E, and spring H opposing the centrifugal action of the weighted lever, of a spring M arranged to bear against the side of the spring H, substantially as herein specified. 5th. In a speed indicator, the combination, with the shaft C and the weighted lever E, of the screw o for limiting the motion of the lever E, as herein specified. 6th. In a speed indicator, the combination of the shaft C, weighted lever E, cord c, guiding pulley d, rod b, slide f, guide g, guiding rod g, cord h, drum i, spindle j, snail l, cork k, spring H and spring m, substantially as herein described.

No. 24,260. Tubular Case for Fishing Rods, Umbrellas, Telescopes, etc. (Etui Tubulaire pour Gaules de Pêche, Parapluies, Telescopes, etc.)

George Hancock, Brockville, Ont., 10th June, 1886; 5 years.
Claim.—1st. As an improved article of manufacture, a tubular case having the body a formed of a single piece of raw hide or leather, seamed longitudinally and provided with a seamless cap C and seamless cover D moulded to form, and straps F, H, as set forth. 2nd. The tubular body A, having a seamless cap C, and cover D and straps F, H, threaded through the cap and cover, as set forth.

No. 24,261. Car-Coupling. (Attelage de Chars.)

Donald McKinnon, Tonnyson, Ont., 10th June, 1886; 5 years.
Claim.—1st The combination, with the drawhead A having a chamber B, pin-hole K and longitudinal slot D, of the pin E and block F, for supporting the coupling-pin and effecting coupling, as set forth. 2nd. The block F having a shoulder H, and hung by pin E in the drawhead A, to operate, as set forth.

No. 24,262. Attaching Rubber to Small Boats. (Pentes de Gouvernail pour Bateaux.)

Albert T. Frampton, East Molesey, Eng., 10th June, 1886; 5 years.
Claim.—1st. The rudder attachment, substantially as and for the purpose hereinbefore described and shown. 2nd. In a rudder attachment, a continuous pin or pintle, in combination with a split socket, arranged and operating as specified. 3rd. In a rudder attachment, the combination of a split socket and an eye, constructed and arranged as hereinbefore specified.

No. 24,263. Tubular Lantern. (Lanterne Tubulaire.)

William H. Paulin, Owen Sound, Ont., 10th June, 1886; 5 years.
Claim.—A lamp, having a perforated base plate A to support the glass B, and provided with a vertically-acting spring or springs, in combination with a spring-catch G designed to hold the lamp-glass down, substantially as and for the purpose specified.

No. 24,264. Bolting Machine. (Buloir.)

James Huxtable, Horning's Mills, Ont., 10th June, 1886; 5 years.
Claim.—1st. A chest B, having one or more flat sieves arranged within it, one or more horizontal rods C to support the said chest, in combination with the pitman F connected to machinery designed to impart a reciprocating lateral motion to the chest B. 2nd. A chest B, containing one or more sieves A, and supported by the horizontal rod or rods C, in combination with the pitman F connected to the chest B by a spring a, and to the crank-pin G attached to and revolving with the shaft H for the purpose of operating the chest B, substantially as and for the purpose specified. 3rd. One or more sieves A, supported within a chest B, which derives a reciprocating motion, as specified, in combination with the brush or brushes I held stationary in contact with the surface of the sieve A, substantially as and for the purpose specified. 4th. One or more sieves A supported within a chest B, which derives a reciprocating motion, as specified, in combination with the brush or brushes I connected to mechanism by which they are raised at certain intervals during the reciprocating motion of the chest B. 5th. The brush I connected to the bar K, in combination with the cam L, connected by mechanism driven so that the bar K shall be raised at certain intervals during the reciprocating motion of the chest B. 6th. The sieve A, placed within a chest B, deriving a reciprocating motion from mechanism, as specified, in combination with the pivoted rafter N and strike the sieve during the reciprocating motion of the chest B. 7th. The sieve A placed within a chest B, deriving a reciprocating motion from mechanism, as specified, in combination with a pivoted rafter N and brush I, arranged to operate substantially as and for the purpose specified.

No. 24,265. Steam Generator for House Heating, etc. (Générateur de Vapeur pour le Chauffage des Maisons, etc.)

Charles Gorton, New York, N.Y., U.S., 10th June, 1886; 5 years.
Claim.—1st. The combination, in a steam generator, of the upper portion provided with the annulus E, fuel pockets C and fire-pot D, substantially as set forth. 2nd. A steam generator, consisting of the upper section having the annular, and the lower standing section forming the fire-pot, in combination with the fuel reservoir and the connecting tubes, arranged substantially as set forth. 3rd. A steam generator, consisting of the upper and lower sections, connected together by water circulating tubes, a fuel reservoir between said sections and a furnace having slanting inner walls with the grate, all arranged for joint operation substantially as set forth. 4th. A steam boiler, consisting of the upper section having the long and short series of tubes, an annular chamber forming the bottom of the return smoke chamber and also the top of the fuel reservoir, in combination with the fuel pockets and the fire-pot, substantially as set forth and described. 5th. The combination in a steam-generator of the upper and lower sections, as described, the flat annular chamber located beneath the short tubes and over the fuel-reservoir, the depending annulus with the fire-pot, substantially as set forth.

No. 24,266. Tool for Moulding the Mould Boards of Ploughs. (Outil pour Façonner les Oreilles des Charrues.)

William M. Gorry, Williamantic, Ct., U.S., 10th June, 1886; 5 years.
Claim.—A pattern for that class of plough mould boards, in which a ledge is cast as an integral part of said mould-board, having the ledge pattern c, dovetailed removably to the mould-board pattern, and having on its under side core prints s, s, extending to the point of junction with said mould-board, all as and for the purpose specified.

No. 24,267. Pad Fastening to Billiard Cues. (Manière d'Assujettir les Procédés aux Queues de Billard.)

Ernest Ferchland, Brooklyn, N.Y., U.S., 10th June, 1886; 5 years.
Claim.—The combination, with a billiard cue, a pad-fastening and pad, arranged and constructed and consisting of a grooved shaft K, C,

the cue with the shanks *a* and *b*, an outer fixed ferrule *D* with a rim *J* upon the shank *a*, and the inner ferrule *E* over the shank *C* with its prongs *i*, *i*, and an outer rim *f*, substantially as and for the purposes herein set forth.

No. 24,268. Knob Attachment.

(*Broche du Bouton de Porte.*)

Williston T. Alvord, Bridgeport, Ct., U. S., 10th June, 1886; 5 years.

Claim.—The combination, with independent hubs located on opposite sides of the catch shank, and recessed, as described, and knob shanks having heads adapted to be attached to said hubs within said recesses, of the latch, the body of the shank of which is interposed between said heads when the parts are in their assembled position, whereby the knob shanks are secured in their position against retraction, substantially as and for the purposes specified.

No. 24,269. Washing Implement.

(*Machin à Laver.*)

Archibald McKillop, London, Ont., 11th June, 1886; 5 years.

Claim.—As a new article of manufacture, a washing implement, consisting of the tube *B*, having one of its ends closed fixed to the end of, or as a continuation of the body or handle *A*, substantially as herein shown and described.

No. 24,270. Heel Counter.

(*Contrefort de Chaussure.*)

R. White & Co (Assignees of Joseph Kieffer), Montreal, Que., 11th June, 1886; 5 years.

Claim.—1st. As a new article of manufacture, a heel-counter or stiffener, having a ridge *B* between the counter proper and the upturn proper, substantially as shown and described. 2nd. As a new article of manufacture, a heel counter or stiffener finished with the upturn proper turned down, substantially as described.

No. 24,271. Hay and Cotton Press.

(*Presse à Foin et à Coton.*)

Hans G. Hansen, Calumet, Mich., U. S., 12th June, 1886; 5 years.

Claim.—1st. In a hay and cotton press, the sides composed of a series of alternate strips and spaces, in combination with a bottom consisting of a corresponding series of strips and spaces, so as to receive the hinged ends of the sides in the spaces between the bottom strips, substantially as described. 2nd. In a press for baling hay and cotton, the independent detachable sides and base, constructed and arranged substantially as herein described, having the independent ends *B* hinged below the side rails *G*, substantially as and for the purpose herein set forth.

No. 24,272. Folding Ambulance Chair.

(*Fauteuil d'Ambulance Pliant.*)

Richard A. Mowll, New Ferry, Eng., 12th June, 1886; 5 years.

Claim.—In a folding ambulance chair, constructed as shown, the combination of the frame work *O*, canvas *P*, handles *B*, *B*, and *C*, *C*, the arm stay *E*, *E*, and the shackles *H*, *H*, all arranged substantially as and for the purpose set forth.

No. 24,273. Sleeve and Glove Protector.

(*Protecteur de Manche et de Gant.*)

Martha W. Slack, Sandwick, Ill., U. S., 12th June, 1886; 5 years.

Claim.—A sleeve protector, provided with a hand extension having an opening and an elastic around the opening to draw it closed, and a thumb-piece secured to the extension, and an elastic to draw said extension around the wrist, substantially as and for the purpose set forth.

No. 24,274. Application of Elastic Tyres to the Wheels of Velocipedes, etc.

(*Application de Bandages Élastiques aux Roues des Velocipèdes, etc.*)

William H. J. Grant, Stoke, Eng., 12th June, 1886; 5 years.

Claim.—A tyre for velocipedes and other vehicles, formed in sections with regular and irregular grooves or spaces formed on its surface, in combination with the pins *F*, cavities *D* and felt or *t*, substantially as described and illustrated in the accompanying drawings.

No. 24,275. Car-Coupler. (*Attelage de Chars*)

Joseph Hanson, Coe Hill Mines, Ont., 12th June, 1886; 5 years.

Claim.—1st. In a car-coupling mechanism, the supporting arm *C* provided with the claws *b*, *b*, substantially as shown and for the purpose set forth. 2nd. The bent lever *E*, fulcrumed in the frame *B*, and arranged to be operated by the hook *D*, in the manner herein shown and described. 3rd. The pin lever *F*, having the coupling-pin *g* attached to it, provided with the branch *h*, fulcrumed in the frame *B* and arranged to be held by a hook on the bent lever *E*, substantially as described. 4th. The above described coupling device, consisting essentially of the supporting arm *C*, hook *D*, bent-lever *E* and pin lever *F*, substantially as herein shown and described.

No. 24,276. Display Frame for Store Windows, etc. (*Montre pour Vitrines de Magazines, etc.*)

Wilber R. Foster, Rockville, Ct., U. S., 12th June, 1886; 5 years.

Claim.—1st. In a display-frame, in combination, the standards *a* the jointed frame *b* hinged to the upper part of the standards, and

extending across the latter through socket-pieces *d*, with clamping nut *d* and clamp-screws *d*, and the cross-bars *c*, borne on the adjustable supports *e* having clamp-screws, all substantially as described. 2nd. In a display-frame, in combination, the extensible standards *u*, the frame *t* with jointed side bars *u*, that are each hinged to the top of the standards, and extend across the latter through socket-pieces *d*, with the clamping screws *d* and *d*, the extensible section *z* of the frame with the yoke device *f* and the cross-bars *c* borne on the adjustable support *e* that have the clamp-screws *e* and *e*, all substantially as described. 3rd. In a display frame, in combination, the extensible standards *u* having clamp-screws *d*, the extensible frame *t*, with hinged joints extending across the top of the standards and borne by the hinged socket-pieces *d*, that have clamp-screws *d* and *d*, and the cross-bars *c* held by the adjustable supports *e* having clamp-screws *e*, *e*, all substantially as described. 4th. In a display-frame, in combination, the extensible frame *t* having the hinged side-bars that are adjustably supported in socket pieces, attached to the top of standards and extend across the latter, the hinged socket-pieces bearing clamp-screws, the standard and the cross-bars, all substantially as described.

No. 24,277. Folding Table. (*Table Pliante.*)

William R. Fee, Montreal, Que., 12th June, 1886; 5 years.

Claim.—1st. The combination, in a folding table, of the slab or table top proper, with side ribs, curved legs or supports set into same at or near one end, and a frame with short legs at one end and set into supports near the other lower ends, all as herein set forth and for the purposes described. 2nd. The combination, with the table proper and side ribs, of the curved supports *C*, *C* connected to same by links *D*, *D*, frame *E* connected to supports *C* by links *G*, and fastening *H*, all as and for the purposes set forth. 3rd. The combination, with the table proper *A*, with ribs *B*, supports *C* and frame *E*, all connected together, of desk with sides *A1*, *A2*, constructed and arranged as herein set forth.

No. 24,278. Vehicle Brake. (*Frein de Voiture.*)

Franklin K. Smith, Bennington, Vt., U. S., 12th June, 1886; 5 years.

Claim.—1st. A brake lever, forked as shown, at its near and lower end having a series of pivot holes through the forked ends for the insertion of the fulcrum bolt, and pivot bolts to attach the connecting rods thereto, and bent at the point where the forks diverge, as shown, and having its free end provided with an eye for attachment of a cord or strap whereby to operate the same, in combination with two connecting rods adapted to be connected at one end with the forked ends of the brake lever, and at the other end with the brake proper, substantially as specified. 2nd. The brake lever *L*, forked as shown, for the attachment of draft rods, connected with the brake beam, and adapted to be on the top side of the pole when not in use, having provisions at the end of the long arm thereof, for attaching a rod or cord for operating the same, in combination with rods *R*, *R*, and brake beam *C*, substantially as specified.

No. 24,279. Guide for Hoop-Sawing Machines. (*Guide pour Scieries de Cercles.*)

John C. Ballow, Evansville, Ind., U. S., 12th June, 1886; 5 years.

Claim.—1st. In a saw and pole guide, the combination of a U-shaped frame, the ends of which are provided with vertical bearings, a swinging frame secured in said bearings, saw-guiding blocks, and one or more rollers secured in said frame. 2nd. In a saw and pole guide, the combination of a U-shaped frame, the end of which are provided with vertical bearings open at one side, a swinging frame having open sided or grooved trunnions secured in said bearings, saw-guiding blocks and one or more rollers secured in the said swinging frame, a cross-piece secured to the middle portion of said U-shaped frame, a thumb screw through each end of said cross-piece, and a coiled spring connected to the end of each of said screws and to said swinging frame. 3rd. In a saw and pole guide, the combination of a U-shaped frame having bearings at its ends open at one side, a swinging frame having blocks at its ends, and trunnions on said blocks, said blocks and trunnions being open or grooved at one side, an aperture in each of said blocks, a guide block having a kerf in one side secured in each of said apertures, one or more rollers in said frame, and means for retaining it in position. 4th. In a saw and pole guide, the combination of a U-shaped frame having bearings at its ends, a swinging frame secured therein, said swinging frame consisting of two bars, and an upper and lower plate secured to the ends of said bars, each of said plates being provided with two parallel slots, a frame in the corresponding slots of each plate, a roll or journal in each of said frames in said slots, and means for adjusting said frames in said slots.

No. 24,280. Combined Railroad Semaphore and Safety Road Gate. (*Sémaphore de Chemin de Fer et Barrière de Passage de Sécurité Combinés.*)

Edward S. Piper, Toronto, Ont., 12th June, 1886; 5 years.

Claim.—1st. The pivoted gate *B*, connected by the rod *D* to the vertically movable jacket *d*, in combination with mechanism for elevating and depressing the said gate, substantially as and for the purpose specified. 2nd. The pivoted gate *B*, connected to the vertically movable jacket *d* by the rod *D*, in combination with the pivoted lamp *I*, arranged substantially as and for the purpose specified. 3rd. The pivoted gate *B*, connected to the vertically movable jacket *d* by the rod *D*, in combination with the chain *L*, arranged to connect two or more safety-gates and semaphores, substantially as and for the purpose specified. 4th. The pivoted gate *B*, connected to the vertically movable jacket *d* by the rod *D*, in combination with the chain *O*, sprocket wheel *N* and shaft *M*, arranged to operate simultaneously two or more safety-gates of a semaphore, substantially as and for the purpose specified. 5th. The pivoted gate *B*, having pivoted upon it, the lamp *I*, in combination with the blind *J* designed to hide the

light of the lamp when the gate is elevated, substantially as and for the purpose specified.

No. 24,281. Fastener for Shoes, Gloves, etc.

(*Agrafe pour Souliers, Gants, etc.*)

Fred. F. Meeker, Westport, Ct., U.S., 12th June, 1886; 5 years.

Claim.—1st. A fastener for shoes, gloves, etc., consisting of a plate 2, rivetted to one side of the article, a hook rivetted to the other side thereof, a plate 5 having slots adapted to engage said hook, and a turning plate hinged to plates 2 and 5, and adapted to be swung over so as to change ends, thus drawing the opposite sides of the article toward each other. 2nd. Plate 2 and hook 8, in combination with plate 5, having opening 6 and slots 7, and plate 4 hinged to plates 2 and 5, substantially as described. 3rd. Hook 8, plate 2, having lips 9, and plate 5 having opening 6 and slots 7 in combination, with plates 4 having opening 10 and lips 11. 4th. Plates 2, hook 8, and plate 5 having a central opening, and slots to engage the hook, in combination with plate 4 hinged to plates 2 and 5 and provided with a finger piece 12, as and for the purpose set forth.

No. 24,282. Steelyards for Weighing Machines. (*Fléau de Balance-Bascule.*)

Henry Pooley, Liverpool, Eng., 14th June, 1886; 5 years.

Claim.—1st. The combination, with a steelyard, of two or more graduated indexing scales thereon, arranged on one side of the steelyard, substantially as described, and a pointer having two or more pointing or indicating elements, as and for the purposes set forth. 2nd. The combination, with a steelyard, of two or more graduated scales thereon arranged one over the other, substantially as described, and a pointer having two or more pointing or indicating elements, as and for the purpose set forth. 3rd. The combination, with a steelyard, of the type herein described, of two or more indexing scales, arranged or stepped one behind the other, substantially as and for the purposes set forth. 4th. The combination, with a steelyard and a counterpoise weight, of a multiple stepped indexing scale, and a stepped sliding pointer, substantially as set forth for the purposes described. 5th. The combination, with a steelyard, of two or more engaging scales thereon, and a device upon the counterpoise for engaging with such scales, having two or more elements for engaging with corresponding provisions in the scales, whereby the sliding counterpoise may be switched from one scale to another or others, substantially as set forth. 6th. The combination, with a steelyard, of two or more engaging scales, an engaging device for engaging with such scales, an indexing scale and pointer, arranged substantially as set forth, for the major units of weights, and two or more stepped scales, and a sliding pointer, substantially as and for the purposes described for the minor units of weights. 7th. The combination of the steelyard A, of the scales a, b, arranged with an upward inclination, the counterpoise B, the engaging device K, engaging scales a, b, pointer i, scales c, pointer u, weight t, and its guide bar x, substantially as set forth, with reference to the drawings. 8th. The combination, with the counterpoise weight B, of the scales c, arranged as set forth, the combined weight and stepped pointer t, x, and the bars a, substantially as set forth, with reference to the drawings. 9th. In combination with the sliding counterpoise B, the engaging device or tumbler K having a trunnion l, and a spring locking device consisting of a spring n, and bolt m, substantially as set forth with reference to the drawings.

No. 24,283. Sewing Machine Shuttle.

(*Nacelle de Machine à Coudre.*)

Frederick M. Wilson, Hamilton, Ont., 14th June, 1886; 5 years.

Claim.—1st. In a sewing machine shuttle, an axle pin inserted in one end of the same, in combination with a hollow bobbin arranged to revolve on the said axle pin, substantially as and for the purpose specified. 2nd. In a sewing machine shuttle, the opening d in the bobbin stem C, and disk e, in combination with the stationary axle pin B affixed in the shuttle A, substantially as and for the purpose specified. 3rd. In combination with the bobbin C and axle pin B, of the plug f, affixed in the centre of the disk e, of the shuttle bobbin, substantially as and for the purpose specified. 4th. The combination of the cylinder shuttle A, axle pin B, hollow bobbin C, plug f, and shuttle carrier D, all constructed and arranged substantially as and for the purpose specified.

No. 24,284. Packing Box for Fruit.

(*Boîte d'Empaquetage pour les Fruits.*)

Simcon T. Jenkins, Baltimore, Md., U.S., 14th June, 1886; 5 years.

Claim.—The combination of the intersecting and interlocking strips, having notches in the edges on the line of intersection, and the horizontal partition having perforations corresponding with the notches in the vertical strips, substantially as described.

No. 24,285. Carriage Top Form.

(*Gabarit de Couverture de Voiture.*)

James F. Kirkland, Guelph, Ont., 14th June, 1886; 5 years.

Claim.—1st. In a machine for holding the tops of carriages while being trimmed, the combination, with a base or clamps at opposite ends of the same, the clamping-spaces, of their jaws extending transversely to the base of side clamps mounted in the same side of the base, with the clamping-spaces of the jaws at right angles to those of the end jaws, substantially as set forth. 2nd. In a machine for holding the tops of carriage while being trimmed, the combination, with the base, having longitudinal slots e, e', f, f' at its opposite ends on opposite sides of its center, and a central longitudinal slot of the U-irons g, h, g, h, at opposite ends of the frame, the jaws a, b, hinged to the outer faces of the vertical irons g, screws t for operating said jaws, guide-pins m extending from the lower faces of the irons h into

the several slots e, e', f, f', and the side clamps N, N on the same side of the base adjacent to the end clamps, substantially as set forth. 3rd. In a machine for holding the tops of carriages while being covered, the combination, with the base having clamps on opposite ends thereof, the clamping-spaces thereof being transverse to the base of the brackets p, p at opposite ends of the same side of the base, having the adjusting screws H at their inner ends, the standards n, n, projecting up from the outer ends of the brackets, and the clamping jaws u pivoted to the said standards and provided with the adjusting screws u, u, substantially as set forth. 4th. In a machine for holding carriage tops while being covered, the combination, with a stand A and the base B pivoted to swing horizontally thereon, of the vertical end clamps extending transversely to the base, and the vertical side clamps extending up from the same side of the machine, substantially as set forth. 5th. In a machine for holding carriage tops while being formed, the combination, with the base and the end clamps extending up from the opposite ends of the brackets p, p, secured at their inner ends to the base near its opposite ends, and the clamps N, N having pivot pins q on their lower ends extending through the outer ends of the brackets, and nuts on said pivots for adjusting the said clamps, substantially as set forth. 6th. In a machine for holding carriage tops while being trimmed, the combination, with the stand A and the base B provided with end clamps E, E, and side clamps N, N, of the rod D having a screw-eye d on its lower end to enter the floor, and extended up through the stand and base, and provided with the nut d' on its upper end for clamping the base to stand, substantially as set forth. 7th. A machine for holding carriage tops while being trimmed, consisting in a stand, a base thereon having a longitudinal central slot e, side e, e', f, f' at opposite ends, and sides of the base parallel with the slot e, and two short transverse slots e' of the end clamps E having pivoted clamping jaws on their outer faces, and guide-pins, adjusting screws working in the slots e, e', f, f' the brackets p, screws H extending through the said brackets into the transverse slots e, the clamps N, N pivoted at their lower ends to the outer ends of the brackets, and the rods D pivotally connecting the base and stand, and the nut d' and screw-eye d, all constructed and combined substantially as set forth.

No. 24,286. Revolving Furnace.

(*Fourneau Tournant.*)

Henry Mathoy, New York, N.Y., U.S., 14th June, 1886; 5 years.

Claim.—1st. In a revolving furnace, a cylinder, consisting of two or more sections suitably joined together, each section of said cylinder having a conical lining, substantially as described and for the purposes set forth. 2nd. In a revolving furnace, a cylinder consisting of two or more sections, each section having one end flanged projecting outwardly from the cylinder, the opposite end of the section having a flange projecting into and outwardly from the cylinder, substantially as and for the purpose set forth. 3rd. In a revolving furnace, a cylinder consisting of two or more sections, each section having an inwardly projecting flange to form an abutment for the lining of the cylinder, substantially as and for the purpose set forth. 4th. In a revolving furnace, a cylinder consisting of two or more sections, the lining of said cylinder consisting of a series of bricks of gradually diminishing height, as described, whereby said lining is made cone-shaped, substantially as and for the purpose set forth. 5th. In a furnace, a cylinder consisting of one or more sections, as described, and provided with a lining of fire-brick, the difference in height of the end brick of each section being the difference in height of the sections when bolted together, whereby the lining is rendered conical while the sections remain horizontal, substantially as set forth. 6th. In a furnace, a cylinder consisting of two or more sections, each section having a conical lining, in combination with wheels whose bearings are in the same horizontal plane, and mechanism for operating the same, whereby torsion and side friction on said wheels and cylinder is reduced to a minimum, substantially as described. 7th. In a revolving furnace, the combination, with a cylinder, of two fire-places, one placed above and in advance of the other, and a flue shaft, which permits the material heated by the first fire-place to come into direct contact with the heat from the lower fire-places as it falls from the cylinder, whereby the calcining, roasting and burning is completed, substantially as described.

No. 24,287. Plough. (*Charrue.*)

William M. Goody, Williamantic, Ct., U. S., 14th June, 1886; 5 years.

Claim.—1st. In combination with the mould-board, having the beam standard, a ledge l and point-supporting shell, all cast integral with each other, the point C extending above the point of junction with the mould-board, and having its landside face cut back, forming an acute angle with the line of movement of the complete plough, and a land-side, whose outer lower side, beginning at the point end, is formed with a gradually increasing concavity, all as and for the purpose specified. 2nd. In a plough, a point section, whose land-side face is cut back forming an acute angle with the line of movement of the plough, a mould-board, substantially as described, and a land-side, whose outer lower side is gradually concaved from the point rearward said land-side, being so cut at its rear end that its heel is opposite the heel of the point, the complete plough being balanced on said heels, all of said elements being combined and used as and for the purpose specified.

No. 24,288. Plough Clevis. (*Voile de Charrue.*)

Oza A. Essig, Canton, Ohio, U.S., 14th June, 1886; 5 years.

Claim.—1st. The combination of the frame C, provided with the transverse lips d, d, of the nut G, provided with the arms H, of the screw B and the clevis K, provided with the recesses J, substantially as described and for the purpose specified. 2nd. The frame C, formed in two pieces or halves, and provided with the slots I, in combination with the screw B and the clevis K, substantially as and for the purpose specified.

No. 24,289. Steam Boiler. (Chaudière à Vapeur.)

Jonathan C. Jopling, Sunderland, Eng., 14th June, 1886; 5 years.

Claim.—In a steam boiler, the flues D, D₁ and D₂ and tubes E, arranged as shown and for the purpose set forth.**No. 24,290. Nail Driver. (Chasse-Clou.)**

Stuart Perry, Newport, N.Y., U.S., 14th June, 1886; 5 years.

Claim.—1st. In a machine for driving nails, the combination, with driving devices, of a magazine provided with two or more nail-channels, means for sustaining the said magazine in position for the delivery of nails from the said channels to the driving devices, comprising a shifting support, substantially as described, constructed to hold said magazine with either of its channels in position for delivering nails to the said driving devices, and locking devices for said shifting support, substantially as described. 2nd. In a machine for driving nails, the combination, with a driving-head provided with driving devices and having a side aperture to admit the nails, of a magazine having two or more nail-channels and means for sustaining the magazine in position for the delivery of nails to the said driving devices, comprising a shifting support, substantially as described, upon the head constructed to hold said magazine with either of the channels thereof in alignment with the aperture of the head, substantially as and for the purpose set forth. 3rd. In a machine for driving nails, the combination, with a driving-head provided with driving devices, substantially as described, and having a side aperture to admit the nails of a magazine provided with two or more nail-channels, a fixed support attached to said head and constructed to receive and hold the outer end of said magazine immovable with relation to said head, a shifting support attached to said head, constructed for engagement with the inner end of said magazine, and adapted to bring either of the channels thereof in line with said side aperture of the said head, and means, substantially as described, for holding said magazine in position with either of channels in line with said aperture, substantially as and for the purpose set forth. 4th. In a machine for driving nails, the combination, with a plunger, a head having a passage to receive and guide the plunger, and a side aperture to admit the nails into said passage, of a pivoted hook or jaw for separating the foremost nail from a line of nails, means, substantially as described, for actuating the said jaw, the said head being provided with an opposing stationary part or surface operating in connection with the hook or jaw to engage the separated nail, and to move the latter bodily forward and into the said passage, substantially as described. 5th. In a machine for driving nails, the combination of a plunger, a head having a passage to receive and guide the plunger, and an aperture to admit the nails into said passage, and a single pivoted hook or jaw for separating the foremost nail from a line of nails, means, substantially as described, for actuating the said jaw, said head being provided with an opposing stationary part or surface operating in connection with the jaw to feed forward the separated nail, and also with a part or surface opposed to the jaw and continuous with the inner wall of the passage, and forming in connection with the said jaw a means for holding or supporting the nail in position to be driven, substantially as described. 6th. In a machine for driving nails, the combination of a plunger, a head having a passage to receive and guide the plunger, and a side aperture to admit the nails to said passage, and a single laterally-movable spring-actuated hook or jaw provided with an inclined surface adapted for engagement with the plunger, and operating to separate the foremost nail from a line of nails, the said head being provided with stationary parts or surfaces opposed to the jaw, and forming in connection with the latter a means for moving forward into the passage a separated nail and holding said nail in position to be driven, substantially as described. 7th. In a machine for driving nails, the combination of a plunger, a head having a passage to receive and guide the plunger, and a side aperture to admit nails to the passage, a laterally-reciprocating hook or jaw, means, substantially as described, for actuating said jaw, a vibrating stop or detent for arresting the forward movement of the nails when the jaw is removed from the line of feed, and means, substantially as described, for actuating said detent, the said head being provided with stationary part or surface opposed to the jaw, and operating in connection with the latter to separate and feed forward the foremost nail from a line of nails fed to the driving device, substantially as described. 8th. In a machine for driving nails, the combination, with a plunger, a head having a passage through it adapted to receive and guide said plunger, and a side aperture to admit nails to the passage, a spring-actuated laterally-reciprocating jaw or hook, constructed to separate the foremost nail from the line of nails fed to the driving device, and to temporarily close the said aperture so as to stop the nails, and means, substantially as described, for actuating said hook of a detent adapted to arrest the forward movement of the nails when the said jaw is forced aside by the plunger, and suitable operative connections between the jaw and detent whereby the latter is actuated from the former, substantially as described. 9th. In a machine for driving nails, the combination, with a plunger, a head having a passage through it to receive and guide said plunger, and a side aperture to admit nails, a spring-actuated laterally-reciprocating hook or jaw, constructed to separate the foremost nail from the line of nails fed to the driver, and to temporarily close said aperture, so as to stop the advance of said nails, and provided with an inclined surface adapted to be engaged by said plunger, of a detent actuated by said jaw and adapted to close said side opening when said jaw is forced aside, and a yielding or spring connection between the jaw and the detent, whereby the latter is actuated by the former, substantially as and for the purpose set forth. 10th. In a machine for driving nails, the combination, with a plunger, of a head provided with a passage through it to receive and guide said plunger of sufficient length to admit the whole length of said plunger within said head, whereby the outer end of said head acts as a stop to the movement of the hammer, substantially as and for the purpose set forth. 11th. In a machine for driving nails, the combination, with the head provided with suitable driving devices, of a spur or spurs mounted in apertures in said head and adapted to project therefrom, said spurs being adapted to engage the piece into which the nails are to be driven, of springs applied to force said spurs outwardly, and constructed to yield and per-

mit them to be forced into said head, substantially as and for the purpose set forth. 12th. In a machine for driving nails, the combination, with a driver-head provided with suitable driving devices, of a magazine, provided with a suitable projection or lug *e*, and a magazine support or handle attached to said head, of means, substantially as described, for supporting the inner end of said magazine, guide-plates *c* adapted to hold the outer end of said magazine laterally immovable in said handle, and a spring *e* adapted to engage said lug *e*, substantially as and for the purpose set forth. 13th. In a machine for driving nails, the combination, with a driver head, provided with means, substantially as described, for driving nails, and with a side aperture to receive the nails, a magazine provided with two or more nail-channels, and a magazine-support or handle provided with supports to receive and hold the outer end of said magazine, of a shifting support for the inner end of the magazine attached to said head and constructed to slide thereon, so as to bring either of said nail-channels in line with said aperture, and a spring-actuated detent *F* upon the said shifting support, the said head being provided with notches *f* adapted for engagement with the said detent, substantially as and for the purpose set forth. 14th. In a machine for driving nails, the combination, with a driver-head provided with means, substantially as described, for driving nails, and with a side aperture to admit the nails, a magazine provided with two or more nail-channels and with notches *e* at its inner end, of a shifting support for the inner end of said magazine having sliding connection, with the head, and provided with projections *g* adapted to engage the notches *e*, and a handle or support for holding the outer end of the magazine, provided with a spring *e* adapted to hold the inner end of the said magazine in engagement with the said shifting support, substantially as described. 15th. The combination, with a plunger and a driver-head having a passage to receive and guide said driver, and a side aperture to admit the nails, of a hook or jaw *D* pivoted to said head and actuated by the plunger, a spring applied to throw the jaw toward the opposite face of the passage, a detent *D'* pivotally supported upon the head concentric with the said jaw *D*, stops *d* upon the detent adapted to engage a projection upon the jaw for limiting the relative movement of said jaw and detent, and a spring *d'* adapted to hold the detent in position for operation, substantially as and for the purpose set forth.

No. 24,291. Water Motor. (Moteur Hydraulique.)

Antoine L. Panet and Francis Hallé, Quebec, Que., 14th June, 1886. 5 years.

Claim.—1st. In a water motor, the radial bucket shafts C, in combination with the web A, as shown and described for the purpose set forth. 2nd. In a water motor, the radial bucket shafts, provided with the buckets D, as shown and described for the purpose set forth. 3rd. In a water motor, the web A with radial bucket-shafts C, and the curb H, provided with outlet I and inlet J, as shown and described for the purpose set forth. 4th. In a water motor, a bucket moving on a radial shaft and having a circular base, and a tangential outlet, as shown and described for the purpose set forth.

No. 24,292. Torpedo Boat and Submarine Vessel. (Bateau Torpilleur ou Vaisseau Sousmarin.)

Winfield S. Sims, Newark, N.J., U.S., 14th June, 1886. 5 years.

Claim.—1st. The combination, with the described torpedo boat provided with a screw propeller, and an electro-motor therein, connected to said propeller, so as to communicate motion thereto, of a generator of electricity located outside of said boat, and electrically connected by a suitable conductor with said electro-motor arranged in said boat, to be paid out therefrom as the boat moves from the generator, whereby the force employed as the propelling power may be derived from electricity generated outside of said boat, and applied to actuate said propelling electro-motor within said boat, all as and for the purpose described. 2nd. The combination, with the described torpedo boat, and an electric generator stationed outside of said boat, electrically connected therewith by an electric conductor arranged to be paid out from the boat as the same moves away from the generator, of the described steering mechanism, and the electro-magnets I and J provided with armatures J and J', by the movements of which the said steering mechanism is actuated, all as and for the purpose described. 3rd. The combination, with the described main and auxiliary electric circuits, the main and auxiliary electric generators located at the operating station outside of the boat, and the described propelling motor and steering magnets of the described steering relay electrically connected to the auxiliary generator, and in the circuit of the main generator between the said motor and steering magnets together with the described necessary devices, whereby the main current after passing through said motor may be means of the auxiliary current be switched through either of the steering magnets at the option of the operator all as specified. 4th. The combination, in a torpedo boat, with the main conductor therein leading from a generator located at a station outside of the boat, and with a branch of said conductor leading to the explosive charge in the boat, of a relay in the circuit formed by said main and branch conductors, together with the described necessary devices in said relay, whereby when the current through said main conductor is reversed it is switched through said branch conductor to the explosive charge, all as and for the purpose described. 5th. The combination in the described torpedo boat of the two independent magnets I and I', the rudder E, tiller L, armatures J and J' arranged to slide in ways *z*, and the rigid tiller rods *l* and *l'* as and for the purpose described. 6th. The combination in the described torpedo boat of the rudder E, tiller L, magnets I and I', and rigid connecting rods *l* and *l'*, provided with the adjusting screw wheels *m* and *m'*, as and for the purpose described. 7th. The combination, with the described boat and float, of a guard secured to and extending between their bow ends, and inclining rearward from the boat to the float for the purpose of causing the boat and float when under way to be deflected downward and pass under a floating obstruction, as described. 8th. The combination with the described boat and float, of a guard secured to and extending between their bow-ends, and made sharp-

edged in front for the purpose of severing floating obstructions, as described. 9th. The combination, with the described boat and float, of the guard *D* secured to and extending between the stern ends of the boat and float, and inclining rearward from the float to the boat for the purpose of guarding the rudder of the boat from contact with any object that may pass over the float, as described. 10th. The combination, with the described sections of a torpedo boat, of the described sections of the line wire electrical conductor therein, the insulated contact plates *f* and *g* and spring *g*, as and for the purpose described. 11th. The combination, with the float *B* provided with the hollows or depressions *b* and *b'* of the sight rods *A* and *A'*, one or more hinged to the said float, so as to be depressible into the said hollows, and provided with the described springs which act to maintain the said rods yieldingly in an erect position, as and for the purpose described. 12th. An electrically propelled submarine torpedo boat, composed of detachable sections containing an electrical propelling apparatus in the circuit of an electrical generator, and a portion of the electrical conductor for transmitting the actuating electric current through the boat and said apparatus, as and for the purpose described. 13th. An electrically propelled submarine torpedo boat composed of detachable sections containing an electrical propelling apparatus, each of two or more sections of the boat containing a detachable section of the electrical conductor, by which the propelling current is transmitted through the boat and said apparatus, whereby upon detaching the said sections of the boat the said sections of the conductor may be detached.

No. 24,293. Cooking Stove.

(*Poêle de Cuisine.*)

Ophné L. Gadoruy, St. Placide, Que., 14th June, 1886; 5 years.

Claim.—1st. The combination of the base *A*, fire-box *B*-shaped and arranged for the use of wood fuel, substantially as described. 2nd. The combination of the oven *C* having the feed pipe *f* passing through it with the base of a coal burning stove, as described. 3rd. The combination of the coal stove base *A*, oven *C* and grate *D*, with the fire-box *B* arranged for wood fuel, and provided with the walls *a* having the openings *b*, hinged cover *d* and handle *e*, substantially as shown and described and for the purpose set forth.

No. 24,294. Piston Packing.

(*Garniture de Piston.*)

William W. St. John, New York, N. Y., U. S., 14th June, 1886. 5 years.

Claim.—1st. In piston packing, the split head made expansible by means of a wedge, arranged as shown, and provided with a filling-piece *R* over its joint, substantially as and for the purpose set forth. 2nd. In piston-packing, the split head *N* having filling-pieces *It* and means for expanding it, with the solid rings *P* forming seats for the split rings *O*, provided with filling-pieces *R*, all substantially as and for the purpose specified. 3rd. The piston-packing herein described, consisting of a split head *N* having filling-piece *R*, and made expansible by means of a wedge *g*, in combination with solid rings *P* having flanges *o*, *o'* and recesses *c*, *c'* forming seats for the split rings *O*, provided with filling-pieces *R*, all constructed and arranged substantially as shown and specified. 4th. A split packing-ring provided with a recess having a seat *r* to receive the filling-piece, in the manner shown and for the purpose specified. 5th. A split head for pistons having recesses in its sides provided with suitable seats *t*, to receive the filling-pieces for closing the joint, substantially as shown and for the purpose set forth. 6th. A split packing-ring provided with recesses *p*, *p'* and a coinciding filling-piece *R* having projections *r*, *r'*, as and for the purpose set forth. 7th. A filling-piece for piston-packings, provided with projection *r*, and a hole *s* to fit into a recess in the ring, having a seat *t* to receive said filling-piece, substantially as shown and specified.

No. 24,295. Trimming Attachment for Sewing Machines. (*Appareil à Garnir pour Machines à Coudre.*)

The Downes Fabric Trimmer Company, Philadelphia, Pa., U. S. (assignee of William S. Clark and John F. Murphy, Little Falls N. Y.) U. S., 14th June, 1886; 5 years.

Claim.—1st. In a trimming attachment for sewing-machines, the combination of the bracket-plate, the cross plate adjustable vertically on the bracket-plate, the lower toggle-jaw fulcrumed to the bracket plate, and vertically adjustable and the upper toggle-jaw fulcrumed to the cross-plate, whereby the meeting edges of the jaws may be maintained in line with the cloth-plate of the sewing-machine as the jaws wear away, substantially as described. 2nd. The combination of the bracket-plate, the cross plate vertically adjustable thereon, the lower toggle-jaw fulcrumed to the bracket-plate and vertically adjustable, the upper toggle-jaw fulcrumed to the cross-plate, and means for securing the bracket plate to the vertical arm of a sewing-machine, substantially as described. 3rd. The combination of the bracket-plate having the vertical extension, the cross plate dovetailed thereon, said cross-plate having a vertical slot, the arms *a* having a screw *A* and the set screw *b* that passes through the lower end of the arm through the slot in the cross plate and enters the bracket-plate, the lower toggle-jaw and the upper toggle-jaw fulcrumed to the cross-plate, substantially as described. 4th. The combination of the bracket-plate having the vertical extension, the cross plate adjustable vertically thereon, the wedge bearing on the cross-plate, the lower toggle-jaw and the upper toggle-jaw fulcrumed to the cross-plate, substantially as described. 5th. The combination of the bracket-plate having the vertical extension, and the lug *u*, the cross-plate adjustable vertically on the bracket plate, the wedge bearing on the cross-plate having the threaded arm that passes through the lug *u* and the nut on the end of the arm, the lower toggle-jaw and the upper toggle-jaw fulcrumed to the adjustable cross-plate, substantially as described.

No. 24,296. Lamp. (*Lampe*)

Charles S. Lyton, assignee of Augustus L. Schryver, New York, N. Y., U. S., 14th June, 1886; 5 years.

Claim.—1st. The combination of the reservoir tapering from back to front and flaring from its bottom outward, the reflector cut away so as to conform to the cross-section of the reservoir and to embrace the latter, and the handle, one end thereof secured to the reflector and the other to the reservoir, all arranged as described and for the purpose set forth. 2nd. The combination of reservoir *A* having inlet *B* and burner collar *C*, reflector *D*, wedged as described over the forward portion of the reservoir, and handle *E* secured to and connecting the reflector and reservoir, substantially as described.

No. 24,297. Window Screen and Device for Securing the Same in Position. (*Ecran de Fenêtre et Moyens de l'Assujettir*)

Edward Fales, Chicago, Ill., and Arnold A. Wheelock, Washington, D. C., U. S., 14th June, 1886; 5 years.

Claim.—1st. A window or door screen composed of two or more sections of wire gauze or netting arranged on opposite sides of the frame, and adapted to overlap at the adjacent edges, so as to form an open space *F* through which the flies will find an exit, as set forth. 2nd. A window screen, of the character described, provided with the studs *g* and movable bolt *H*, said bolt being guided and held in position by the staples *Q*, as set forth.

No. 24,298. Wrench. (*Clé à Ecrout.*)

Henry Bornstein, Boston, Mass., U. S., 15th June, 1886; 5 years.

Claim.—1st. In a wrench, the combination of the following instrumentalities, to wit: a movable jaw, a fixed jaw, and a handle, the movable jaw being provided with a bar or shank, adapted to work in a mortise in the fixed jaw, and with a right hand screw adapted to work in a correspondingly threaded hole or nut in the handle, and said handle provided with a left-hand screw adapted to work in a correspondingly threaded hole in the fixed jaw, or in a nut connected with the fixed jaw, whereby when said handle is turned to the right or left said jaws will be opened or closed, as the case may be, with much greater rapidity than when but one nut is employed in moving the movable jaw, substantially as described. 2nd. In a wrench, the handle *A*, provided with the left-hand screw *K*, and a threaded socket for receiving the screw *E*, the jaw *C* provided with the bar *D* and right-hand screw *E*, and the jaw *B* provided with the arms *H* and crosshead *J* having a threaded hole for receiving the screw *E*, all constructed, combined and arranged to operate substantially as described. 3rd. In a wrench, the combination of the following instrumentalities, to wit: a fixed jaw, a movable jaw, a handle and a screw-driver or other implement, said jaws being adapted to be closed or opened by turning said handle to the right or left, as the case may be, and said screw-driver or other implement adapted to protrude from or be housed in the wrench by the act of closing or opening its jaws as the case may be, substantially as set forth. 4th. In a wrench, the screw-driver *M* or other implement disposed in a socket or in suitable ways therein or thereon, and provided with the spring *m*, in combination with the jaws *B*, *C*, bar *D*, means for causing the jaws to close and open, means for causing the screw-driver to protrude, means for withdrawing or housing it, means for preventing it from being entirely expelled from its socket or ways, and means for causing it to turn with the wrench when the screw-driver is in use, substantially as described. 5th. The screw-driver *M*, spring *m*, plug *f*, screw *a*, collet *x*, and pin *d*, in combination with the jaws *B*, *C*, bar *D*, and means for opening and closing said jaws, substantially as set forth.

No. 24,299. Portable Heater. (*Calorifère Portatif.*)

George W. LeVin, Chicago, Ill., U. S., 15th June, 1886; 5 years.

Claim.—1st. The combination with a stove, a furnace, or other portable heating appliance, provided with an air-heating chamber or other suitable air-heating device or devices, of one or more conveyor-pipes connected with said chamber or other air-heating device or devices, and provided with devices adapted to discharge the heated air passing therefrom through said pipe or pipes, interior or exterior of the compartment or compartments of a building into or through which said pipe or pipes may be extended, substantially as described. 2nd. The combination, with a stove or furnace, provided with an air-heating chamber or other suitable air-heating device or devices, of a cold air supply port *B*, and one or more education pipes *B*, provided with devices adapted to discharge the heated air passing from said chamber or other air-heating device into or exterior of the compartment or compartments of a building into or through which said pipe or pipes may be extended, substantially as described. 3rd. The combination, with a stove or furnace, of an air-heating chamber or other suitable air-heating device or devices forming a part thereof, one or more education pipes *B*, provided with devices adapted to discharge the heated air within or exterior of the compartment or compartments of a building, into or through which said pipe or pipes may be extended and a cold-air supply port or conveyor *B*, substantially as described. 4th. The combination, with a stove or furnace, provided with an air-heating chamber or other suitable air-heating device or devices, of air supply ports *B*, *B*, and one or more education pipes *B*, provided with devices adapted to discharge the heated air within or exterior of the compartment or compartments of a building, into or through which said pipe or pipes may be extended, substantially as described. 5th. The combination, with a stove or furnace, provided with an air-heating chamber or other suitable air-heating device or devices, of the education pipes *B* having a terminal opening *b* within the chimney or flue, or elsewhere exterior of the compartment through which the same is finally extended, and provided with a distributing and ventilating port *b*, and a valve or damper *ca* located between said port and said terminal opening *b*, substantially as described. 6th. In a portable heater, the combination, with an open fire-space *A*, of an air-heating chamber *C* provided with air-supply

ports B₁, B₂, or either, and one or more eduction pipes B₃ provided with devices adapted to discharge the heated air passing from said chamber within or exterior of the compart or compartments of a building through which the same may be extended, substantially as described.

No. 24,300. Saw. (Saw.)

William Ward, Bay City, Mich., U. S., 15th June, 1886. 5 years.

Claim.—1st. The combination, with a band or gang saw, of a series of slots cut through and extending across the central portion of the saw plate, substantially as herein shown and for the purpose set forth. 2nd. A series of diagonal slits cut through the saw plate in the central portion of its width, and provided with a circular opening *d* at the ends of the said slits, substantially as and for the purpose set forth.

No. 24,301. Bait for Fishing.

(Amorce de Pêche.)

Archer Wakeman, Cape Vincent, N. Y., U. S., 15th June, 1886; 5 years.

Claim.—1st. A fishing device having a skeleton frame or body to contain bait, and provided with wings or blades adapted to impart motion, substantially as set forth. 2nd. A fishing device consisting of a skeleton frame adapted to receive bait within it and expose the same to view, and provided with a clasp to secure the bait therein, substantially as explained. 3rd. A fishing device consisting of a skeleton frame provided with hooks, a head or front section provided with inclined blades, and a clasp to secure the bait within the skeleton frame, said parts being combined and arranged to operate, substantially as shown and described. 4th. The herein-described fishing device consisting of skeleton body A, head section B provided with blades C, swivel D, hooks F, and clasp G. 5th. In a fishing device or bait, substantially such as described, a clasp for securing edible bait in place within said device, consisting of plate J having opening *p*, and notches *o*, and swinging latch H having spring arms to enter said notches.

No. 24,302. Switch. (Aiguille.)

Thomas Morgan and John Baker, Chicago, Ill., U. S., 15th June, 1886; 5 years.

Claim.—1st. The main track and the side track, in combination with a spring switch rail working between the two tracks and adapted to be shifted from one to the other, the switch operating bar, cords, chains or wires connecting with the said bar, devices for locking the chains or wires to hold the switch-rails in their adjusted position, whereby should the switch-rail be out of position the train will be caused to operate the rails by breaking the chains, as set forth. 2nd. A main track, the side track and the switch-rails arranged to be shifted from the side track to the main track, chains or wires connecting with the switch-rails to hold them in their adjusted positions, and devices for locking the chains or wires arranged and operating, whereby should the switch be improperly set the train will be caused to actuate the switch-rails and breaks the chains or wires, substantially as set forth. 3rd. The main track and side track, in combination with the switch-rails, the connecting-bar for shifting the switch rails, and the weighted lever for restoring the rails to their normal position, as set forth. 4th. The main track, the side track and the switch rails, in combination with the connecting-bar for shifting the latter, the weighted lever connecting with the bar, and a supplemental lever in which the weighted lever is pivoted, as set forth. 5th. The main track and the side track, in combination with the spring switch rails pivoted to their rear ends, and working at their front ends within fixed limits, the connecting bar attached to the switch rails and the weighted operating lever for the bar to restore the switch rails to their normal positions, as set forth. 6th. The main track, and the side track, in combination with the switch-rails and the check blocks, provided on the front ends of the rails on each side thereof, for the purpose set forth. 7th. The main track having the switch rails E and the side track having the switch-rail D, said switch-rails converging toward their front ends where they work within fixed limits, and hinged or otherwise held at their rear ends and connecting devices for the front end of said rail, as set forth. 8th. The main track, the side track, in combination with the switch-rails formed by the adjacent rails of the main and side track, the said rails being kept connected together and working within fixed limits, and a weighted lever for operating the switch-rails and restoring them to their normal position, as set forth. 9th. The main track and side track, in combination with the switch-rails formed by the adjacent inner rails of the main and side tracks, the said rails being rigidly held or pivoted at their rear ends and working within fixed limits at their front ends, the normal position of the rails being on a line with the main track, as set forth. 10th. The main track and the side track, in combination with the switch-rails, connected together at their front ends, and the chair *G* having rearward extension, located on each side of the switch-rails at their extreme front ends, to limit lateral movement thereof, as set forth. 11th. The main track and the side track, in combination with the switch-rails, the chair *G* provided at the extreme front end of the rails, and the check pieces or blocks H, as set forth. 12th. The main track and side track, in combination with the switch-rails formed by the adjacent inner rails of the side track and main track, the switch-rails being normally in a line with the main track, and a weighted lever connecting with the switch-rails, whereby as the latter are operated from the side track, and shifted laterally out of line with the main track, the said weighted lever will restore the switch-rails to their normal position as the train is passed, as set forth. 13th. The main track and side track, in combination with the switch-rails arranged normally in a line with the main track, and two sets of chains or wires connecting with the switch-rails, one set holding the rails in their normal position, and the other set holding them in a line with the side track, and devices for locking the chains or wires, whereby should the train be running on either the side or main track and the

switch be improperly set the wheels of the same will be caused to open the switch the chains or wires being broken thereby, as set forth. 14th. The main track and side track, in combination with the switch-rails, the connecting-bar, the weighted lever attached to the bar, the chains or wires connecting with the bar and arranged to be locked, whereby should a train enter either the main or side track, and the switch be improperly set, the wheels of the train will be caused to actuate the switch-rails and by this action break the chains or wires, and a weighted lever for restoring the parts to their normal position, as set forth. 15th. The main track and side track, in combination with the switch-rails arranged normally on a line with the main track, and a pair of chains or wires connecting with the switch-rails of each switch, one chain or wire holding the rails in their normal position, and the other chain retaining it on a line with the side track, the switch-stand vertical operating-bar, the windlass to which the chains or wires are connected, and a handle for operating the bar, as set forth. 16th. The main track and side track, in combination with the switch-rails arranged normally on a line with the side track, and two sets of chains or wires connecting with the switch-rails to hold them in their adjustable position, and a switch-stand, the vertical operating-bar, the double windlass located thereon and on which the two sets of chains or wire are wound, and an operating-handle for operating the windlass, as set forth. 17th. The main track and side track, in combination with the switch-rails arranged normally on a line with the main track, two sets of chains or wires connecting with the switch rails, one set holding the rails in their normal position, and the other set holding them on a line with the side track, the windlasses on which the chains or wires are wound, the operating lever for the same and means for holding the lever in an adjustable position, as set forth. 18th. The main track and side track, in combination with the switch rails, arranged normally on a line with the main track, two sets of chains or wires connecting with the switch-rails in their normal position, and the other set holding them on a line with the side track, the windlasses on which the chains or wires are wound, and operating lever for the same, the switch-stand, the vertical operating-bar, a signal carried by said bar, and means for locking the operating lever in its adjustable position, the operation of the lever causing the turning of the bar to show the proper signal, as set forth.

No. 24,303. Receptacle Attachment for Dash-Boards. (Porte pour Garde-Crotte.)

Michael Fahy, Oakland, Cal., U. S., 15th June, 1886, 5 years.

Claims.—1st. In combination with the dash-board of a vehicle a flexible bag receptacle or casing for parcels, etc. adjustably connected therewith, whereby it can be easily placed in position and again removed, substantially as herein described. 2nd. In combination with the dash-board of a vehicle, a flexible bag receptacle or casing lying against the inner surface of said dash-board, and a removable connection between the top of the bag receptacle or casing and the top of the dash-board, substantially as herein described. 3rd. In combination with the dash-board of a vehicle, a flexible bag receptacle or casing adapted to be collapsed and distended and a means on the said bag receptacle or casing for readily connecting it with the dash-board, substantially as herein described. 4th. The bag receptacle or casing A having a flap C on its rear top edge, in combination with the spring-bars B, stiffening the lower portion of the front of the bag, its bottom, its back and the flap, all substantially as herein described. 5th. The bag receptacle or casing A, and the flap C at its rear top edge, in combination with the spring-bars B in said bag and flap, and the cross-bar E in the lower edge of the flap, substantially as herein described. 6th. The bag receptacle or casing A having elastic ends *a*, and elastic partitions *a'*, in combination with the spring clamp flap C at its rear top edge for embracing the top of the dash-board, substantially as described. 7th. An attachment for the dash-boards of vehicles, consisting of the flexible bag receptacle or casing A, having elastic ends *a*, elastic partition walls *a'*, and a cover B, a flap C at its rear top edge, spring-bars B stiffening said bag and flap, as described, the cross-bar E in said flap, and the swivelled buttons *o* on said bars B, whereby the cover is secured, all arranged and adapted to operate substantially as herein described.

No. 24,304. Kiln for Drying Grain.

(Four pour Sécher les Grains)

William Leshe, Bayfield, P. E. I., 15th June, 1886. 5 years.

Claim.—1st. In a grain-drying kiln, an inclined revolving cylinder with flanges on the inside through which air enters at one end and leaves it at the other end, and provided with means of changing the angle of inclination, as shown and described. 2nd. In a grain drying kiln, a furnace in which revolves a grain cylinder, with flanges on the inside leaving ingress and egress air apertures in its respective ends, as shown and described. 3rd. In a grain-drying kiln an inclined revolving cylinder, with flanges on the inside provided with a hopper at one end and a receiver at the other end, as shown and described. 4th. In a revolving grain kiln, an inclined revolving cylinder with flanges on the inside provided with ingress and egress air apertures, a hopper at one end, means for regulating the inclination, and a furnace in which it is made to revolve, as shown and described.

No. 24,305. Milk Cooler and Strainer.

(Boite à Lait Couloir.)

Albert F. Nash, Aultsville, Ont., 15th June, 1886; 5 years.

Claim.—1st. The combination of the reservoir A, having the well B provided with a perforated bottom, with the bottle-shaped central cooler C having the handle *b* and feet *c*. 2nd. The combination of the reservoir A, and the outside cooling chamber D, having the funnel *e* and drain tube *f*, with the legs E provided with the claws *g*, substantially as shown and described.

No. 24,306, Thrashing Machine.

(Machine à Battre.)

George W. Morris, Brantford, Ont., 15th June, 1886; 5 years.

Claim.—1st. In a thrashing-machine, a straw-deck A supported at one end by the crank-shaft B, and at its other end by the rocker-arm D, in combination with the grain-deck F, supported by spring-hangers G, and connected to the rocker-arm D by the pitman H, the whole being arranged and operating substantially as and for the purpose described. 2nd. A straw deck A having a series of bent spring fingers J, connected to and arranged upon its upper surface, substantially as and for the purpose specified. 3rd. The straw-deck A having one or more bars I attached to its top surface, in combination with the curved spring-fingers J, arranged substantially as and for the purpose specified.

No. 24,307. Horse Blanket.

(Couverture de Cheval)

Charles H. Magoon, Skowhegan, Me., U.S., 15th June, 1886; 5 years.

Claim.—1st. The combination, with the blanket, of the elastic or yielding straps secured to the blanket near one edge thereof, and having each a hook at one end, and a series of connected rings or loops also secured to the blanket at the opposite edge thereof, substantially as described for the purpose set forth. 2nd. A horse blanket having an elastic or yielding strap D secured at one end thereto, said strap having a hook D' at its free end, and a flap d that overlaps the hook, and a series of links or rings secured to the blanket at the adjacent edge thereof, and having the intermediate flat plates or hooks e connecting two adjoining rings or loops or links e, substantially as described for the purpose set forth. 3rd. A horse blanket having an adjustable and yielding connection at its adjacent edges, substantially as shown, whereby the blanket can be adapted for use upon horses of different sizes, and the tension on the elastic connection varied to draw the blanket around the animal snugly or loose, substantially as described.

No. 24,308. Steam Pump. (Pompe à Vapeur.)

Walton E. Eby, Franklin, Ohio, U.S., 15th June, 1886; 5 years.

Claim.—1st. In a steam pump, the combination, with the guide-frame, of a yoke having a recess in one side, a slide-valve rod, one end of which works in said recess, and a shaft journalled in the yoke and having an eccentric pin at one end for operating said slide-valve rod, substantially as and for the purpose set forth. 2nd. In a steam pump, the combination, with a cross-head provided with a flanged box, of a roller sliding vertically therein and having a central aperture, and a pin of less diameter than the aperture in said roller, moving therein and operated thereby, substantially as and for the purpose set forth. 3rd. In a steam pump, the combination, with a cross head having a vertically-extending box, of an apertured roller sliding therein, a shaft journalled at right angles to said cross-head, and having a fly-wheel secured therein, and a pin of less diameter than the aperture in said roller projecting from one side of said fly-wheel and engaging therewith, substantially as and for the purpose set forth. 4th. In a steam pump, the combination, with the cylinders and guide-frame, of a common piston rod having a piston on each end, a cross head near its middle, a yoke secured upon said guide-frame, a shaft journalled in said yoke and having a fly wheel secured upon one end, and an eccentric at the other, said fly-wheel having a wrist-pin upon one side which engages with the said cross-head and a cam-flange upon the other, said cam flange having two diametrically opposite sharp points at right angles to the wrist-pin, and having two sharp steep recesses to the rear of said points, and a spring bearing with its free end against the said cam-flange, substantially as and for the purpose set forth. 5th. In a steam pump, the combination, with the cylinders and guide-frame, of a common piston rod having a piston on each end, a cross head near its middle, one face of said cross-head being formed into a flanged vertically-extending box, a roller sliding vertically therein and having a central aperture, a yoke secured upon said guide frame, a shaft journalled therein and having a fly-wheel at one end and an eccentric at the other, said fly-wheel having a wrist-pin upon one side and a cam flange upon the other, said wrist-pin being of smaller diameter than the aperture in said roller and engaging therewith, and a spring bearing against said cam for forcing the fly-wheel slightly forward at the ends of the stroke of the cross-head, substantially as and for the purpose set forth. 6th. In a steam pump, the combination with the cylinders and guide-frame, of a piston provided with a cross-head working in the same, a yoke secured to said guide-frame and having a shaft journalled therein, said shaft having a fly-wheel secured to one end, said fly wheel engaging with the piston rod and provided with a flanged cam, as described, and a spring bearing with its free end upon said cam, the other end of said shaft having a pin turned thereon to one side of the centre, a valve-rod, the outer end of which works in a recess in said yoke, and an eccentric connecting said pin and said valve rod, substantially as and for the purpose set forth. 7th. In a steam pump, the combination, with the cylinders and guide-frame, the inner facing sides of which guide-frame are provided with V-shaped guide ribs, of a common piston rod provided with pistons, and a cross head, slotted blocks having V shaped grooves in their ends, screw bolts passing through said slots into said cross-heads, and means for admitting and discharging steam to and from one cylinder and water to and from the other, substantially as and for the purpose set forth.

No. 24,309. Knob Attachment.

(Broche de Bouton de Porte.)

Garret Van Winkle, North Plainfield, N. J., U. S., 15th June, 1886; 5 years.

Claim.—1st. The combination, with the knob having an undercut or dovetailed recess, the shank sections B, C, having diverging or angular ends to be passed into the dovetailed recess, and opened out by closing the outer parts of the shank sections and means for holding

such sections together, substantially as set forth. 2nd. The combination, with the knob or dovetailed recess, of shank sections with diverging or angular ends passed into the dovetailed recess, and a sleeve surrounding the shank sections and holding them together, substantially as set forth. 3rd. The combination, with the knob having an undercut or dovetailed recess of shank sections with interlocking projections, and recesses and diverging ends passed into the recesses, and a sleeve or collar surrounding the shank sections, substantially as set forth. 4th. The shank sections B, C having the diverging projecting ends a, b, said ends being convex on their outer surfaces and having ribs or projections thereon, in combination with the knob having the dovetailed recess adapted to receive the shank section, substantially as set forth.

No. 24,310. Dredging Apparatus. (Dragueur.)

Alphonso B. Bowers, San Francisco, Cal., U. S., 15th June, 1886; 5 years.

Claim.—1st. In a dredging machine, having devices for swinging and working with a side-feed vertical anchors arranged to give a forward feed by serving as alternate pivots upon which the dredger swings as it cuts from side to side. 2nd. A dredge boat, having a self contained pivot or centre of oscillation upon which said boat swings when at work, and a device for swinging and working said boat upon said pivot, in combination with a spud arranged to prevent said boat from drifting from its proper position, while said self-contained pivot and boat are being moved into place preparatory to a new swing of the dredger in its successive stages of work. 3rd. A dredgeboat, having a self contained pivot or centre of oscillation, with devices for swinging and working said boat on said pivot, in combination with a spud arranged to measure, regulate and fix the amount of forward feed in each successive advance in the successive stages of work, and to hold the boat in proper position while said advance is being made. 4th. In dredging machines, the combination, of the turn-table F and vertical anchors G, G2, as a means of moving the machine forward or otherwise, substantially as described. 5th. A dredge boat, having a turn-table, which table is provided with an anchoring device. 6th. A dredge boat, having a turn-table provided with a vertical anchoring device, and mechanism for oscillating the boat about the turn-table. 7th. A dredge-boat, having a turn-table provided with anchoring device, and mechanism for turning the table with reference to the boat. 8th. A dredge boat, having a portion thereof resting against a pivot forming a centre of horizontal oscillation, and independently variable feed mechanism for oscillating the boat about such pivot. 9th. A dredge boat, having a centre of oscillation within its periphery, and an independently variable feed mechanism to move the boat about this centre. 10th. A dredge boat, having a contained centre of oscillation independently variable boat, oscillating mechanism and suction-pipe and exhaust apparatus. 11th. Dredge boat, having a contained centre of oscillation, a suction manifold and a forcing apparatus, and a conduit flexibly joined to said forcing apparatus at or near the centre of oscillation of the boat. 12th. A dredge boat, having a contained centre of oscillation within its periphery on which it swings from side to side, and another centre of oscillation at the connection between the oscillating and non-oscillating sections of pipe on which it swings as the boat feeds forward. 13th. A dredging device, having a horizontal oscillation on a pivot within the periphery of the boat, and also on a flexible connection between an oscillating and a non-oscillating section of pipe. 14th. A mud transporting apparatus, having an oscillating or swinging movement, and having a conduit discharge flexibly joined thereto at or near the centre of horizontal oscillation of said apparatus. 15th. A dredge boat and oscillating section of a conduit discharge, flexibly joined to a non-oscillating section, to allow said boat to feed forward, and said oscillating section to swing upon the flexible joint connecting said oscillating and non-oscillating sections. 16th. A conduit discharge for transporting spoils to a place of deposit, said discharge being flexibly joined to an excavating device having a horizontal swinging or oscillating movement, at or near the self-contained pivot of forming the centre of horizontal oscillation of said device, and provided with floats for supporting said conduit. 17th. A conduit for transporting earthy and similar substances, flexibly joined to a discharging apparatus having a horizontal swinging or oscillating movement, at or near the centre of horizontal oscillation of said apparatus, and provided with floats for supporting said conduit. 18th. A conduit for transporting mud, flexibly joined to an excavating and forcing apparatus having a horizontal swinging or oscillating movement, at or near the centre of horizontal oscillation of said apparatus, and provided with floats for supporting said conduit. 19th. A discharge pipe, consisting of a series of sections flexibly joined together, and supported by long narrow hollow floats, in combination with a dredge boat and rotary excavator. 20th. A discharge pipe, consisting of a series of sections, flexibly joined together, and supported by long narrow hollow floats, in combination with a dredge boat and rotary excavator with inward delivery. 21st. A discharge pipe, consisting of a series of sections flexibly joined together, in combination with a dredge boat having a self-contained pivot or centre of horizontal oscillation, with devices for swinging and working said boat on said pivot. 2nd. A discharge pipe, consisting of a series of sections flexibly joined together, in combination with a dredge boat and rotary excavator. 3rd. A discharge pipe, consisting of a series of sections, flexibly joined together and supported by long narrow hollow floats. 24th. A discharge pipe, consisting of a series of sections, flexibly joined together and supported by floats, in combination with a dredger having a rotary excavator. 25th. A conduit for supporting earthy and semi-liquid substances, said conduit consisting of an outer rigid non-oscillating section flexibly joined to an inner oscillating section, the inner end of said oscillating section being flexibly joined to a discharging device. 26th. A conduit for transporting earthy and semi liquid substances, said conduit consisting of an outer rigid non-oscillating section, flexibly joined to an inner oscillating section, the inner end of said oscillating section being arranged to receive said substances, said conduit being provided with a motor. 27th. Hollow floats, in connection with, and secured to the flexibly connected pipe C. 28th. Hollow floats, in combination with a conduit for discharging mud and semi-liquid material. 29th. In combination with a dredge boat and pump for transporting

spoil, a conduit discharge provided with a pressure gauge, substantially as and for the purposes specified. 30th. In combination with an apparatus for transporting earthy and semi-liquid material, a submerged conduit suspended from buoys or floats. 31st. In combination with excavating devices to cut or scoop up mud, a submerged discharge pipe resting upon the bottom. 32nd. A submerged discharge pipe, in combination with excavating devices adapted to cut up the mud, and with mud-forcing apparatus. 33rd. A relay pump, for renewed propulsion, in combination with and flexibly joined to the discharge pipe, of a mud-transporting apparatus to permit said pipe and transporting apparatus to oscillate while the relay pump remains stationary. 34th. A relay pump for renewed propulsion, flexibly joined to the discharge pipe of a mud-transporting apparatus to permit said pipe and transporting apparatus to oscillate while the relay pump remains stationary. 35th. A relay pump for renewed propulsion, in combination with an earth transporting apparatus and discharge pipe. 36th. A relay pump, for renewed and continuous propulsion of semi-liquids and of earthy material, in combination with a conveying conduit. 37th. An apparatus for transporting earthy and similar material through a long circuit by means of a carrying stream of water, in combination with a device having openings to allow the escape of the heavier portions of said transported material while the larger portion of the water and lighter material pass over and are discharged further on. 38th. A mud-forcing apparatus having a closed conveying pipe leading therefrom, and a sampling pipe and valve connected to the closed pipe. 39th. In combination with a mud excavating and discharging apparatus, and discharge pipe, the weighing tank W, substantially as and for the purpose described. 40th. In combination with pipe C, the pump N, and its connections, substantially as and for the purpose specified. 41st. A force and suction pump, in combination with pipe C, and arranged to force into and draw from said pipe as regulated by the valves. 42nd. A force pump and injection pipe, in combination with pipe C and arranged to force into said pipe, for the purposes specified. 43rd. A suction pump, in combination with pipe C, and arranged to exhaust from said pipe, for the purpose specified. 44th. In combination with a mud-forcing apparatus having a submerged discharge pipe, a pump arranged to raise said pipe by substituting air for the contents of said pipe. 45th. In combination with an excavating device to draw, cut, or scoop up mud, a flexibly jointed discharge pipe resting upon the bottom, substantially as described. 46th. A flexibly jointed submerged discharge pipe, in combination with a rotary excavator and with mud-forcing apparatus. 47th. In combination with discharge pipe C, and a dredging and transporting device, a pump B for exhausting from said pipe. 48th. A dredge boat having a self-contained pivot forming a center of horizontal oscillation, with devices for swinging and working said boat upon said pivot, in combination with a rotary excavator. 49th. The combination, with a dredge boat and non-rotative suction-pipe, of a rotary excavator having an inward delivery, and arranged to force the loosened material through said excavator toward the mouth of the suction pipe. 50th. A dredge boat having a self-contained pivot, with devices for swinging and working said boat on said pivot, in combination with a suction pipe and a rotary excavator with inward delivery. 51st. A dredge boat having a self-contained pivot or center of oscillation, with devices for swinging and working said boat on said pivot, in combination with an excavating and discharging device, suction pipe, and rotary excavator having an inward delivery. 52nd. The combination, with a non-rotative suction pipe, of a rotary excavator having an inward delivery through said excavator. 53rd. The combination, with a dredge boat and non-rotative suction pipe, of a rotary excavator having an inward delivery through said excavator. 54th. The combination, with a suction pipe, of a rotary excavator delivering inwardly through itself and rotating independently of said pipe. 55th. A rotary bottomless bucket, excavator wheel having an internal bearing, and a hub constructed and arranged to hold and support the wheel and allow a free discharge. 56th. A rotary bottomless bucket, excavator wheel with driving shaft and suitable bearings, in combination with pipe C and an exhausting apparatus. 57th. A hollow rotary excavator with inward delivery, in combination with a suction pipe provided with an elbow, and suitable bearings in the axis of vertical oscillation of said pipe, said elbow being connected by means of a stuffing box or other suitable connection with a stationary continuation of a suction pipe leading to an exhausting apparatus, the whole being constructed and arranged to allow said excavator to be raised and lowered with breaking the suction and flow. 58th. A rotary excavator having detachable cutting edges, and means for rotating said excavator, in combination with a suction pipe, exhausting apparatus and dredge boat. 59th. A rotary excavator with inward delivery, in combination with a non-rotating suction pipe mounted upon strong trunnions or equivalent joints to permit the excavator, and outer ends of the suction pipe to be raised and lowered to suit the depth at which the work is progressing. 60th. A rotary bottomless bucket excavator having detachable cutting edges secured to said buckets, with driving shaft and suitable bearings, in combination with a suction pipe exhausting apparatus and dredge boat. 61st. A rotary bottomless bucket excavator wheel and suitable inner bearings and inner delivery, in combination with a suction pipe exhausting apparatus and dredge boat. 62nd. A rotary excavator carrying sharp cutting edges with inward delivery, in combination with a non-rotative suction pipe and dredge boat. 63rd. A rotary excavator having edges cutting parallel with the axis of rotation with other edges cutting perpendicularly to said axis, for the purpose of slicing up and subdividing the spoils, in combination with a suction pipe and exhausting apparatus. 64th. A rotary excavator having a screen secured to and in combination with said excavator. 65th. A suction pipe and rotary excavator, in combination with a device for excluding coarse substances from said pipe. 66th. A rotary excavator and receiving pipe, and pump for freeing said pipe of the excavated material by suction, in combination with a device for excluding from said pipe substances too coarse to pass through the pump. 67th. A rotary excavator, having ring knives d, arranged at intervals around its periphery to slice and subdivide the material to enter the conduit. 68th. A rotary excavator, in combination with a device for screening the spoils, and preventing obstructions from entering said excavator. 69th. A rotary excavator with inward discharge, combined with a pump, a suction pipe and devices to exclude from the

suction pipe substances too hard to be cut and too coarse to pass through the pump. 70th. Cutting, protecting and screening knives passing across the mouth of, secured to, and in combination with, an excavating bucket. 71st. An excavating bucket, provided with a screen or bars for screening the material and preventing the coarser portions from entering said bucket. 72nd. An excavating bucket provided with a fender or fenders to prevent said bucket from catching on obstructions. 73rd. A rotary excavating device having fenders to prevent the excavator from catching on obstructions. 74th. A rotary bottomless bucket excavator wheel provided with a mud-carrying pipe and ring knives d, substantially as described. 75th. A rotary excavator having buckets or scoops on its end adapted to cut and deliver the material inward and through said excavator, for the purpose of allowing said excavator to cut and advance in the line of the axis of rotation, in combination with a conduit for discharging said material, said excavator being arranged to deliver its contents directly into said conduits. 76th. A rotary excavator having projecting excavating devices on its lowermost part, and provided with strengthening braces to re-enforce the supports that carry said devices, in combination with a suction pipe and exhausting apparatus. 77th. A rotary excavator having projecting excavating devices on its lowermost part, and provided with a strengthening ring to re-enforce the support which carries said devices, in combination with a suction pipe and dredge boat. 78th. In a dredging machine, a non-rotating suction pipe, in combination with a rotary excavator provided with excavating devices arranged to deliver inward to a space in the interior of said excavator. 79th. In combination with a dredging machine, a non-rotating suction pipe and hollow rotary excavator, provided with buckets or scoops having an inward delivery through said excavator. 80th. A rotary bottomless bucket excavator wheel provided with ring knives d, substantially as described. 81st. A rotary bottomless bucket, excavator wheel having ring knives d, detachable knives S and cutting blades c, substantially as set forth. 82nd. A rotary excavator having detachable cutting edges, in combination with a dredge boat, suction pipe and exhausting apparatus. 83rd. A rotary excavator with inward delivery, in combination with an inner stationary chamber arranged to turn a bottom to the buckets, as they revolve around said chamber until said buckets reach the place of discharge. 84th. A rotary excavator with inward delivery, in combination with an inner hollow chamber having an opening through which the excavator discharges into said chamber. 85th. The self-adjusting steam counter-balance H, in combination with hawser L, and a dredging device, substantially as described. 86th. The combination, with the excavator, of a hawser L passing from a counter-balance through the suspending block g, and around suitable guiding sheaves to the hoisting apparatus, to raise and lower the excavating apparatus without interrupting the action of the counter-balance. 87th. A dredge boat having a rotary excavator and suction pipe, and a hydraulic hoist connected with the suction pipe. 88th. A hydraulic hoist, in combination with an excavating device. 89th. In combination with a dredge boat, winding drums and warping lines, the blocks U, V, anchored substantially as described. 90th. In combination with a dredge boat and warping line, a block U, anchored to the bottom or to the shore around which said warping line passes, for the purpose of swinging and warping said boat, substantially as described. 91st. In combination with a dredge boat, having devices for swinging and working said boat with a side feed, a hauling line having connection direct from the anchorage to the excavator support and near the point of resistance, and arranged to throw a large portion of the strain of the side feed on the outer end of the apparatus carrying the excavating device. 92nd. In combination with the discharge conduit of a mud-forcing apparatus, guys G for holding said conduit in position. 93rd. In combination with a mud-transporting apparatus, and discharge pipe having branches and valves, as described, and relay pump, the mud receiver X, substantially as and for the purpose set forth. 94th. In combination with a dredging machine, discharging apparatus and relay pump, a floating vessel carrying said relay pump. 95th. A floating mud barge having inlet and valve Z₁ arranged to admit water for diluting the spoils. 96th. A mud receiver having a suction pipe, with a branch and valve through which the mud is exhausted from said receiver, substantially as described. 97th. A floating mud barge having inlet and valve Z₂, with branch pipes and orifices to admit water for diluting the spoils. 98th. In combination with a floating mud barge having inlet and valve Z₂, and a pipe through which the spoils are withdrawn, the pump B or equivalent exhausting apparatus. 99th. In combination with a dredge boat and discharge pipe, the valve Y, for the purposes specified. 100th. A floating mud barge having an exhausting device, and pipe with branches, and valves Z, Z₁, for the purpose set forth. 101st. In a mud receiver, the pipe C¹ with branches, and valves Y, Z, Z₂. 102nd. In a floating mud receiver, the pipe C¹ with branches and valves Y, Z, Z₂. 103rd. In a floating mud receiver having inlet and valve Z₃, the pipe C¹ with its branches and valves, and an exhausting apparatus for withdrawing the spoils. 104th. A floating vessel and mud transporting apparatus, in combination with a dredge boat to continuously receive and transport a through discharge pipe to a place of deposit the spoils as delivered by said dredge boat. 105th. In combination, a suction pipe and exhausting apparatus for raising, and a conduit for discharging spoil said conduit being provided with openings for separating the spoil from a large percentage of the water which passes the openings and is discharged farther on. 106th. A rotary excavator provided with mud-cutting fender to prevent said excavator from catching against obstructions. 107th. A rotary excavator provided with fenders that pass through the mud but enable the excavator to ride over obstructions. 108th. The combination, with a rotary excavator suction pipe and exhausting apparatus, of a conduit discharge having openings in said conduit for delivering spoil, while a large portion of the water passes by and is discharged farther on. 109th. A series of excavating buckets provided with fenders to prevent said buckets from catching upon obstructions. 110th. A rotary excavator wheel composed of disks, and curved metallic plates arranged between the same, and forming therewith bottomless buckets, as set forth. 111th. A rotary bottomless bucket excavator with inward delivery, in combination with non-rotating suction pipe centrally arranged therewith. 112th. A dredge boat, having a turn-table provided with two or more vertical anchors, and mechanism for turning said table upon either of said anchors. 113th.

The improvement in the art of dredging which consists in oscillating the dredge boat on a center, thereby continuously removing the spoil from an arc-shaped surface, conveying the same into the boat and forcing it thence through a closed conduit by a series of impulses, diluting the spoils in its passage to facilitate discharge. 114th. The improvement in the art of dredging, which consists in successively oscillating a dredge boat about a contained center, thereby removing successive arc-shaped layers while swinging sidewise, substantially as described. 115th. The improvement in the art of dredging which consists in oscillating the boat on a contained center, thereby making an arc-shaped cut during the side movement of the boat, substantially as described. 116th. The described method of dredging which consists in oscillating the dredge boat on a contained center, and by such oscillating forcing the excavator continuously sidewise and so making an arc-shaped cut, and continuously bringing the excavated material inward, substantially as described. 117th. The described method of dredging, which consists in oscillating the dredge boat on a center, and by such oscillation forcing an excavator continuously sidewise, thus making an arc-shaped cut and drawing the excavated material inboard by suction. 118th. The method of diluting the spoils to facilitate its discharge, which consists in forcing the same through a closed conveyer, and forcing a supplementary diluting substance into said closed conveyer. 119th. The method of conveying mud from a dredger, which consists in forcing it continuously through a closed conduit by a succession of forward impulses, as set forth. 120th. The process of transporting mud and semi-liquid material, consisting in forcing the same through a succession of coating pumps and pipes to a place of deposit. 121st. The method of delivering spoils from a dredge, which consists in propelling the same continuously through a delivery pipe having a relief valve, and receiver to provide for excess of material or pressure. 122nd. The system of delivering semi-fluid material from a dredge, which consists in propelling the same through a submerged pipe across a navigable channel.

No. 24,311. Reduction of Ores and Obtaining the Metal therefrom by the Utilization of Waste Gases from Carbonization of Vegetable Matter. (*Réduction des Minerais et en Trier le Métal par l'Utilisation des Gas Perjus Provenant de la Carbonisation des Matières Végétales.*)

Henry M. Pierce, Nashville, Tenn., U.S., 15th June, 1886; 5 years.

Claim.—1st. The process herein described for the heating and smelting of ores and metals, which consists in subjecting the same to the heat produced by combining air with non-condensable gases, derived from the distillation or carbonization of wood or other vegetable matter, substantially as and for the purpose set forth and described. 2nd. The process herein described for the reduction of ores and metals, which consists in subjecting the ore flux and a percentage of solid fuel sufficient to supplement the gaseous fuel, to the heat produced by combining air with heated non-condensable gases derived from the distillation or carbonization of wood or other vegetable matter, substantially as set forth and described. 3rd. In a blast furnace, the process herein described, of utilizing the gases evolved in the destructive distillation of wood or other vegetable matter, as fuel, which consists in first conducting the said gases from the carbonizing chamber to a condenser, and reducing to liquid their condensable constituents, then forcing the uncondensable gases through a heating chamber, which is heated by the waste gases from the said blast furnace, and finally with a suitable quantity of atmospheric air injecting them into a blast furnace. 4th. The process herein described of utilizing the gases evolved from the destructive distillation of vegetable matter, which consists in conducting the said gases into a condenser, then forcing the non-condensed gases under pressure into an equalizing chamber, then through a heating chamber, which latter is heated by the waste gases from the blast furnace, and finally with the proper quantity of atmospheric air forcing them into the blast furnace, as described.

No. 24,312. Electric Air Pump.

(*Pompe à Air Electrique.*)

Albert B. Worth, Greenport, N.Y., U.S., 15th June, 1886; 5 years.

Claim.—1st. In combination with the usual valves of a mechanical air pump, operating electrical devices geared to said valves, and current controlling devices geared to said piston and in circuit with said operating electrical devices. 2nd. In an air pump, the combination, with the usual piston and valve, of an electro-magnet, an armature to said magnet, gearing connecting said armature to said valve, and an automatic switch in circuit with said magnet and having an operating connection with a movable part, such as the piston of the pump. 3rd. In an air pump, the combination, with the usual piston and valve, a switch geared to said piston, and an operating armature geared to said valve, the magnet of said armature being in circuit with said switch, substantially as and for the purpose set forth. 4th. In an air pump, in combination with the piston and valve, a switch geared to said piston, and an operating armature geared to said valve, the magnet of said armature being in circuit with said switch, and the gearing of said armature consisting of two ratchets, the one upon a rod fixed to the valve and the other upon a rod fixed to the armature and a pinion gearing into both ratchets. 5th. In an air pump, the combination of a piston, a cylinder, a receiver, a valve between said cylinder and said piston, an electro-magnet and armature thereto, gearing connecting said valve to said armature, consisting of two ratchets, the one upon a rod fixed to the valve and the other upon a rod fixed to the armature, a second valve between said cylinder and the atmosphere, a second magnet and armature, an elastic common support for said valve and said armature, and electric circuits passing through said magnets and under the influence of a switch having an automatic operating connection with said piston, substantially as described.

No. 24,313. Blacking Box (*Boîte à Crayon.*)

Charles H. Jackson, Providence, R.I., U.S., 15th June, 1886; 5 years.

Claim.—A blacking box cover, having an outwardly projecting flange at its free edge, and the shoulder located between the flange and the top of the cover, the above parts being constructed substantially as and for the purpose set forth.

No. 24,314. Sulky Plough. (*Charrue à Liège.*)

Charles N. Sovereance, Winterport, Mo., U.S., 15th June, 1886; 5 years.

Claim.—1st. In a sulky plough having the plough proper hung by any suitable means to a bail turning in boxes upon the axle, the arm F pivoted at one end upon and secured to, a spur or shaft upon the standards D, D or plough beam E, and at the other end adjustably and pivotally secured to the bent part of the arm of said bail, substantially as described. 2nd. In combination with the plough beam clamp, the bail C and the arm F, the adjustable standards (or hangers) B, B, the slotted axle A and the levers *q*, *u*, substantially as described.

No. 24,315. Hot Water Radiator.

(*Calorifère à Eau.*)

Donald McPhie, Hamilton, Ont., 16th June, 1886; 5 years.

Claim.—1st. In a radiator for hot water heating of apartments, a horizontal opening C formed through each return bend A in addition to the ordinary curved opening, so that when the return bends are all placed side by side, a continuous horizontal opening C will be formed the entire length of the radiator, to receive a rod *u*, by which all the return bends can be tightened up closely by the nut *e*, substantially as and for the purpose specified. 2nd. In a radiator for hot water heating, the combination of the return bends A, horizontal opening C and bolt and nut *e*, substantially as and for the purpose specified. 3rd. In a radiator for hot water heating, the combination of the opening C in the return bends A, rod *u*, pipes D and partition K placed across or lengthwise of the radiator, all arranged substantially as and for the purpose specified.

No. 24,316. Lawn Mower.

(*Faucheuse de Pelouse.*)

Charles W. Cheney, Athol, Mass., U.S., 16th June, 1886; 5 years.

Claim.—1st. The frame having the projecting hollow spindle D, in combination with the hollow sleeve E enlarged at one end to receive the spindle within the same, the interior diameter of the spindle being equal to the normal diameter of the sleeve, and the driving shaft working partly in the spindle and partly in the sleeve, as set forth. 2nd. The combination, with the axle of the frame comprising the parallel side bars, brace-bar H and the sleeve I, all formed in one casting, as set forth. 3rd. The combination, with the axle of the frame C comprising the parallel side bars, the brace-bar H and the projecting sleeve D, all formed in one casting, the shaft T, gears R, S, U, V between the side bars of the frame and mitre gear W on the axle, as set forth. 4th. The combination, with the axle of the frame C, comprising the parallel side bars hinged to the axle A and between which the driving gear is placed, and the projecting sleeve D, all formed in one casting, as set forth.

No. 24,317. Car-Coupler. (*Attelage de Chars*)

Isaac J. Scott, Campbellford, Ont., 16th June, 1886; 5 years.

Claim.—1st. The latch A, having the hook *e* and the arm *f*, and pivoted intermediately by the pin *a*, which passes through the walls *d* and *e* of the drawhead B, substantially as shown and described. 2nd. In a railway car coupler, the latch A having the hook *e* and the arm *f*, and so pivoted in the drawhead B that when not in use it will be held by its own gravity with its hook and back toward the car, and its opposite end or arm *f* projecting forward out of the drawhead, as shown and for the purpose set forth. 3rd. In a car-coupler, the drawhead B provided with the pin *a* and the three walls *b*, *c* and *d* forming a support for the latch A, and a slot or receptacle and holder for the latch hook of another drawhead coupled thereto, substantially as shown and described.

No. 24,318. Bark Press. (*Presse à Tan.*)

Jéréme Daigneau, Lowell, Mass., U.S., 16th June, 1886; 5 years.

Claim.—1st. A hydraulic press for pressing bark, consisting of the piston E, the platform F having projections *a* through which runs a cross-bar *g*, having thereon a nut *h*, and moved by levers *f*, the grooved end or floor J fastened to the head of the press D, and having projections *e* and moved by levers *f*, the side pieces *a* secured to the platform F, and the side pieces *a* loosely attached to said platform by means of the pegs *g* entering sockets *h* in said platform, the springs *e* fastened to a cross piece *h* in the head of the press, the springs *d* arranged in said sockets and the pegs *g* and acting upon the side pieces *a*, and the truck *u* having end H and braces H and a bottom in which are grooves *h*, all parts being combined substantially in the manner and for the purposes shown and described. 2nd. The combination of the movable platen of the press, with the side pieces *a*, *a*, substantially as described. 3rd. The combination of the movable platen of the press, the side pieces *a*, *a* carried thereby, the head of the press having holes in which the side pieces slide, and means for moving the side piece *a* horizontally or laterally, substantially as described.

No. 24,319. Car-Coupling. (*Attelage de Chars*)

James H. Hayes, St. Paul, Minn., U.S., 16th June, 1886; 5 years.

Claim.—1st. A link-bearing drawhead, the interior chamber or cavity of which is tapered continuously from end to end thereof on both its upper and its lower surface, and which is provided at its

extreme outer portion with a spring which rests upon the bottom of the cavity, is disconnected from the sides and from the top of the cavity, and terminates upwardly at about the mid-height of the cavity, and which is adapted, as described, to support the coupling-link in a horizontal position midway between the top and bottom of the cavity. 2nd. The combination of a link-bearing draw-head, the interior chamber or cavity of which is tapered from end to end thereof on both its upper and its lower surface, and which is provided at its extreme outer portion with a spring, which, as described, supports the link at a point about midway between the top and the bottom of the cavity, with a drawhead which is provided with an interior slidable tripping block which has lateral arms, and which is actuated by springs which are exterior to the inner cavity of such drawhead. 3rd. A drawhead, a link within the drawhead, a spring beneath the outer portion of the link and directly at the mouth of the cavity in the drawhead, an oppositely-placed drawhead, a slidable tripping-block within such draw-head longitudinal openings or guide slots in the side-walls of such drawhead, lateral arms which project from the rear portion of the tripping-block which extend through the guide-slots, and which in the outer adjustment of the tripping-block bear against the outer end of the guide-slots, and springs which connect the outer extremity of the arms with the outer end of such oppositely placed drawhead, all in combination substantially as described. 4th. The combination, in a drawhead, of an interior slidable tripping-block, longitudinal perforations or guide-slots in the side walls of such drawhead, arms upon the tripping-block, which project outwardly through the longitudinal perforations or guide-slots, a recess which extends longitudinally along each side of the drawhead from the front extremity of the longitudinal perforation to a point near the outer end of the drawhead, and springs which are received within the recess and extend from end to end of the same, and which at one end are connected to the arms upon the tripping-block, and which at the opposite end are connected to the outer extremity of the drawhead. 5th. The combination, with a railway car of a drawhead which carries a slidable tripping-block, a standard which carries a pivoted lever, a coupling-pin which is connected by its chain to the pivoted lever, and a locking-bolt upon such lever and slidable lengthwise along the same, whereby the lever is adjusted in such position as will permit the coupling-pin to be dropped into engagement with the coupling-link, and with the vertical perforations in the body of the draw-head, substantially as described. 6th. The combination in a railway car of a drawhead, a guard or sheath upon the drawhead, a coupling-pin within the guard or sheath, a tripping-block to support the coupling-pin, a standard upon the roof of the car, an arm upon the standard, a recess upon the arm, a lever pivoted upon the arm, a bolt slidable upon the lever and adapted to engage with the recess upon the arm, and a chain which is connected to the outer end of the lever and to the upper end of the coupling-pin, whereby the lever may be either so adjusted that the coupling-pin may descend to its coupling position through the action of the coupling-link upon the tripping-block alone, or so adjusted that the coupling-pin cannot descend to its coupling position. 7th. The combination, in a railway car, of a link-receiving draw-head, a guard or sheath upon the draw-head, a coupling-pin adapted to the guard or sheath, a tripping-block within the link-receiving draw-head, a vertical standard upon the top of the car, an arm which projects horizontally from the side of the standard toward the side of the car, a lever, the outer extremity of which projects over the space at the end of the car to a point directly, or nearly directly, above the guard or sheath pivoted upon the arm, a bolt which is secured to the lever and is slidable along the same and is adapted to engage with the recess upon the arm, and a chain which is connected to the outer end of the lever and to the upper end of the coupling-pin, whereby when the inner end of the lever is elevated, the bolt will be locked in engagement with the recess in the lateral arm, and the coupling-pin will be in such relation to the lever and the chain that it will descend to its coupling position when the tripping-block is moved inwardly. 8th. The combination, with a link-bearing drawhead, the cavity or passage of which diminishes above and below in vertical dimensions from its outer to its inner extremity, and forming at such inner extremity and at the mid-height of the drawhead, a seat of only such vertical extent as will permit the reception of a coupling-link, of a spring at the bottom of the outer extremity of such cavity, and a link which is adapted to fit the seat at the inner extremity of such cavity, and which rests by its outer portion upon the spring at the bottom of the outer extremity of the cavity.

No. 24,320. Automatic Alarm Signalling and Safety System for Railways.
(*Système de Signal Automatique à Sonnerie et de Sûreté pour Chemins de Fer.*)

Elias E. Ries and Albert H. Henderson, Baltimore, Md., U.S., 16th June, 1886; 5 years.

Claim.—1st. The within-described system of automatic alarm signals and safety devices for railway trains, consisting of a series of fixed and movable inclines or elevations of different relative heights placed at different points alongside of a railway track, a signal mechanism carried on a locomotive or train, capable of being operated by said elevations to give audible signals differing in their form and nature according to the height of inclines causing them, a train-stopping mechanism also carried on the locomotive, adapted to be operated by the highest of the inclines or elevations to control the movement of or stop a train in case of danger from an open draw-bridge or other source, actuating mechanism connected to a draw-bridge or switch, and designed and adapted to automatically elevate the aforesaid movable inclines or elevations connected therewith when the draw bridge or switch is opened or moved, and one or more visual signals, substantially as described, operated by said actuating mechanism, for the purpose set forth. 2nd. An audible signal mechanism for railroad trains carried on a locomotive or train, in combination with a series of inclines or elevations of different heights placed alongside of a railway track, said mechanism being complete in itself, to give or produce directly a number of definite audible signals varying from one another in their specific form and nature, and being set for the purpose by said inclines or elevations, said

signals being regularly and uniformly given in a pre-determined space of time regardless and independent of the speed of the train, substantially as set forth. 3rd. In a railroad signal system, a signal mechanism containing a number of signal wheels carried on a locomotive, combined with mechanism placed along the railway for causing said signal wheels to give a number of audible signals of different specific form upon a whistle or bell on said locomotive. 4th. In a railroad signal system, a signalling apparatus containing a number of signal wheels designed and adapted to give or produce respectively a "crossing" station, "misplaced switch," "open draw-bridge" and "down brakes" signal on the whistle of a locomotive, combined with devices placed at or near such crossing station switch and draw-bridge, and adapted to operate said signalling device, for the purpose of giving or producing such signals. 5th. In an audible railway signal system, a signalling apparatus designed and adapted to give audible signals of definite pre-determined form upon a moving locomotive or train, said signalling apparatus being provided with a governing or tuning device, whereby the length or duration of the resulting signals may be controlled or regulated. 6th. In a railway signal system, the combination, with inclines or elevate adjacent to the track rails, of a signalling apparatus designed and adapted to be operated by said inclines to give a series of audible signals, each signal consisting of a succession of long or short blasts, or a combination of both, upon the whistle of a locomotive, and a regulating or tuning device for controlling the operation of the signalling apparatus, and cause it to give its signals in a uniform manner and within a pre-determined interval of time, for the purpose set forth. 7th. An audible signalling apparatus for railroad trains carried on a locomotive or train, said apparatus having one or more signal wheels, and mechanism adapted to revolve said wheel or wheels and cause them to produce audible signals upon a whistle or bell on said locomotive or train, said apparatus being also provided with a suitable regulating device for regulating and controlling the motion of the signal wheels, and thereby enable them to produce uniform and regular signals, as set forth. 8th. In an audible signalling or alarm device for railroad trains, the combination of a vertically-guided rod or bar terminating in a shoe or wheel adapted to ride upon inclines or elevations alongside or adjacent to a railway track, an actuating spring or its equivalent weight adapted to be compressed or wound by the said rod when it is elevated by one of the inclines or elevations, and a suitable signalling mechanism capable of giving a number of dissimilar arbitrary signals, and designed and adapted to be set in motion and operated by said spring or weight, to give one or more of such signals when the wheel or shoe has left the incline or elevation, substantially as and for the purpose set forth. 9th. In an audible signalling or alarm device for railway trains, the combination, with inclines or elevations alongside of or adjacent to the track rails, of a vertically-guided rod or bar attached to a locomotive or train, and adapted to be elevated by said inclines to different heights, and a signal mechanism operated by the descent of said bar, to give one of a code of arbitrary signals upon a whistle or bell on said locomotive or train. 10th. In an audible signalling or alarm device for railroad trains, the combination, with inclines or elevations along the track, of a vertically-guided rod terminating at its lower end in a shoe or wheel, adapted to ride upon said elevations, a suitable mechanism for imparting or utilizing the upward motion of the rod to wind or increase the tension of a coiled spring, one or more signal wheels adapted to be set in motion by the said spring, a signal lever for operating the steam whistle of, or a bell, or gong, on a locomotive, and means for automatically changing the form of signal given by the signalling or alarm device, substantially as and for the purpose set forth. 11th. In an audible signalling or alarm device for railroad trains, the combination, with elevations or inclines placed along a railway track, and a spring-pressed or weighted rod or bar on a locomotive adapted to be raised vertically by said elevations or inclines, of a retaining hand lever E, to enable the engineer or driver to lift the said rod or bar above said elevations when it is not desired that an alarm should be given, substantially as set forth. 12th. In an audible signalling or alarm device, a series of signal wheels having elevations and depressions in their periphery, means for revolving said wheels, and means whereby, when the wheels are revolved, arbitrary signals can be given upon a whistle, bell, or other sonorous body. 13th. In an audible signalling or alarm device, a series of signal wheels having elevations or depressions in their periphery, means, substantially as set forth, for revolving said wheels, and mechanism for automatically locking or arresting the motion of the signal wheels, when they have completed one revolution, for the purpose set forth. 14th. An audible signalling or alarm device, having a series of two or more signal wheels provided with elevations and depressions in their periphery, a suitable signal lever or brush capable of being automatically transferred or moved to the proper signal wheel for giving any desired signal, and means, substantially as described, whereby the signal lever or brush is enabled, when the signal wheels are revolved, to give a series of signals corresponding to the elevations and depressions on the signal wheels upon a whistle, bell, or gong, substantially as specified. 15th. The combination, with an audible signalling or alarm device having one or more signal wheels, and suitable spring-impelled mechanism for operating said wheel or wheels, to give a signal upon a whistle, bell, or other sonorous body on a locomotive, of one or more inclines or elevations placed along the roadway to wind said spring by elevating a depending mechanism carried by the locomotive, substantially as and for the purpose described. 16th. The combination, with an audible signalling or alarm device having one or more signal wheels, and a signal lever operated by the said wheel or wheels, to give one or more signals on a steam whistle, or other sounding body, when the said wheel or wheels revolve, of the rope or rod attached to said signal lever, and the knob of the extremity of said rope, whereby the whistle or other body can be sounded by hand when desired without interfering with or disturbing the signalling apparatus, as set forth. 17th. In an audible signalling or alarm device for railroad trains, the combination, with inclines or elevations along a railway track, and a sliding bar or rod terminating in a friction roller or shoe at its lower end, carried on a locomotive, and adapted to be raised vertically, of a rack or teeth B, and a lever F having a toothed segment or sector at either end, substantially as and for the purpose described. 18th. The combination, with inclines or elevations along a

railway line, a sliding bar carried in a locomotive, and a lever provided with a toothed sector at either end, of a gear or pinion G, adapted to be revolved by one of the sectors of said lever when its other sector is engaged by said sliding bar, and a coiled spring I adapted to be wound when the pinion G is revolved, substantially as and for the purpose described. 19th. In an alarm or signalling device, the combination, with the shaft *g*, pinion G and an actuating spring or weight, of a ratchet or cam H having a single tooth or depression *h*, and a pawl *h* adapted to come in contact with said tooth or depression when the shaft *g* has made a complete revolution, substantially as described. 20th. In an alarm or signalling device, the combination of a sliding lever and two or more signal wheels, provided with a common notch or opening in their periphery across which the lever may slide. 21st. The signal wheels J, J, J, provided with elevations and depressions in their periphery, and having a notch *l* extending across the face of said wheels, in combination with a signal lever adapted to be moved along the line of said notch to either of said wheels, substantially as and for the purpose set forth. 22nd. The signal wheels J, J, J turning loosely upon the shaft *g*, and having a common notch *l* at a suitable point in their periphery, a spring-pressed signal lever capable of being moved back and forth in line with said notches, means for transferring or moving the signal lever to the desired signal wheel, and means for retaining said lever in position over such signal wheel until said wheel has completed its signal, substantially as and for the purpose specified. 23rd. In an alarm or signalling mechanism, the combination, with the spring I and the signal wheels J, J, J, of the regulating mechanism consisting of the fly or fan K, driving gear K, intermediate gearing K, K and K, and the sleeve *f* to enable the gears K and K to revolve on shaft *f* independently of the motion of said shaft, substantially as specified. 24th. The combination, with the signal wheels, of the sliding signal lever L having one end of its hub tapered, substantially as and for the purpose set forth. 25th. The combination, with the lever *o* of a steam or other whistle, of one or more revolving signal wheels having elevations and depressions in their periphery, a signal lever held in contact with one of said signal wheels, and adapted to rise and fall as the elevations, and depressions of the signal wheels pass under it, and a rod or cord connecting said signal lever with the whistle lever, for the purpose of imparting to the latter the motion given to the signal lever by the elevations and depressions of the signal wheel or wheels. 26th. The combination, with the signal wheels and the signal lever, of a cam for moving said lever to the proper signal wheel for giving a desired signal, and a spiral spring for returning the signal lever and cam to their normal position after the signal has been given, substantially as set forth. 27th. In an alarm or signalling mechanism for producing audible signals, the combination, with the signal wheels, the movable signal lever and the spring bearing against said lever, of a cam to transfer the signal lever along the signal wheels, and a retaining catch having teeth corresponding to the number of signal wheels, and adapted to retain the signal lever in proper position, substantially as and for the purpose set forth. 28th. The combination, with the signal wheels, the movable signal lever, the spiral spring bearing against said lever, the transferring cam, the gravity catch of the releasing cam P, the lever N having a hook *p* capable of rising upon the releasing cam, and a rod *q* connecting the lever N with the gravity catch, and adapted to be raised by the cam P at every revolution of the signal wheels to release the transferring cam *n* by lifting the gravity catch, substantially as and for the purpose set forth. 29th. In combination with the signal wheels and regulating gearing, the lever N having a hook *p* adapted to fall into a notch or recess, formed in or placed on the side of one of the signal wheels, to arrest the progress of said wheels at the end of each revolution, substantially as described. 30th. The combination, with the lever N having a hook *p* and an arm *p*, and the hook *p* and recess *r* of the trip lever, and the pin or stud *p* to release the signal wheels from the retaining hook *p*, as set forth. 31st. The combination, with the signal wheels and their operating mechanism, of the cam P, lever N, rod *n*, and gravity catch N, substantially as and for the purpose described. 32nd. In an alarm or signalling device for producing audible signals, the combination, with the sliding bar or rod, spring I, pinion G, toothed cam H and pawl *h*, of a double segmental toothed lever F having a small sector *h* to engage with a rack or teeth on the sliding bar, and a large sector *g* for turning the pinion G, said large sector being provided with twice the number of teeth contained by the pinion, substantially as and for the purpose set forth. 33rd. In an alarm or signalling device, the combination, with the rock shaft, of the gravity catch, the transferring cam, and a projecting arm on said shaft by means of which the transferring cam is moved to any desired tooth of the gravity catch, substantially as shown and for the purpose specified. 34th. The combination, with the gravity catch, the transferring cam, the rock shaft and the projecting arm on said rock shaft, of an arm or guide attached to the sliding bar, or rack, said arm, or guide, being adapted to engage with and move the rock shaft arm to varying distances when the bar or rack is moved beyond a certain point, substantially as and for the purpose set forth. 35th. The combination, with the signal wheels and signal lever, of the rock shaft, and transferring cam for moving said lever, and the gravity catch for holding said lever to the desired signal wheel, substantially as and for the purpose set forth. 36th. In an alarm or signalling device, the combination, with the signal wheels and signal lever and a sliding bar or rack, and suitable mechanism for operating said wheels, of a rock shaft having a cam for moving said lever, and a projecting arm adapted to be moved by an arm or guide attached to the sliding bar when the latter is lifted beyond a certain height, for the purpose set forth. 37th. The sliding bar or rod B, provided at one end with a rack or teeth, in combination with the signal wheels and their driving and regulating mechanism, substantially as and for the purpose described. 38th. In an audible signalling or alarm device for railway trains, the combination, with inclines or elevations alongside of a railway track, of a sliding bar or rod guided in bearings on a locomotive, and terminating in a shoe or wheel adapted to ascend the inclines or elevations, a signalling mechanism containing one or more signal wheels also carried on the locomotive, and designed to be operated by the said bar to produce a signal while the bar is descending after having been elevated by one of the inclines, and a spiral spring bearing downwardly against a collar on said bar, substantially

as and for the purposes set forth. 39th. The combination, with elevations or inclines arranged alongside of a railway track, of a vertically guided rod terminating in a shoe or wheel supported in bearings on a locomotive and adapted to be raised or reciprocated to different heights by said inclines, or elevations, a signalling mechanism capable of giving a number of definite audible signals differing from each other in nature and import carried on the locomotive and adapted to be operated by the said rod to give any desired signal, a train-stopping mechanism also carried by the said locomotive and a suitable collar or projection on said rod designed and adapted to come in contact with and operate the train-stopping mechanism to automatically stop the train when the rod is lifted the proper weight to cause the signalling mechanism to give a "down brakes" signal, as set forth. 40th. The combination, with a vertically guided bar designed and adapted to be raised to various heights by a series of inclines, elevations, or signal arms placed at various points along a railway track, and a revolving signal mechanism operated by said bar to give audible signals upon a locomotive or train, of a lever mechanism connected with and controlling the steam supply pipe, and the air vacuum or other brakes of the locomotive or train, and adapted to be operated by said bar when it is lifted to its highest point for the purpose of controlling the speed of or stopping a railroad train, substantially as specified. 41st. The combination, with the steam supply pipe, and the air, vacuum or other brakes, of a locomotive or train, of a sliding bar or rod attached to said locomotive, and adapted to be moved or reciprocated within certain limits by a series of fixed and movable inclines or guides placed alongside of and adjacent to the track rails, for the purpose of causing audible signals or alarms to be given by a signal mechanism carried by the locomotive, said signals varying in form and nature according to the extent or limit to which the said bar or rod is moved by said inclines, and a lever mechanism connected with said steam pipe and brakes and normally held out of action while the rod or bar is being reciprocated within the ordinary limits for giving one or more audible signals, but which is automatically operated by the said bar or rod to close or cut off the steam supply and apply the brakes when the said bar or rod is moved to its fullest extent, substantially as set forth. 42nd. In a train-stopping and alarm device for railway trains, the combination, with the steam supply pipe and brakes, of a sliding bar or rod attached to the locomotive or train and adapted to be moved or reciprocated within certain limits, by a series of inclines or guides of different heights placed alongside of, or adjacent to, the track rails, a signal mechanism also carried by said locomotive, or train, and designed and adapted to be operated by the said bar, or rod, to cause or produce audible signals of various forms on a whistle, bell, or other sounding body on said locomotive or train, and signals varying in form and nature according to the extent or limit to which the said bar, or rod, is moved by said inclines, and a suitable mechanism, or apparatus connected with the steam pipe and brakes of said train, and designed and arranged to be operated by the said bar or rod when a "stop" or "danger" signal is given by the signal mechanism, or under conditions of extreme or impending danger, to control and regulate the admission of steam to the locomotive cylinders and the application of the brakes, but which is not designed to be operated when the bar or rod is moved to cause ordinary "warning" or "cautionary" signals to be given by said signalling mechanism, as set forth. 43rd. The combination, with the steam supply pipe and the air vacuum or other brakes of a locomotive, of a bell crank lever O having rods *q*, *q* connecting with cranks of levers *l*, *l* controlling respectively the supply of steam to the cylinders and the application of the brakes, said lever being operated by a collar or projection on a sliding bar or rod moving in bearings on said locomotive, when said bar or rod is elevated the proper height by an incline or elevation alongside of the railway track, as and for the purpose set forth. 44th. The combination, with the bell crank lever and intermediate lever mechanism for shutting off the supply of steam and applying the brakes, of a retaining lever having one or more teeth or notches to retain the arm of the bell crank lever when said arm is lifted, and thereby keep the supply of steam entirely or partially shut off, and the brakes fully or partially on until released by the engineer substantially as set forth. 45th. The combination, with the bell crank lever O, the retaining lever U, and the intermediate lever mechanism connected with the steam supply valve and the brakes of a locomotive, of the spring *o* for returning the bell crank lever, and the lever mechanism connected therewith to its normal position when the bell crank lever is released from the teeth of the lever O, substantially as shown. 46th. The double inclined plane S of iron or other metal, having its cross section in shape of an *l* increasing in height as it approaches the centre of the incline, said inclined plane being secured to the road-bed at one side of a railway track, at a distance from a road, crossing, or station, in combination with a signalling device having one or more signal wheels carried on a moving locomotive or train, and designed and adapted to be operated by said inclined plane to give a "crossing" or "station" signal upon a steam or other whistle on said locomotive or train, for the purpose set forth. 47th. In a railroad signal and safety system, the combination, with a railroad track and a depending mechanism carried by a moving locomotive or train, of a series of fixed alarm inclines or elevations permanently placed at different points of said track, and adapted to come in contact with and operate the depending mechanism each time it passes said inclines, and a second series of pivoted or movable inclines also placed along the line of said track for the purpose of operating said depending mechanism, but only adapted and designed to come into operative contact with said mechanism at certain times and under certain conditions, substantially in the manner set forth. 48th. The combination, with a railroad track and a sliding bar terminating in a shoe or wheel carried on a moving locomotive or train, of a series of fixed and movable inclines or elevations placed adjacent to the track rails, and at different points along the line of said track, said inclines being of different relative heights with respect to each other, and designed and adapted to come into successive operative contact with the said sliding bar at the proper time, for the purpose of enabling it to produce a succession of pre-determined audible signals of different specific forms, and perform other operations, each resulting signal or operation being dependent upon and determined by the proportionate height of the particular incline or elevation by which it is caused, substantially as

set forth. 49th. A movable incline or elevation for giving automatic signals upon a moving locomotive or train, consisting of the incline T, formed substantially as shown, and having weighted levers T, T at either end, said levers being pivoted to a frame or plate secured to the cross ties or road-bed of a railway track, and stops t, t for limiting the motion of the levers and the incline or elevation, substantially as set forth. 50th. The combination, with the plate t, secured at one side of a railway track, the alarm incline T and a rope or cable c secured to the alarm incline for operating it, of the weighted levers T, T, formed substantially as shown, to counterbalance the alarm incline and aid in returning to its normal position, and the stop t, t to limit their motion, substantially as and for the purpose specified. 51st. The combination, with one or more movable inclines or elevations arranged alongside of a railway track, and designed and adapted to operate depending mechanism, substantially as described, on a moving locomotive or train, of the bar X moving in guides x, x, and the spiral spring X, substantially as and for the purpose set forth. 52nd. In combination with a railway track, the case V embedded in the road bed parallel with said track and having signal arms V, V, designed and adapted to form a double incline when raised at their longer extremities, substantially as and for the purpose described. 53rd. The combination, with the case V, the weighted signal arms and the vertically guided support secured to said arms of the compensating links a, a, as and for the purpose set forth. 54th. The combination, with the weighted arms and their operating mechanism, of the metallic protecting case having a longitudinal slot or opening in its top, which opening is normally covered by the weighted arms, substantially as shown and for the purpose set forth. 55th. The combination, with the protecting case, the weighted signal arms, the compensating links and the vertical support terminating in a shoe or friction wheel, of a shoe or cam having two or more horizontal steps or rests at different heights, said steps being connected by one or more inclines, and designed to act as a support for holding the signal arms firmly against downward pressure when said arms are either elevated or depressed, substantially as shown. 56th. The combination, with the protecting case, the signal arms, the compensating links, the supporting bar and the shoe or cam, of a wire rope, chain, or cable secured to either end of said shoe or cam, and friction pulleys secured at or near the ends of the case for supporting or guiding said rope chain or cable, substantially as and for the purpose specified. 57th. The combination, with the case, the signal arms, the supporting bar and the rope or cable of the shoe having horizontal steps at different heights, as described, said steps being of sufficient length to compensate for expansion and contraction of the rope or cable, and a long tubular guide rail or plate having stops at its extremities upon which the shoe may move, substantially as described. 58th. The combination, with a fixed or movable projection or elevation placed at the side of a railway track, designed to operate or give an audible signal upon a locomotive or train, of a filling of wood or other suitable substance between said elevation and one of the track rails, said filling having its upper surface level with the upper surface of said track rail, substantially as and for the purpose set forth. 59th. The combination, with an operating bar or lever in connection with a railway switch, or draw-bridge, of two or more movable inclines, elevations, or signal arms capable of being raised to different relative heights for operating a suitable mechanism on a moving locomotive or train, to give audible signal or perform other operations corresponding to or depending upon such various heights, a rope or cable connecting said inclines, elevations or signal arms with each other, and with the operating bar or lever of the switch or draw-bridge, and a suitable compensating device for enabling said operating mechanism to move said inclines, elevations, or signal arms to their respective positions without regard to the expansion and contraction of said rope or cable, as and for the purpose set forth. 60th. In an automatic alarm, signalling and safety system for railway trains, the combination, with an operating bar or lever in connection with a railway switch or bridge, and a locomotive or train provided with a signalling device capable of giving a series of audible signals differing from each other in form and nature, said locomotive or train being also provided with a suitable device for controlling the supply of steam to the cylinders of the locomotive and the application of the brakes of said train, and a sliding bar or rod moving in bearings on said locomotive, and suitably connected with and adapted to operate said devices, of two movable alarm inclines or elevations, differing in height, placed alongside of a railroad, at a distance from each other and from the switch or draw-bridge, and means whereby, when the switch is moved from the main line or the draw is opened, the alarm inclines are simultaneously elevated to come into successive contact with and lift the sliding bar on a locomotive approaching the switch or bridge, thereby causing the signalling device first to give a misplaced switch or an open draw-bridge alarm signal as a warning to the engineer to slow up or stop, and then if this warning is not obeyed before reaching the second incline causing the latter to give a down brakes alarm signal, and at the same moment operate the sliding bar to cut off the steam supply and apply the brakes. 61st. In an automatic alarm signalling and safety system for railroads, the combination, with the switch rails, of a railroad switch, the draw of a draw-bridge, and a moving locomotive or train, of a signalling device carried on said train adapted to give among others a misplaced switch, open draw-bridge, and down-brakes signal, a suitable device also carried by said train to control under certain conditions the supply of steam to the locomotive cylinders, and the application of the brakes of said train, a depending mechanism suitably connected with and adapted to operate either or both of said devices, inclines, or elevations placed adjacent to the track rails, at a distance respectively from the switch and draw, said inclines being normally held out of action with respect to the depending mechanism, and a suitable mechanism connected with and adapted to be operated by the movement of the switch rails and draw, when they are placed in a position of danger to an approaching train to bring their respective inclines into an operative position with respect to the depending mechanism, thereby causing the latter to operate the aforesaid devices, as and for the purposes set forth. 62nd. In an automatic alarm signalling and safety system for railroads, the combination, with the draw, of a draw-bridge and a moving locomotive or train, of a signalling device carried by said train and adapted of itself to give either of a code of audible signals, according as it shall be set

therefor, and a series of inclines or elevations of different heights placed adjacent to the track rails at various points along the roadway and adapted to set said signalling device to give the signals corresponding to such different heights, one of said inclines being placed at a distance from said draw-bridge, and adapted to be automatically operated by the opening of said bridge, to cause the signalling device to give a definite open draw-bridge signal, different and clearly distinguishable from the other signals, for the purpose set forth. 63rd. In an automatic alarm signalling and safety system for railroad trains, the combination of the following elements - an inclined guide or rail secured to the draw of a draw-bridge, a draw-bar or rod guided in bearings in the stationary end of the bridge, and adapted to be moved or reciprocated by said inclined guide, or rail, when the draw is opened or closed, two or more elevations, inclines, or signal arms placed alongside of the track at different distances from the bridge, a wire rope or cable connecting said inclines with each other and with the draw-bar at the bridge, and a signalling mechanism on a moving locomotive or train, provided with a series of signal wheels and adapted, when the draw is open, to be operated by the elevations or inclines to give an open draw-bridge and down brakes signal, for the purposes stated. 64th. In an automatic alarm signalling and safety system for railroad trains, the combination of the following elements. An inclined guide or rail secured to the draw of a draw-bridge, a draw-bar or rod guided in bearings on the stationary end of the bridge and adapted to be moved or reciprocated by said inclined guide or rail when the draw is open or closed, two or more elevations, inclines or signal arms placed alongside of the track at different distances from the bridge, a combined visible and audible home signal placed at the bridge, a wire rope or cable connecting the distant inclines with the home signal and the draw-bar at the bridge, and a signalling mechanism on a moving locomotive or train, adapted to be operated by the series of elevations or inclines when the draw is open, for the purpose of giving a series of audible signals. 65th. In an automatic signalling and safety system for railway trains, the combination, with the actuating draw-bar V, the primary weight w, the rope or cable c, and one or more movable alarm planes, or elevations, connected to said rope or cable, of the secondary weight X, or spring x at the distant end of said cable, whereby the said cable is constantly kept taut, substantially as set forth. 66th. In an automatic draw-bridge signal system, the combination, with the actuating draw-bar and primary weight at the draw-bridge, one or more movable inclines, elevations, or signal arms located alongside of a railway track, and designed and adapted to cause an audible signal to be given upon a moving locomotive or train, or to control the movement of said locomotive or train, and means for automatically operating said elevations or signal arms, of a home signal, substantially as described, located at or near the draw-bridge, and operated by the said primary weight to warn a train after its motion has been entirely or partially arrested by the last of said inclines, by means of both a visible and audible signal, that it is or is not safe for it to proceed, substantially as described. 67th. In an automatic draw-bridge signal system, the combination, with two or more movable elevations, inclines, or signal arms placed alongside of a railroad track at various distances from a draw-bridge, and a suitable mechanism at the bridge adapted to operate said inclines, etc., to give a series of audible signals on and control the movement of an approaching train, of the home signal, consisting of the post Y, the signal arm Y, the signal lamp Y, and the bell or gong X, said home-signal being connected with the inclines and operated simultaneously with them, substantially as and for the purpose specified. 68th. In a railroad signal and safety system, the combination, with a locomotive or train having signalling and train-stopping devices, respectively adapted to give distinct slow and stop signals, and to stop the motion of the train, of the herein described draw-bridge signalling and safety system, comprising the distant alarm elevation or incline, and visible signal of the intermediate alarm elevation or incline, the train-stopping elevation or incline and the combined visible and audible home signal, all arranged and constructed to operate substantially as set forth. 69th. In an automatic signalling and safety system for railroads, the combination, with the draw of a draw-bridge and a signalling and train-stopping mechanism carried in a moving locomotive or train, of one or more alarm inclines at a distance from the draw to give one or more audible warning signals on said train when the draw is open, a train-stopping incline at a nearer distance from the draw to operate the train-stopping mechanism in case the warning signal or signals are not heeded, and a combined visible and audible home signal at the bridge to notify the train when the track is "clear," said inclines and home signal being simultaneously and automatically operated by means of mechanism affected by the movement or the position of the draw. 70th. An automatic alarm device for giving audible signals on a moving train or locomotive, consisting of a series of movable or pivoted inclines or elevations, connected with one another by a wire rope or cable, and placed at suitable points along a railway track, a primary weight or lever and suitable actuating mechanism at a draw-bridge or switch connected to one end of said rope or cable, and designed and adapted to raise or elevate said inclines or elevations above the surface of the rail, when the draw of a bridge is opened, or a switch is moved, a secondary weight or spring placed at the distant end of the rope or cable, substantially as described, to depress said elevations or inclines when the bridge or switch is closed or replaced, and a suitable mechanism carried on the locomotive or train to come in contact with the series of alarm inclines or elevations, when said inclines or elevations are raised, and thereby give suitable alarm signals on the whistle of or a gong or bell on said locomotive or train, for the purpose set forth. 71st. In a system of alarm signalling and safety devices for railroads, the combination and co-operation of the following elements - a signal mechanism, capable of giving a number of arbitrary signals on the whistle of, or a bell, or other sounding body on a locomotive or train mechanism, capable of being operated in connection with the signal mechanism, to regulate and control the admission of steam to the cylinders, and apply the brakes of the train mechanism placed at different points of the road to operate the signal mechanism to give the desired signals at such points, mechanism located at other parts of the road, which mechanism is normally in an inoperative position with respect to the signal mechanism, but is capable of being brought into operative contact therewith in cases of danger, to cause other

signals of a different nature to be given by the signal mechanism, and simultaneously therewith causing the train stopping mechanism to reduce the speed of or stop the train, by cutting off or diminishing the supply of steam to the locomotive cylinders and applying the brakes to the train. 72nd. In a system of alarm signalling and safety devices for promoting safety on railroads, the combination of the following elements: a signal mechanism capable of giving a number of arbitrary signals on the whistle of or a bell or other sounding body on a locomotive or train mechanism, capable of being operated in connection with the signal mechanism to regulate and control the admission of steam to the cylinders and apply the brakes of the train, mechanism placed at different points of the road to operate the signal mechanism to give the required signals at such points, mechanism located at other points of the road which is normally in an operative position with respect to the signal mechanism, and mechanism placed at the various switches, draw-bridges and other points along the road connected with and adapted to automatically bring said mechanism into operative action with respect to the signal mechanism, when the switch or draw is moved, or the track otherwise placed in a position of danger to an approaching train, for the purposes set forth. 73rd. The herein described apparatus for giving a series of distinct and separate arbitrary signals upon a steam whistle, gong, or other sonorous body carried on a locomotive or train, consisting of a series of signal wheels or contacting surfaces having a succession of elevations and depressions corresponding in form to the different signals to be given, a suitable mechanism or device for producing the signals formed by such elevations and depressions upon said whistle, gong, or other body, and a sliding bar or rod connected with said apparatus, and designed and adapted to cause any desired signal to be given by being moved to corresponding different heights. 74th. The herein described system of giving a series of arbitrary signals on a steam whistle, gong, or other sonorous body, carried on a locomotive or train, consisting of the combination of a signalling mechanism provided with a series of wheels or contacting surfaces, having a succession of elevations and depressions corresponding to the different signals to be given and adapted to produce the signals represented by such elevations and depressions upon said whistle, gong, or other body, and a series of inclines or elevations varying in their respective heights according to the number of signal wheels used, said inclines or elevations being distributed along the line of the railroad at different points thereof, each incline of corresponding or relative height being adapted to produce an audible signal peculiar to and dependent upon such height upon the whistle or other sounding body on a passing locomotive, without regard to the position of such incline with respect to other inclines on the line of way or to the order in which said inclines are placed. 75th. The herein described means or apparatus for automatically producing regular uniform and distinct audible signals upon a steam whistle or other sounding body on a moving locomotive or train, consisting of a signal mechanism having one or more signal wheels or analogous devices, designed and adapted to be set in motion through the agency of inclines or elevations along the railway track to operate a whistle, bell, or other sounding body on said locomotive or train, and a suitable speed regulating or governing device designed to control and regulate the motion of said signal wheel or wheels or analogous device, and thereby cause the resulting signals to be given in a uniform and regular manner, regardless of the speed of the train, substantially as set forth.

No. 24,321. Self-Raising Water Motor Power.
(*Machine Hydraulique Elevatoire.*)

Antoine Lucier, Henry S. Mastorman and Henry Boso, Winnipeg, Man., 16th June, 1886; 5 years.

Claim.—The combination, with a tank or well C, of the pumps B, provided with screw C, tank D having a series of tubes E discharging into water wheels F, for operating the pumps by shaft M and cog wheels N, and tank G having tubes H leading to water-wheels T, having a spindle Q, which communicates motor power to the machinery to be driven by gears S, and shaft J having belt pulley K or other suitable means.

No. 24,322. Vehicle Spring.
(*Ressort de Voiture.*)

Samuel Hunt, Lockport, Benjamin F. Felton, Wheatfield, and Lorenzo Sharp, Lockport, N.Y., U.S., 16th June, 1886; 5 years.

Claim—1st. In a vehicle or bolster spring, the combination, of the spring, constructed as shown and described, and the yokes, together with the flexible connection between said springs and yokes, substantially as shown and described. 2nd. In a vehicle or bolster spring, the springs, each having U shaped base part, the arms thereof being coiled and thence extended to stand in planes outside of said U-shaped part, in combination with the yokes having trunnions or arms and the pivoted knuckles connected to said trunnions or arms and said spring-extensions, substantially as shown and described. 3rd. In a vehicle or bolster spring, the combination, with the springs, of the yokes having connection with said springs, and provided with flanges near their ends, substantially as shown and described. 4th. A vehicle or bolster spring, the combination, with the springs, of the yoke having connection with said springs, and intermediate of its ends a recessed protection, substantially as and for the purpose set forth. 5th. In a vehicle or bolster spring, the combination, with the springs, of the yoke or plate having connection with said springs and intermediate of its ends, a recessed projection and near each end a flange, substantially as shown and described. 6th. The yokes or plates bolted to the body board, and having a recess for reception of a vertical standard guide, and trunnions or arms for the knuckles of the springs, substantially as shown and described.

No 24,323. Pneumatic Cash Carrier.
(*Chasse-Monnaie Pneumatique.*)

Wilbur G. Davis and William H. Hinman, Boston, Mass, U.S., 16th June, 1886; 5 years.

Claim.—1st. Pneumatic tubes for use in stores, etc., for conveying cash boxes or carriers or other packages, said tubes being made of glass or other transparent material, as set forth. 2nd. In cash-carriers for store service and other purposes, a tube leading from the salesman's counter or other station to the cashier's desk, adapted to be engaged with a bellows at either end, as described, whereby the cash box or carrier is made to travel in either direction toward or from the cashier's desk, as set forth. 3rd. In pneumatic cash carriers for store-service and other purposes, the transmitting standards B located on the cashier's desk or at the central stations, said standards being connected to a common bellows by means of air passages adapted to be opened or closed at the will of the operator, as set forth. 4th. In pneumatic cash carriers, the bellows C provided with a series of nozzles communicating with the transmitting standards B, said nozzles being provided with valves L, in combination with the rods M, whereby any one of the series of nozzles may be brought into working communication with its corresponding tube, as set forth. 5th. In pneumatic cash carriers, the standards B, curved, as described, and terminating in an open head I, the upper portion of said head being connected to the line of pipe leading to a station, the lower portion of said head being adapted to be closed by a suitable valve, whereby the carrier is readily inserted and transmitted to its destination, as set forth. 6th. In pneumatic cash carriers, the head F provided with the groove or recess a, in combination with the carrier B, having the skirt D, whereby said carrier is held in position in the tube until the valve W is closed and the air current is applied, as set forth. 7th. A cash carrier for pneumatic tubes, consisting of a metallic cylinder having both ends oval, as described, whereby said carrier adapts itself to the curves of the tube, as set forth. 8th. A cash carrier for pneumatic tubes, consisting of a metallic cylinder with oval ends hinged in two sections, as described, and provided at its rear end with a felt skirt or apron J, as set forth. 9th. A cash carrier for pneumatic tubes consisting of a metallic cylinder with oval ends hinged in two sections, in combination with the spring a and lug c, as set forth. 10th. A receiver for cash carriers, consisting of a sack or other suitable receptacle fitted with lead shot placed under the receiving opening of the standard B, as set forth. 11th. The plate P having the cylinder Q attached thereto, said cylinder being provided with a spring S, in combination with the rod M provided with the projection R, whereby the rod is held in position, as set forth. 12th. The rod M, provided with projection R and working against the spring S in the cylinder or chamber Q, in combination with the nozzle I and valve L, as set forth. 13th. In a cash carrier, the combination of the bent tube section h with the curved chute or trough E, as set forth. 14th. The counter F having a bellows G located thereunder, provided with a pivoted section g adapted to be brought under the tube V when sending the carrier to the cashier's desk, as set forth. 15th. The tube sections p, a, secured together and pivoted as described, whereby the section h registers with the pipe V at all times except when the carrier is being sent to the cashier's desk.

No. 24,324. Watch and Clock Key.
(*Cle de Montre et d'Horloge.*)

George S. Conover, Georgetown, and William W. Conover, Toronto, Ont., 16th June, 1886; 5 years.

Claim.—A watch or clock key having a disc fixed to its stem, the inner surface of the said disc having a series of sloping notches or ratchets made in its face, in combination with one or more pins actuated by springs and projecting from the end of a sleeve, journaled on the stem of the key and held thereon by a collar fixed to the said stem, and so holding the sleeve thereon that it shall not move longitudinally, substantially as and for the purpose specified.

No. 24,325. Device for Hitching Horses.
(*Appareil pour Retenir les Chevaux.*)

Harold Holland, Lynn, Mass., U.S., 16th June, 1886; 5 years.

Claim.—1st. In a hitching device of the character described, a clamp adapted to be seated on and detachably secured to the rim of the carriage wheel, said clamp being provided with a stud or hook for the reins, substantially as set forth. 2nd. In a hitching device of the character described, a clamp provided with a hook or stud for the reins, and adapted to be seated on and detachably secured to the rim of the carriage wheel, in combination with the strap or chain I, and carriage body H, substantially as described. 3rd. In a hitching device of the character described, a clamp provided with a hook or stud for the reins, and adapted to be seated on and detachably secured to the rim of the carriage wheel, in combination with the wheel J, reins K and cross-bar Q, or a fixed portion of the carriage around or partially around which the reins are passed on their way to the said clamp, substantially as set forth. 4th. In a hitching device of the character described, a clamp having the body A, provided with the notches V, hook B, nut C, and stud D, substantially as described. 5th. In a hitching device of the character described, a clamp having the body A, provided with the notches V, hook B, nut C, and stud D, in combination with the wheel J, reins K and cross-bar Q, or a fixed portion of the carriage around or partially around which said reins pass on their way to the clamp, substantially as set forth. 6th. In a hitching device of the character described, the reins K, provided with the loops p, in combination with a clamp adapted to be detachably secured to the rim of the carriage wheel, and provided with a stud for the reins, and with the cross-bar Q or a fixed portion of the carriage around or partially around which the reins pass on the way to said clamp, substantially as described.

No. 24,326. Claw Bar.
(*Pince a Pied de Biche.*)

George W. Pangborn, Aylmer, Que., 16th June, 1886; 5 years.

Claim—1st. The dog E, provided with hook H, in combination with the lever A having curved fulcrum B, adapted with claw C, as set forth. 2nd. A claw-bar having a dog E, adapted to engage the head of a spoke and prevent the claw slipping from its grip, as set forth.

No. 24,327. Soldering Machine.*(Machine à Souder.)*

John F. Ross, Toronto, Ont., 16th June, 1886; 5 years.

Claim.—1st. A basin containing solder and heated to keep the solder in a liquid condition, in combination with a soldering iron partially immersed in the solder, substantially as and for the purpose specified. 2nd. A basin heated so as to keep the solder it contains in a liquid condition, in combination with a pivoted soldering iron partially immersed in the solder, and weighted so as to hold the soldering iron against the article being soldered, substantially as and for the purpose specified. 3rd. A pivoted soldering iron S, partially immersed in the solder, and weighted so as to hold the soldering iron against the article being soldered, in combination with the face-pipe I and spindle M, designed to hold the cylindrical can against the point of the soldering iron S, and caused to revolve by means of the spindle E, substantially as and for the purpose specified. 4th. The cross-head C, adjustably supported upon and connected to the parallel rods A, in combination with the shank D connected to the cross-head C and supporting the spindle E, substantially as and for the purpose specified. 5th. The pivoted bell-crank P connected to the spindle E, as specified, in combination with the spring N, arranged substantially as and for the purpose specified.

No. 24,328. Hay-Carrier. (Monte-Foin.)

Thomas S. Davidson, Colesburg, Iowa, U.S., 16th June, 1886. 5 years.

Claim.—1st. In a hay carrier, the combination, with the ridge-pole A having recess T, the carriage-frame F, G, having wheels H and pulleys I, and the detaching-pulley K having bail L, of the catcher N having hooks O and P, and pulley Q, and the guard-pin S, substantially as herein shown and described. 2nd. In a hay-carrier, the combination, with the ridge-pole A and the carriage F, G, H, I, of the brackets B, the cross-beams C, the posts D, the inclined braces D', and the guy-ropes E, substantially as herein shown and described, whereby the said ridge-pole and carriage are securely supported, as set forth. 3rd. In a hay-carrier, the combination, with the ridge-pole A, the carriage F, G, H, I, having catch lever N, the detaching pulley K having bail L, and the hoisting-ropes J, of the pivoted rope-wheel X, the pivoted sweep Z, the connecting lever or a, and the brake-lever and plate b, c, substantially as herein shown and described, whereby the detaching pulley and its load are raised and carried forward, as set forth.

No. 24,329. Combined Washing and Wringing Machine. (Laveuse-Essoreuse.)

John P. Hunt, London, Ont., 16th June, 1886; 5 years.

Claim.—1st. The frame A, formed with shoulders B, B' for supporting the reservoir C of a washing machine, and with slots a, a' for supporting the wringing rollers E, E', in combination with the brace rods D, D', or their equivalent, substantially as shown and described. 2nd. The frame A formed with slots a, a' for supporting the wringing rollers E, E', and formed with shoulders B, B' for supporting the reservoir C of a washing machine, in combination with the brace rods D, D' or their equivalent, cover or pivot arms J, standards K, K, brace K', shaft L, bevelled gears N, N', handles M, M', vertical arm O formed with recess S and slots S', S', bed plate P, disk P', fingers R, R', spring T, and pin V, substantially as shown and described. 3rd. The frame A formed with shoulders B, B' for supporting the reservoir C of a washing machine, and formed with slots a, a', in combination with the brace rods D, D' or their equivalent shafts E', E', wringing rollers E, E', crank F, spring G, screw H, hooked rods H', H', and thumb nut b₁ and nut b₂, or their equivalent, substantially as shown and described.

No. 24,330. Method of Destroying Grass, etc., about Roadways and Railway Tracks, and Apparatus therefor. (Moyen de Détruire l'Herbe, etc., sur les Voies Publiques et de Chemins de Fer. et Appareil pour cet objet.)

David Hawksworth, Plattsburgh, N. Y., U. S., 16th June, 1886, 5 years.

Claim.—1st. The method of destroying grass, weeds and similar vegetation along railways, which consists in directing and impelling downward upon the vegetation to be destroyed hot products of combustion from a furnace, commingled with steam, substantially as described. 2nd. The method of destroying grass, weeds, and similar vegetation along railways, which consists in directing and impelling downward upon the vegetation to be destroyed hot products of combustion from a furnace, commingled with live steam from a boiler, and with exhaust steam from an engine, substantially as described. 3rd. In combination with a railway locomotive, one or more flues leading from the interior of the smoke-arch nearly to the ground, and provided with dampers for opening and closing them at will, a damper for opening and closing the smoke stack at will, and one or more pipes leading from a steam source into the said flue or flues, and provided with means for shutting off and regulating the flow of steam through them, substantially as described. 4th. In combination with a railway locomotive, one or more flues leading from the interior of the smoke arch nearly to the ground, and provided with dampers for opening and closing them, a damper for opening and closing the smoke-stack, one or more pipes leading from a steam source into the said flue or flues, means for shutting off and regulating the flow of steam through these pipes, an exhaust nozzle within the smoke-arch branched in the direction of the said flue or flues, and valve-mechanism, substantially as described, for directing the exhaust-steam either into the smoke-arch or the said flue or flues as shall be required. 5th. In combination with a locomotive engine having its smoke-stack provided with a damper for closing it, a flue leading from the smoke-arch nearly to the track, a pipe leading from the steam-pipe crotch within the smoke-arch into the interior of the flue, and a valve in the said pipe operated from the exterior of the engine,

whereby the hot products of combustion commingled with steam may be impelled to the ground, substantially as described. 6th. In combination with a locomotive engine having its smoke-stack provided with a damper for closing it, the flue G extending horizontally from the smoke-arch, and then vertically downward nearly to the track, and having its vertical portion laterally flaring and divided into two passages, and a steam pipe conveying steam from the boiler into both vertical passages, said steam pipe being provided with a valve and means for opening and closing it from the exterior of the engine, substantially as described. 7th. In combination with a locomotive engine having its smoke-stack provided with a damper for closing it, the flue G, casting H dividing the flaring vertical portion of the flue G into two passages, and having the angle s for dividing the steam and bearing t for the steam-pipe above the said angle steam-pipe L extending from the steam-pipe crotch around the side of the smoke-arch, and along the flue G into the bearing t, valve r in the steam pipe L and tube p' and crank-rods q, o, n for operating the same, substantially as described. 8th. In combination with a locomotive engine, having its smoke-stack provided with a damper for closing its flue G, steam-pipe L, valve r in the said steam-pipe, and means for operating the said valve from the exterior of the locomotive, the casting H provided with the angle s, and bearing t above the same for the steam-pipe, and made annular for the passage through it, of the draw-head, and the partitions K for continuing the passages below the casting H, substantially as described. 9th. In combination with a locomotive engine having its smoke-stack provided with a damper for closing it, a flue extending from the smoke-arch nearly to the track, exhaust-pipe F having the vertical port m and the horizontal port l in line with the ground flue valve R, for opening and closing the said ports alternately, and means for operating the valve from the exterior of the engine, substantially as described. 10th. In combination with a locomotive engine having its smoke-stack provided with a damper for closing it, the flue G having its vertical portion divided into two passages, pipe L for conveying steam from the steam-pipe crotch into both passages, valve r in the steam-pipe, crotch into both passages, valve r in the steam-pipe L, exhaust-pipe F having the vertical port l in line with the flue G, valve K in the exhaust-pipe F for opening and closing the ports m and l alternately, and means, substantially as described, for operating both the valve r and the valve K from the cab. 11th. In combination with a locomotive engine, having its smoke-stack provided with a damper for closing it, the flue G for conveying products of combustion commingled with steam to the ground, said flue being provided with removable dampers on its lower end, substantially as and for the purposes set forth. 12th. The ground flue G projecting from the smoke-arch, of a locomotive, in combination with the collar M having the flange h, sliding dampers N having the flanges g fitting the flanges h of the collar, and nut bolt f for securing the dampers in place, substantially as described.

No. 24,331. Rock and Coal Drill.*(Fleuret pour le Roc et le Charbon.)*

Thomas Willard, Enoch P. Holland and Robert C. Young, Woodville, Penn., U.S., 17th June, 1886, 5 years.

Claim.—1st. In combination, with the drill and screw shaft and the enclosing tube, the partible nut hinged at its end to its support around the shaft, and means for holding it in engagement with the shaft. 2nd. In combination with the drill and screw shaft, the partible nut e and tube b, having the extension b' fitting around the nut, substantially as and for the purpose set forth. 3rd. In combination with the drill and screw shaft, the support b, the sliding frame e having a collar fitting around said support, and secured thereto by a set screw or equivalent device, partible nut e engaging with the shaft within the frame, and the extension b' on said support fitting around the said nut, substantially as and for the purpose set forth. 4th. In combination with the drill and screw shaft, the support b having the extension b', the frame e adjustably secured to said support and carrying the pinion l, and the pinion f, and partible nut e hinged thereto and engaging with the screw shaft within the frame, substantially as and for the purpose set forth. 5th. The combination of the drill and screw shaft, the support b having the extension b', frame e adjustably secured to the support, and carrying the pinion d keyed to the screw-shaft, pinion f carrying the partible nut e, engaging with the screw-shaft, combined power pinion h mounted in the frame and formed of the pinion l and ring pinion z around it, and means for connecting the two pinions, substantially as and for the purpose set forth. 6th. In combination with the drill and screw-shaft, the pinion d keyed thereto, the pinion f carrying the nut engaging with the shaft, the combined pinion h having the ring-pinion z meshing with the pinion d, and the pinion l having two gear faces l', l₂ to mesh with the pinion f according to the feed desired, substantially as set forth.

No. 24,332. Garment Supporter. (Bretelle.)

The Canfield Rubber Company, Bridgeport, Ct. (Assignee of Henry A. Seymour, Washington, D. C.), U.S., 17th June, 1886; 5 years.

Claim.—The garment supporter, consisting of the main strap attached to a suitable suspending strap, the main strap having at its lower end a supplemental strap carrying a button, the said main and supplemental straps being united by a metallic loop having attaching prongs and side flanges.

No. 24,333. Diaper. (Toile Ouvrée.)

The Canfield Rubber Company (Assignee of Daniel M. Baldwin), Bridgeport, Ct., U.S., 17th June, 1886, 5 years.

Claim.—As an improved article of manufacture, a diaper made of a water-proof material, having absorbent fabric secured thereto throughout its entire surface, and consisting essentially of the seat, the side flaps and the lower flap, the latter adapted to be folded over and secured to the side flaps, the said diaper being provided at the upper edge of the seat section and side flaps with a flexible band and a gathering cord attached to the band, substantially as set forth.

No. 24,334. Stocking Supporter. (*Jarretière.*)

The Canfield Rubber Company, Bridgeport, Ct. (Assignee of Christopher C. Shelby, Paterson, N.J., U.S., 17th June, 1886; 5 years.

Claim.—1st. The combination, with a corset or belt, of the elastic cord secured at its ends thereto, the depending non-elastic webbing, the connecting slide and the two ends with their stocking clasps, or holders, substantially as described. 2nd. The combination, with a corset or belt, of the elastic cord secured at its ends thereto, the depending non-elastic webbing, the connecting slide, the two ends with their stocking clasps or holders, and the adjusting buckle, substantially as described. 3rd. The combination, with a corset or belt having the eyelets of the elastic cord having the hooks at its ends, the connecting slide, the depending non-elastic webbing and the ends with their stocking holding devices, substantially as described. 4th. The combination, with the elastic cord secured at its ends to the corset or belt of the U-shaped slide, having the slots near its extremities and the non-elastic webbing applied to the slide so as to substantially cover and protect the same, as described.

No. 24,335. Hair Clipper.

(*Tondeuse de Barbier Coiffeur.*)

James A. Kennedy, Ridgeway, Ont. (Assignee of Samuel W. Burwell, Port Huron, Mich., U.S., 17th June, 1886; 5 years.

Claim.—A comb-plate, adapted to be removably secured to hair-clippers, for the purpose set forth, the teeth of such comb-plate having a cut-away portion between its bearing edge and its heel, substantially as and for the purpose specified.

No. 24,336. Press for Drying Pulp Barrel Heads. (*Presse pour Sécher les Fonds des Barils en Pâte à Papier.*)

Samuel M. Hotchkiss (co-inventor with Benjamin A. Mason), Hartford, Ct., U.S., 17th June, 1886; 5 years.

Claim.—1st. In combination, the pressing-piston, the fixed platen, the drying cases and the rim-formers, substantially as described and for the purpose set forth. 2nd. In combination, the pressing-piston, the fixed platen and the drying cases chambered by heat ducts substantially as described and for the purpose set forth. 3rd. In combination, the pressing piston, the fixed platen and the drying cases and the catch of fingers, substantially as described and for the purpose set forth.

No. 24,337. Boot or Shoe, etc.

(*Botte ou Soulier, etc.*)

William B. Arnold (Assignee of Edward I. Brown), North Abington, Mass., U.S., 17th June, 1886; 5 years.

Claim.—1st. As an improved manufacture, a boot or shoe having its outer sole of the welt thereof secured to the insole, and upper with thread, composed of shoemaker's wax, a metallic wire or wires, one or more strands of flax, or a vegetable or animal material, all being substantially as set forth. 2nd. The described improved sewing thread, composed of shoemaker's wax, a wire or wires and one or more strands of flax or a vegetable or animal material, combined, substantially as described. 3rd. The combination of two or more pieces of leather or other material, with shoemaker's wax, one or more wires, and one or more strands of flax, or a vegetable or animal material, combined substantially as described, and sewed as a thread through such piece.

No. 24,338. Machine for Grinding Mower Knives. (*Machine pour Rémouler les Couteaux des Faucheuses.*)

The Mower Knife Grinder Company, New York (Assignee of Rufus Dutton, Yonkers), N.Y., U.S., 17th June, 1886; 15 years.

Claim.—1st. In a mower knife-grinding machine, the combination, substantially as hereinbefore described, of a rectangular faced grinding wheel and a knife clamp, respectively mounted on separate frames, which are swivelled together and movable in the arc of a circle centering within the grinding wheel in front of the clamp and its frame, and with said centre substantially coincident with the centre of the peripheral face of the grinding wheel, whereby in changing the angular relations of the grinding face, and a knife held in said clamp, either said face or said knife will be moved in the arc of a circle centering in front of the clamp and within the body of said wheel, and enabling the two coincident edges of any two knife sections to be consecutively ground at opposite edges of the wheel without handling the knife. 2nd. In a mower knife-grinding machine, the combination, substantially as hereinbefore described, of a grinding wheel having a rectangular grinding face at its periphery, a mower knife clamp and frames or said clamp and wheel, which are hinged together by a grinding pivot, which is substantially radial to the centre of said wheel, and rectangular to its axis. 3rd. In a mower knife grinding machine, the combination, substantially as hereinbefore described, of a knife clamp frame, a knife clamp for rigidly holding a mower knife bar and its attached knife sections and hinged on top of said frame, substantially at right angles thereto, a grinding wheel frame, a pivot rectangular to the knife clamp hinge for bringing said two frames together, and a grinding wheel having a flat faced grinding periphery mounted in its frame, and having a portion of its periphery interposed between said pivot and the knife seats of the clamp and on an axis rectangular to said pivot. 4th. In a mower knife grinding machine, the combination, substantially as hereinbefore described, of a spring backed knife clamp, a grinding wheel having a flat peripheral grinding face, and separate frames for said clamp and wheel, which are essentially hinged together upon a pivot, substantially parallel with the knife clamp, and rectangular to the axis of the grinding wheel and substantially radial thereto. 5th. In a mower knife grinding machine, the combination, substantially as hereinbefore described, of the knife clamp, the

grinding wheel having a flat peripheral grinding face, and means for reciprocating either of them, the frames on which both are mounted, and a pivot substantially opposite the centre of said wheel and rectangular to its axis, of hinging said frames together. 6th. In a mower knife grinding machine, the combination, substantially as hereinbefore described, of a spring backed knife clamp, a knife clamp frame on which said clamp is hinged at its base, a grinding wheel frame, a pivot for hinging the latter to said clamp frame, and a rectangular faced grinding wheel on an arm hinged to its frame and mounted on a shaft which is parallel with its arm hinge axis, and at right angles to the pivot by which said two frames are hinged. 7th. In a mower knife grinding machine, the combination of a knife clamp, a knife clamp frame, a grinding wheel frame, a pivot hinging said frames together, and a grinding wheel having a rectangular grinding face or periphery slightly wider than one half the width of a knife section, and mounted on a shaft which is substantially in line with said pivot and rectangular thereto. 8th. In a mower knife grinding machine, the combination, with a knife clamp, of the rectangular faced grinding wheel, its shaft, its arm having bearings for both ends of said shaft, the gearing on said arm, the crank the lever or handle at the outer end of said arm and the frame on which said arm is hinged, substantially as described. 9th. In a mower knife grinding machine, the combination of a grinding wheel and its hub, a slotted wheel arm mounted upon a supporting frame, a non-rotative detachable shaft for said wheel supported at both ends by said arm, and the gearing and crank mounted on said arm for driving said wheel, substantially as described. 10th. The combination, with the grinding wheel, of the mower knife clamp having the platen *a*, the clamping jaw *b* having rigid fingers, a ledge or seat for a knife bar, the knife section seats opposite said fingers, the cam faced clamping nut and the bolt connecting it with the jaw *b*, substantially as described. 11th. The combination, substantially as described, of the rectangular faced grinding wheel, the knife clamp, the wheel frame and knife clamp frame hinged together by a pivot, substantially radial to the axis of the wheel, and a stop by which the hinging movement on said pivot is equally limited in both directions. 12th. The combination, substantially as hereinbefore described, of the knife clamp frame, the knife clamp hinged thereto, the grinding wheel, the grinding wheel frame hinged to the clamp frame on a pivot substantially radial to the wheel, a cam faced bar on said clamp and a finger on the wheel frame coincident with said cam faced bar, for engaging therewith and forcing the clamp away from the wheel during changes in their angular relations. 13th. In a mower knife grinding machine, the combination, with the grinding wheel, of the knife clamp provided with rigid fingers for engaging with the knife sections, and a ledge or seat for the knife bar extended laterally from below said fingers, and a clamp button on said seat near its end for engaging with the front of a knife at its rear edge, and thereby co-operating with one of said clamp fingers, for firmly holding the knife in position while its end section is presented to the wheel for grinding. 14th. In a mower knife grinding machine, the combination, substantially as hereinbefore described, of a grinding wheel containing a central water chamber, and a pair of flanges which serve as the side walls of said chamber, and by which said wheel is clamped and supported concentrically with relation to its axis. 15th. In a mower knife grinding machine, the combination, substantially as hereinbefore described, of a grinding wheel provided with a central water chamber, a tubular hub provided with flanges for centering and clamping said wheel, whereby said wheel may be mounted upon a stationary shaft. 16th. In a mower knife grinding machine, the combination of a grinding wheel and its frame and a knife clamp and its frame couplings, by which said frames are swivelled together, and a base clamp, substantially as described, whereby the machine may be mounted for service upon and clamped to a mowing machine wheel or other suitable foundation.

No. 24,339. Quilting Frame for Sewing Machines. (*Métier à Piquer pour Machines à Coudre.*)

J. A. Dalby, (assignee of Eitbeck H. Tallafero, Big Spring, Va., U.S.,) 17th June, 1886; 5 years.

Claim.—1st. In a quilting frame, the combination of the two parts of the track, the clamps D provided with a series of perforations by means and adjusted vertically, and the legs having slots in their upper ends, and suitable devices for adjusting the outer ends of the track, substantially as shown. 2nd. The combination of the quilting frame, with the two corrugated rollers I, which are secured to each end with the track upon which the frame rests, substantially as described.

No. 24,340. Washstand and Desk.

(*Lavabo et Pupitre.*)

George H. LeFetra (assignee of Nathan O. Bond, Fairfax Court House Va., U.S.,) 17th June, 1886; 5 years.

Claim.—1st. A combined desk and washstand, consisting of the base A, a forward projecting portion B containing the basin, hinged lid J covering the portion B, and back portion C containing the water receptacles, substantially as set forth. 2nd. The combination in the back portion C, of the fixed case D, containing the water receptacle, and the case D sliding longitudinally thereon, as set forth. 3rd. The receptacle I, provided with a faucet, and connected to the detachable backing plate a, substantially as set forth. 4th. The combination of the base A, elevated portion C, projecting portion B provided with bearings *f*, for a detachable basin and movable slab Q, substantially as described. 5th. A wash basin provided with a discharge orifice and neck *g* curved to one side, combined with a flexible tube H secured detachably to the neck and leading to a waste water receptacle, substantially as set forth *f* h. The combination of the basin waste tank, flexible tube and neck *g*, M, of a float and stop device, whereby the raising of the clamp *M* is prevented when the tank is full, as set forth. 7th. The combination of the basin, flexible discharge tube, and clamping device *M*, stop *n*, and float D and cord *e*, substantially as specified. 8th. The slab Q of a wash basin, provided with a recess *m* and opening *n*, and deflecting shield or chute, as and

for the purpose set forth. 9th. A combined slab and basin, adapted to, and detachable from, the casing of the stand, substantially as set forth.

No. 24,341. Car-Coupler. (*Attelage de Chars*)

William H. Yeatman and Henry F. Teeter. Waterford, Ont., 17th June, 1886. 5 years.

Claim.—1st. A draw-head consisting of the three sections *a, b* and *d*, the centre section of which has an upwardly projecting head *e* formed on it, and a link *B* pivoted on the pin *C* passing through the sections *a, b* and *d*, substantially as and for the purpose specified. 2nd. A draw head consisting of the three sections *a, b* and *d*, the centre of which has an upwardly projecting head *e* formed on it, and a link *B* pivoted on the pin *C* passing through the sections *a, b* and *d*, in combination with the hooked fork *D* connected to the rod *E*, and designed to operate, substantially as and for the purpose specified.

No. 24,342. Creamer. (*Crèmeuse*.)

Joseph Durancou. Laprairie, Que., 17th June, 1886. 5 years.

Réclame.—Dans une crèmeuse, la combinaison du corps *a*, de la partie conique *g* et du col *h*, avec le fond incliné *m*, le tube réfrigérant *p* avec ses branchements, et la couvercle *r*, le tout tel que ci-dessus décrit et pour les fins sus mentionnées.

No. 24,343. Clod Crusher and Pulverizer.

(*Brise Motte*)

Theodore F. Emaus. Mendon, Ohio, U.S., 18th June, 1886. 5 years.

Claim.—1st. In a clod-crusher and soil-pulverizer, the combination of wheels having transversely perforated rims and suitably journaled in a frame, with cutters having journals or trunnions fitting in the perforations of the wheels projecting from the ends of their inner edges, and having obliquely projecting arms upon the said inner edges, as and for the purpose shown and set forth. 2nd. In a clod-crusher and soil-pulverizer, the combination of a frame having a tongue projecting from it, and dividing it in two halves by its rear end, an axle fitting in transverse perforations in the side pieces of the frame and through the rear portion of the tongue, wheels having their rims transversely perforated and journaled in pairs upon the axle being secured at their proper distance from each other by means of nutted bolts passing through the spokes of the wheels, and bearing upon both sides of the spokes with the nuts and cutters having journals projecting from the ends of the inner edges fitting in the perforations in the wheels, and having obliquely projecting arms projecting from their inner edges, as and for the purpose shown and set forth. 3rd. In a clod-crusher and soil-pulverizer, the combination of the frame having the rear end of the tongue dividing it, and formed with a vertical perforation at the rear end, a plate having a foot-rest at its rear end, and having a longitudinal slot and upwardly projecting flanges at its side edges, and downwardly projecting guide flanges at the forward ends of its side edges clamping the sides of the rear end of the tongue, a seat support having its lower end bent rearward and slotted longitudinally fitting between the upwardly projecting flanges of the foot-rest plate, and a nutted bolt fitting into the perforation of the tongue and having its upper head and securing the slotted end of the seat-support, and the slotted foot-rest plate, as and for the purpose shown and set forth.

No. 24,344. Flying Target. (*Cible Volante*.)

Louis H. Macomber. Montevideo, Minn., U.S., 18th June, 1886. 5 years.

Claim.—1st. The combination, with the cup-shaped or conical target *A*, of a wing *B* secured to the interior of said shell *A*, and adapted to be released therefrom by the concussion of the shot in striking said target, substantially as set forth. 2nd. The combination, with a cup-shaped or conical target having an annular head or projection *f* on its inner surface, of a wing *B* hinged to said target, and adapted to catch on said head or projection, substantially as set forth. 3rd. The combination, with a cup-shaped or conical target, having an annular head or projection *e* on its inner surface, of a wing hinged on the target and provided with a notch or recess *g* to give the wing spring tension, substantially as herein shown and described. 4th. The combination, with the target *A*, of the wing *B* and the ring *a*, together with a cement for temporarily holding the wing at one edge to the target, substantially as and for the purpose set forth.

No. 24,345. Adjustable Clip or Frame Holder. (*Serre-Joint Mobile pour Câbles*.)

John Goddard. London, Eng., 18th June, 1886. 5 years.

Claim.—1st. In a clip, the part *A*, in combination with part *C*, substantially as and for the purpose set forth. 2nd. In a clip, the part *C*, in combination with part *A* and screw *D*, substantially as and for the purpose set forth. 3rd. In a clip, the part *A* with two or more angular surface wings, the part *C* with two or more angular upper surfaces, the screw *D* and the glass, slate or wood *E*, all combined and arranged substantially as set forth and shown.

No. 24,346. Shedding Mechanism for Looms. (*Mécanisme de Pas pour Méteers*.)

James T. Cree. Worcester, Mass., U.S., 18th June, 1886. 5 years.

Claim.—1st. The combination, with the rocker *F*, the pitman *G*, *G*, mechanism, substantially as described, for operating the rocker, the pattern-chain and barrel and the oscillating frames *H*, *H*, provided with risers and sinkers at the extreme upper and lower ends of the same, of the heddle-levers *C* having at or near their centers elongated slots *a*, whereby the levers may be vertically moved and the trans-

verse shaft *D* upon which both the frames and levers are mounted, substantially as herein described. 2nd. The main frame, the operating shaft, a cam mounted thereon, a rocker mounted on the main frame, a lever or arm *A*, a pitman connecting the arm and rocker and the pitman *G*, *G*, in combination with the pivoted frames *H*, *H*, a transverse shaft *D* journaled in an extension of the main frame and upon which the frames *H*, *H* are mounted, a pattern-chain and barrel, the heddle-levers mounted upon the shaft *D* and provided at or near their centers with elongated slots *a*, and the risers and sinkers secured respectively to the extreme upper and lower ends of the frames *H*, *H*, substantially as herein described. 3rd. The main frame, the operating crank shaft, a cam thereon, a rocker *F*, an arm *A*, a pitman connecting the arm with the rocker and the pitman *G*, *G*, in combination with the oscillating frames *H*, *H* to which the pitman *G*, *G* are connected, the centrally-slotted vertically-moving heddle-levers, the shaft *D*, a pattern-chain and barrel, and the risers and sinkers secured to the frames *H* and located at the extreme ends of the levers, substantially as herein described. 4th. The combination, with the slotted vertically-moving heddle-levers, and mechanism substantially as shown and described, for operating said levers, of the shaft *L*, and a cam upon the shaft adapted to engage a lug upon the heddle-levers, substantially as and for the purpose set forth. 5th. The combination, with the chain barrel and pattern-chain, of the slotted heddle-levers adapted to be vertically moved by said chain, the risers and sinkers placed near the ends of said heddle-levers, the frames *H*, *H* and their operative mechanism, the transverse shaft at the rear of the heddle-levers provided with a cam *b*, and mechanism comprising the operating crank-shaft, and the gears *a*, *a*, for causing the cams to operate and to depress the heddle-levers every time the shed closes, substantially as herein described.

No. 24,347. Safety Sheet Metal Pipe or Tube. (*Tuyau ou Tube de Sécurité en Métal en Feuille*.)

Levi R. Mackey. Lieury, Ont., 18th June, 1886. 5 years.

Claim.—1st. A pipe or tube *A*, formed with one or more flanges *B*, *B*, in which one or more grooves or recesses *C*, *C* are formed, one or more of which recesses *C*, *C* may be formed with or without a stopped end *b*, substantially as shown and described and for the purpose specified. 2d. A pipe or tube *A*, formed with one or more beads *D*, *D*, substantially as shown and described and for the purpose specified. 3rd. A sheet metal pipe or tube *A*, formed with one or more beads *D*, *D*, in combination with a pipe or tube formed with one or more flanges *B*, *B*, in which one or more grooves or recesses *C*, *C* are formed, one or more of which recesses or grooves *C*, *C* may be formed with or without a stopped end *b*, substantially as shown and described and for the purpose specified.

No. 24,348. Electric Arc Lamp.

(*Lampe Electrique à Arc*.)

Nikola Tesla. Rahway, N.J., U.S., 18th June, 1886. 5 years.

Claim.—1st. The combination, in an arc lamp, of a main and a shunt magnet, an armature lever to draw the arc, a clamp and an armature to act upon the clamp, a clamping pole and a releasing pole upon the respective cores, the cores, poles, armature lever and clamping armature forming a compound magnet, substantially as set forth. 2nd. The combination, in an electric arc lamp, of a carbon holder and its rod, a clamp for such carbon holder, a clamping armature connected to the clamp, a compound electro-magnet controlling the action of the clamping armature, and electric circuit connections, substantially as set forth, for lessening the magnetism of the compound when the arc between the carbons lengthens, and augmenting the magnetism of the same when the arc is shortened, substantially as described. 3rd. The combination, with the carbon holders in an electric lamp, of a clamp around the rod of the upper carbon holder, the clamping armature connected with said clamp, the armature lever and connection from the same to the clamp, the main and shunt magnets and the respective poles of the same to act upon the clamping armature and armature lever respectively, substantially as set forth. 4th. In an electric arc lamp, a cut-out, consisting of a main magnet, an armature and a shunt magnet having an insulated pole piece, and the cut-out circuit connections through the pole piece and armature, substantially as set forth. 5th. In an electric arc lamp, the combination, with the carbon holder and magnets of the armature *L* and *L*, link *e*, clamp *r* and lever *t* and the spring *S*, for the purposes set forth. 6th. In an electric arc lamp, the combination, with two upright magnets in the main and shunt circuit respectively, having curved pole pieces on one end and converging pole pieces on the other end, of a flat z-shaped armature lever between the curved pole pieces, and a clamping armature between the convergent pole pieces, substantially as described. 6th. The combination, in an electric arc lamp, of an electro-magnet in the main circuit, and an electro-magnet in the shunt circuit, an armature under the influence of the poles of the respective magnets, and circuit connections controlled by such armature to cut out or shunt the lamp, substantially as specified, whereby the branch circuit is closed by the magnetism of the shunt magnet, and then kept closed by induced magnetism from the main magnet, substantially as set forth. 8th. The combination, with the carbon holder and rod and the main and shunt magnets, of a feeding clamp, an armature for the same clamping and releasing poles upon the cores of the respective magnets, and circuit connections through the clamping armature, substantially as specified, for shunting the current when the arc between the carbon becomes abnormally long, substantially as set forth. 9th. The combination, with the carbon holding rod and a clamp for the same, of an armature upon the clamp, a shunt magnet, the pole of which acts to release the clamp, a main magnet with a two part helix, one portion being in the main circuit and the other portion in a shunt or cut out circuit, the clamping armature acting to close said cut out circuit when the arc becomes too long, and to break the shunt circuit when the carbons come together, substantially as set forth. 10th. The combination, with the carbon holders, of two magnets, one in the main circuit and the other in a shunt circuit, and an armature lever to draw the arc, and a feeding mechanism and pole pieces upon

the electro-magnets to act upon the feeding mechanism, substantially as specified. 11th. The combination, with the carbon holders, of two magnets, one in the main circuit and the other in a shunt circuit, an armature lever between two poles of such electro-magnets to draw the arc pole pieces upon the other two poles of the electro-magnets, and a feeding mechanism between and acted upon by such pole pieces, substantially as specified. 12th. The combination, with the carbon holder, of a tubular clamp surrounding the same, an armature lever connected to said tubular clamp, and electro-magnets in the main and shunt circuits respectively, and an armature upon the tubular clamp adjacent to the lateral poles of the electro-magnets, substantially as set forth.

No. 24,349. Art or Process of Preventing Decay, Decomposition, Rot and Fermentation in Fruits, Vegetables and Eggs. (*Mode ou Art d'Empêcher la Corrie, Décomposition, Pourriture et Fermentation des Fruits, Légumes et Oeufs.*)

Charles E. Boardman, Milltown, and James H. Ganong, Saint Stephen, N.B., 19th June, 1886; 5 years.

Claim.—The process of preventing decay, decomposition, rot and fermentation in fruits, vegetables and eggs for any length of time and in any climatic temperature, the action of freezing and throwing excepted by placing and keeping same in fine dry silicious earth or pulverized silice.

No. 24,350. Machine for Stamping Cigars.

(*Machine pour Etamper les Cigares.*)

Leopold Grathwol, Troy, N.Y., U.S., 19th June, 1886; 5 years.

Claim.—1st. In a machine for stamping cigars, the combination, with a series of type-holders, of a series of plates above the types, and of springs for pressing the plates toward the types, substantially as shown and described. 2nd. In a machine for stamping cigars, the combination, with a series of type-holders, of a spring frame for holding the cigar, of a series of plates above the types, and of springs for pressing the plates above the types, and of springs for pressing the plates toward the types, substantially as shown and described. 3rd. In a machine for stamping cigars, the combination, with a vessel for containing hot water, of type-holding pockets formed in the top of said vessel, of spring frames for holding the cigars plates above the type blocks, and springs for pressing the plates toward the pockets, substantially as shown and described. 4th. In a machine for stamping cigars, the combination, with the vessel A having type-holding pockets E in its top, of the frame J provided with hollow lugs K resting on springs M, and sliding in the pockets L, substantially as shown and described. 5th. In a machine for stamping cigars, the combination, with the vessel A having type holding pockets E in its top, and the spring frame J, of the frame N, the rods O passed through the frame N, the plates P on the lower ends of the rods O, and the springs S connected with the rods O, substantially as shown and described. 6th. In a machine for stamping cigars, the combination, with the vessel A having type-holding pockets E, and the spring frame J, of the frame N, the rods O, the plates P, the springs S and the bell-crank levers R connected with the rods O by the links Q, substantially as shown and described. 7th. In a machine for stamping cigars, the combination, with the vessel A having the pipe D and the type-holding pockets E, of the frame N, the rods O, the plates P, the springs S and the bell-crank levers R connected by the links Q with the rods O, substantially as shown and described. 8th. In a machine for stamping cigars, the combination of the vessel A having type-holding pockets E, with the removable plate H, carrying the screws G, substantially as shown and described. 9th. In a machine for stamping cigars, the combination, with the vessel A having the pockets E and the cleats I, of the removable plate H and the screws G, substantially as shown and described. 10th. In a machine for stamping cigars, the combination, with the vessel A of the type holding pockets E, the open spring-frame J, the plates P above the pockets E, springs for pressing them down, and the adjustable gauge T extending over the top of the vessel A, substantially as shown and described.

No. 24,351. Rein Support. (*Porte Réne.*)

Telephore Desjardins, Burlington, Vt., U.S., 19th June, 1886; 5 years.

Claim.—1st. A rein-support, consisting of two parts forming a closed loop when in place, the base ends of which overlap and, thereby adapted to engage each other and be held together, in combination with a suitable flexible support, substantially as described. 2nd. A rein-support, consisting of the two sectional loops B and B', both loops having their upper and base ends bevelled and overlapping, to form close joints, in combination with a flexible pad, substantially as described.

No. 24,352. Tricycle. (*Tricycle.*)

Samuel Martin, Mill Rock, Ohio, U.S., 19th June, 1886; 5 years.

Claim.—1st. In a tricycle, the shaft A, the ratchet-block D provided with slot D', the sliding pawls D', the springs D', the hubs B and the driving wheels C, all arranged as shown and described. 2nd. In a tricycle, the shaft A, the wheel I, and the ratchet-tooth I', in combination with the wheel H, the sliding pawls H', the springs H' and the lever H', substantially as shown and described. 3rd. In a tricycle, the shaft A, the wheel I, and the ratchet-tooth I', in combination with the belt-pulley J, the sliding spring-pawls J', the belt K', and the lever K', substantially as shown and described. 4th. In a tricycle, the shaft A, the wheel I, the ratchet-block D, the sliding pawls D', the springs D', the hubs B, and the driving wheels C, in combination with the wheel H, the sliding pawls H', the lever H', the belt-pulley J, the sliding pawls J', the lever K' and the belt K', substantially as shown and described. 5th. In a tricycle, the combina-

tion of the shaft A, the hub B, the driving-wheels C, the frame F, the swinging platform G and the seat G', substantially as shown and described. 6th. In a tricycle, the combination of the shaft A, the hub B in the driving wheels C, the frame F, the supports M² and M³, the block M, the segments L having recesses L² and the guiding-wheel L, substantially as shown and described. 7th. In a tricycle, the guiding wheel L, the segments L', having the recesses L² and the supporting blocks M, in combination with the forked lever N, the rack O, the teeth O', the pawl O² and the lever frame P, provided with the handle P', and the rollers P², substantially as shown and described. 8th. In a tricycle, the forked lever N, the lever frame P, the handle P', the rollers P², the pawl O² and the spring O', in combination with the rack O, the teeth O' and the guide-wheel L, substantially as described. 9th. In a tricycle, the combination of the guide-wheel L, the segments L', the recesses L², the blocks M, the castings M¹ supported from the main frame F by the rods M² and M³, substantially as shown and described. 10th. In a tricycle, the combination, with the shaft A, the sleeve E, the frame-block E', the frame F, the swinging platform G and the seat G', substantially as shown and described. 11th. In a tricycle, the combination, with the shaft A, the sleeve E, the frame-block E', the frame F, the swinging platform G, the seat G', the supports M² and M³, the driving wheels C and the guide-wheel L, all arranged substantially as shown and described. 12th. In a tricycle, the shaft A, the ratchet-block D, the pawls D', the hubs B, the driving wheels C, and the wheels I provided with teeth I' on each side in combination with the wheels H, the spring pawls H', the springs H', the levers H', the belt pulleys J, the pawls J', the levers K, the belts K², the straps K⁴, and the stirrups K⁵, substantially as shown and described. 13th. In a tricycle, the shaft A, the wheel I, the ratchet-teeth I', the hub I² and the nut I³, in combination with the belt pulley J, the pawls J', the springs J³ and J⁴, the forked arm J⁵, the lever K, the spring K⁷, the belt K², the strap K⁴, and the stirrup K⁵ sliding on the rod G³, all arranged substantially as shown and described. 14th. In a tricycle, the combination of the shaft A, the hubs B, the driving wheels C, the pawl block D, the sleeve E, the frame block E', the frame F, the swinging platform G, the seat G', the wheel H, the spring pawls H', the wheel I, the ratchet teeth I', the belt pulley J, the spring pawls J', the spring J⁴, the forked arm J⁵, the guiding wheel L, the segment L', the block M, the casting M¹ supported by the rods M² and M³, the forked lever N, the toothed rack O, the lever frame P, the handle P', the rollers P², the pawl O², all arranged substantially as shown and described. 15th. In a tricycle, the brake frame U¹ having a slot U² and brake shoe U², in combination with the lever U, the brake shoe U², the spring U³, the arm U³ and the cross-rod U⁴, substantially as shown and described. 16th. In a tricycle, the brake frame Q¹ having a slot Q², the brake shoes Q² and U², the lever U, the spring U², the arm U³ and the cross-rod U⁴, in combination with the cross rods F² and F³ of the main frame F and the driving wheels C, substantially as shown and described.

No. 24,353. Ornamentation of Architectural and other Woodwork. (*Ornementation de Boiseries d'Architecture et autres.*)

William H. Roystone, Corona, N.Y., U.S., 19th June, 1886; 5 years.

Claim.—A wooden article having on its face or upper surface, a raised design in relief of the natural color of the wood, and representing the design to be illustrated, the entire background charred or burned below said surface, substantially as described.

No. 24,354. Threshold. (*Seuil.*)

Joseph Johnston, Hudson, Wis., U.S., 19th June, 1886; 5 years.

Claim.—1st. In a threshold, the combination, with a base having an undercut-seat, of a packing tube occupying said seat and projecting above the surface of the base, substantially as and for the purposes set forth. 2nd. In a threshold, in combination with a two part base, metal projecting plates covering said base, a longitudinal seat cut in said base at its central dividing line, and a packing-tube inserted in said seat, substantially as and for the purposes set forth.

No. 24,355. Saw Set. (*Tourne à-Gauche.*)

Thomas Gibbons, St Louis, Mo., U.S., 19th June, 1886; 5 years.

Claim.—1st. The combination, in a saw-set, with a rigid jaw having an anvil secured thereto, and setting-lever, of a jaw having its face located at an angle to the face of the said anvil, said jaw being movable on the rigid jaw in a plane parallel with the face of said anvil, substantially as set forth. 2nd. The saw-set having an adjustable jaw K, with lip overlying, the saw-side pieces or bars K², forming guides and slotted part K³ having rounded upper side attached to the fixed jaw by screws, substantially as set forth. 3rd. The adjustable jaw K having a lip K² overlying the saw-side bars K², and a slotted lip K³, made crowning so as to have the described adjustment by means of the attaching screws L. 4th. The combination of jaw and handle made in one piece, and having an anvil G, a movable handle or lever H, a setting lever D' actuated by the handle H, and an adjustable jaw having a lip K² overlying the saw. 5th. The combination of the piece A B, with fixed anvil setting-lever D, and hand-lever H fulcrumed to the piece A B respectively above and beneath said piece, a spring beneath the setting-jaw, an adjustable jaw with a lip to overlie the saw, with an opening therein to reveal the teeth, side bars K², a slotted lip K³ having a rounded bearing on the underside of part A B, and attaching screws L, for the purpose set forth. 6th. In a saw-set, the combination, with the rigid jaw having a straight back and a face formed at an angle thereto, of a movable jaw secured adjustably to the back of the rigid jaw, the faces of said jaws being parallel, as and for the purpose set forth. 7th. In a saw-set, the combination, with a rigid jaw, of an adjustable jaw movable relatively to the rigid jaw, in such a plane that the angle between the faces of the jaws shall remain unchanged, substantially as set forth.

No. 24,356. Process and Apparatus for Torrefying Grain, etc., for use in Brewing, etc. (*Process de Torréfaction des Grains, etc., à l'Usage des Brasseries etc., et appareil pour cet objet.*)

Alfred Inderwick, London, Eng., 19th June, 1886; 5 years.

Claim.—1st. The process for preparing grain for use by brewers, distillers, and vinegar-makers, as described, and consisting in subjecting the grain to a regulated temperature within a rotating heating chamber, and for such a time as will ensure the rapid conversion of the moisture of the grain whether natural or applied into steam, for the purpose set forth. 2nd. The application to the purposes of brewing, distilling, or vinegar-making, of grain burst by the combined action thereof of heat and steam, in the manner above set forth. 3rd. The process of improving and increasing the feeding properties of grain, cereals, or seeds, by subjecting it, or them, whilst in motion through a heated rotating chamber to a high and regulated temperature for such a time as will permit of the destruction of microbes and insects, the expulsion of some of the natural moisture of the substances operated upon and the cooking thereof, substantially as and for the purposes set forth. 4th. A torrefying apparatus for grain or seeds consisting of a rotary metal cylinder formed with inlet and outlet openings for the grain to be treated, and provided internally with radial arms, such cylinder being enclosed in a jacket casing, which is open at bottom for the admission of a sheet of flame, obtained from gas burners underlying the casing, and vertically adjustable in respect thereto, such casing having a hinged portion for providing access to the cylinder, and an opening at top fitted with a damper extending the length of the casing, for regulating the heat within the cylinder casing. 5th. In a torrefying apparatus which has a continuous feed and delivery, a rotary cylinder consisting of radial arms projecting from the cylinder axle and forming supports for radially detachable discs, for the purpose above set forth. 6th. In combination with the rotary cylinder, enclosed in a jacket casing and having an opening at top and bottom to facilitate the circulation of heat therein, gas burners extending the whole length of the casing, and supplying a lambent flame thereto, such gas burners having a shielded lateral opening for the admission of air, and a central jet for the admission of gas, with a mixing chamber in line with that portion of the burner through which the mixed gas and air pass to be consumed.

No. 24,357. Gas Machine.

(*Machine à Gaz.*)

Anon W. Frait, Ashland, Mass., U.S., 19th June, 1886; 5 years.

Claim.—1st. The combination, with the case A, perforated generating cylinders D and E, and the driving wheel J, of the tubular part or pipe G, for the purpose stated, all constructed and operated substantially as shown and described. 2nd. The combination, with the case A, provided with a pan B, the top part of the case A having the partitions or divisions J, of the perforated cylinders D and E, tubular part G and driving-wheel J, all constructed and operated substantially as and for the purpose stated. 3rd. In a gas machine, the part G, provided with an inlet-pipe M, and an outlet-pipe N, for the purpose stated, and constructed with bearings for one end of driving-shafts, as described, and made hollow to allow of the air passing through into the driving-wheel, for the purpose stated, in combination with the driving-wheel U and perforated cylinders D and E, substantially as shown and for the purpose stated. 4th. In a gas-machine, the generating-wheel C made of two perforated or gauze cylinders D and E, the outer one being provided with lifting troughs or buckets, for the purpose stated, and means for revolving said generating wheel, substantially as described, in combination with the tubular part G and driving-wheel J, substantially as shown and described.

No. 24,358. Auxiliary Mouth Piece for Telephones. (*Appareil Transmetteur Auxiliaire pour Téléphones.*)

Norman A. Tanner, New Haven, Conn., U.S., 19th June, 1886; 5 years.

Claim.—1st. An auxiliary mouth-piece for telephones, consisting of a concave shell formed to fit over and around the orifice of a transmitter case, a conical funnel fitting into and extending within the shell nearly to the orifice in the case, thereby being adapted to converge the sound waves upon the diaphragm, and means for attaching the same to the transmitter, substantially as described. 2nd. In an auxiliary mouth-piece for telephones, the combination of the conical funnel C, the concave shell A having perforations N and slitted around its edge, and the spring clasp M secured to the shell and funnel and bent at its upper end to hook over the transmitter cover, substantially in the manner described.

No. 24,359. Preservation of Lumber.

(*Conservation du Bois.*)

William Brisley and William S. Finch, Toronto, Ont., 19th June, 1886; 5 years.

Claim.—As a process in the preservation of lumber, the compound hereinbefore described, containing lime (slacked as described) crude petroleum, oil of tar, and liquid manure or its alternative, all in their several quantities, and being arranged, mixed and operated in the manner shown and for the purpose hereinbefore specified.

No. 24,360. Sewing Machine.

(*Machine à Coudre.*)

Rollin D. Tucker, Lynn, Mass., U.S., 21st June, 1886; 5 years.

Claim.—1st. In a sewing machine, a welt guide arranged to permit

movement up to and back from the needle hole, and mechanism to give said movement to the welt guide, substantially as described. 2nd. In a sewing machine, a welt guide arranged to permit movement up to and back from the needle hole, and mechanism for giving said movement to the guide, said mechanism being adapted to permit adjustment to vary the length of movement of the welt-guide relatively to the movement of the feed clamps, substantially as described. 3rd. In a sewing machine, a welt or braid guide arranged to permit movement up to and back from the needle hole, and means to impart said movement to the guide, said means being arranged to move the welt-guide simultaneously with the movement of the feed clamps in whole or in part, substantially as described. 4th. A welt-guide through which the welt-strip passes while the stock passes above and below it, in combination with a sewing mechanism, and a thread or bed plate beveled backwards from the needle hole, substantially as described. 5th. In a sewing machine, a feed mechanism composed of two clamps, both carried on a movable block or carriage mechanism, for advancing the block or carriage, and also for opening the clamps, and means for moving the block and clamps in reverse directions, substantially as described. 6th. In a sewing machine, a feed mechanism composed of two clamps, both carried on a laterally movable block or carriage, one of the clamps being movable, cams on the main shaft adapted to raise the movable clamps and advance the block, and mechanism to depress the movable clamp and return the block, substantially as described. 7th. In a sewing machine, a feed mechanism composed of an upper and lower clamp for clamping the material, means for opening and closing and advancing and returning the clamps, and a movable welt-guide or braid-guide arranged to guide a welt or braid strip between the clamps, substantially as described. 8th. In a sewing machine, an upper and lower clamp for clamping the material, mechanism for advancing and returning the clamps also to open and close the clamps, said means being arranged to close the clamps together with a yielding pressure, substantially as described. 9th. In a sewing machine, the combination of the block M having clamp e, a cam on the main shaft A, and the intermediate spring lever b, all substantially as described. 10th. In a sewing machine, the combination of clamps 10, 12, the spring 13 and rod 14, and operating shaft A, all arranged to operate, substantially as described.

No. 24,361. Truss Frame for Roofs of Buildings. (*Armature pour Toits de Bâtimens.*)

William P. Buckley, Oxford, N.Y., U.S., 21st June, 1886; 5 years.

Claim.—The combination of the rod A, provided with right-and-left hand screw-threads, the swivel-nuts B, posts C, plates e, braces D, and beam E, substantially as described and shown and for the purpose set forth.

No. 24,362. Machine for Grading Barley.

(*Machine à Trier l'Orge.*)

William H. Earle, Belleville, Ont., 21st June, 1886; 5 years.

Claim.—In a machine for grading barley, the combination and arrangement of three sieves as described, the centre one stationary and attached firmly to the body of the machine, and the upper and lower ones vibrating rapidly, in the manner and for the purpose specified.

No. 24,363. Injector for Steam Boilers.

(*Injecteur pour Chaudières à Vapeur.*)

Lovren E. Hogue, Greenville, Penn., U.S., 21st June, 1886; 5 years.

Claim.—1st. In an injector, the combination, with a lifting pipe and a forcing pipe arranged side by side, of a single valve arranged in the shell between said pipes, and adapted by a single motion to direct water from the former to the latter, substantially as set forth. 2nd. In an injector, the combination, with two pipes arranged side by side, one containing lifting tubes and the other forcing tubes and a vertically-moving valve, and also connected by water and steam passages, of a rotary valve adapted to admit steam to the forcing pipe by the same movement as that employed for putting the water lifting and forcing mechanism in communication, substantially as shown and described. 3rd. In an injector, the combination in one shell, of the pipe A having internal tubes a, a', pipe B having valve stem V and internal tubes b, b', the water passage D, steam passage E, chamber C having ports c, c', c'', and the rotary valve P having corresponding ports and an exterior connection with said valve stem, all combined and arranged substantially in the manner and for the purpose set forth. 4th. In an injector, the combination, with the forcing pipe or tube, and with the operating valve, of the check tube or nozzle b, for the purpose specified. 5th. In an injector having lifting and forcing tubes, and water and steam communications, the combination, with the water passage and forcing pipe, of an air chamber and tube, for the purposes described. 6th. In an injector, the combination, with the pipe A and forcing pipe B having water passage D, of the air chamber T and tube or passage F, arranged substantially in the manner and for the purpose specified.

No. 24,364. Sheet Metal Pipe.

(*Tuyau de Métal en Feuille.*)

William Clendinning, Sr., (assignee of John Clendinning,) Montreal, Que., 21st June, 1886; 5 years.

Claim.—1st. The combination, with the meeting ends of two lengths of pipe, of a spring and pin carried on the large end, and hole formed in the smaller to receive such pin, all as herein set forth and for the purposes described. 2nd. The combination, in the meeting ends of two lengths of pipe, of slot C formed in the larger end, and spring E with pin F mounted on same, and hole D formed in the smaller end, all as and for the purposes set forth.

No. 24,365. Machine for Making Wire Nails. (*Machine pour Faire les Clous avec du Fil de Fer.*)

Minard M. Smith, (co-inventor with John Hassall.) New York, N.Y., U.S., 21st June, 1886; 5 years.

Claim.—1st. In a nail-making machine, the combination of the slides E, carriages e and their adjusting and binding screws r, e1, e3 and e4, so constructed and arranged that the cutting-off dies e may be adjusted both vertically and horizontally by means of the same, substantially as herein shown and set forth. 2nd. In a nail-making machine, the compound lever d and d7, in combination with the pressure adjusting screws d4 and d2, the movable holder die d1 and fixed holding die d, substantially as and for the purposes herein shown and described. 3rd. In a nail-making machine, the combination of the milling rolls b1, with the feeding, hoisting and cutting-off mechanisms, as herein shown and described. 4th. In a nail-making machine, the combination of the positively-acting knocking-off finger F, and lever f, with the adjustable cams s, as herein shown and described.

No. 24,366. Windmill. (*Moulin à Vent*)

Antoine Lucier, Henry S. Masternan and Henry Bose, Winnipeg, Man., 21st June, 1886; 5 years.

Claim.—1st. The combination, with the frame A of the windmill, of the drum E, having tangentially fixed wind boards F, and mounted on spindle C, provided with gear wheel G, and shaft H, provided with gear wheel G1, and suitable pulleys R for communicating the motion power of the mill of the shutters K mounted on shafts Q, provided with cog pinions U, meshing with a cog wheel I, and shaft V having a cog pinion W for operating the shutters, simultaneously as set forth. 2nd. The notched ring P, having projections S for limiting the open position of the shutters, as set forth.

No. 24,367. Billiard Room Register.

(*Compteur pour Salle de Billards*)

William H. Nagle, Annie G. Snow and Robert E. Smith, Winnipeg, Man., 21st June, 1886; 5 years.

Claim.—The escapement A, slotted as shown, in combination with the magnet B, the dials K, E and G, the hand L, F and H, operated by the spring O with ratchet wheel P, the cog wheel pinion and shaft S, escapement wheel Q and pinion on shaft R, the arm J attached to shaft R acting on the rim wheel I, with centre rim and small hand H, substantially as and for the purpose above set forth.

No. 24,368. Machine for Setting Springs.

(*Machine à Courber les Ressorts.*)

John S. Pessonger, Brooklyn, N.Y., U.S., 21st June, 1886; 5 years.

Claim.—1st. The combination, in a spring-setting machine, of a series of weights i, with the block a and with L-shaped fingers e, the working ends of which project above said block, substantially as specified. 2nd. The combination of block a, with fingers e, and with mechanism for clamping said fingers separately against such blocks, substantially as specified. 3rd. The combination of blocks a, with fingers e, bolts e, and eccentric levers g, adapted to clamp the fingers against the block, substantially as specified. 4th. The combination of block a, with fingers e, slotted longitudinally, and with bolts d, e, and eccentric g, substantially as specified. 5th. The combination of block a, with L-shaped fingers e, adapted to be clamped to the same, and with the shoes h having downwardly-extending pins which fit into holes in the working faces of the fingers, substantially as specified. 6th. The combination of hammers i, with laterally adjustable crabs l, adapted to engage shoulders on said hammers, substantially as specified. 7th. The combination, in a spring-setting machine, of the following elements, block a, fingers e, eccentric g, gauge plate m, hammers i, and crabs l, substantially as specified.

No. 24,369. Manufacture of Sodium and Potassium. (*Fabrication du Sodium et du Potassium.*)

Hamilton Y. Castner, John H. Booth, New York, and Henry Booth, Poughkeepsie, N.Y., U.S., 21st June, 1886; 5 years.

Claim.—1st. In a process for manufacturing sodium or potassium, performing the reduction by diffusing carbon, in a body of alkali in a state of fusion at moderate temperatures, substantially as described. 2nd. In a process of manufacturing sodium and potassium performing the reduction by means of the carbide of a metal or its equivalent, substantially as described. 3rd. The process of manufacturing sodium or potassium, mechanically combining a metal and carbon to increase the weight of the reducing material, and then mixing this product with alkali, and fusing the latter, whereby the reducing material is held in suspension throughout the mass of fused alkali, substantially as described. 4th. In a process of reduction performing, the decarboxidation by the carbide of a metal or its equivalent, substantially as described.

No. 24,370. Buckle. (*Boucle.*)

Thomas Mitchell, Brooklyn, N.Y., U.S., 22nd June, 1886; 5 years.

Claim.—1st. The combination of the chambered frame of the buckle, the strap passing through slots in said frame, and the wedge G, pivoted within the frame and having a handle h, substantially as described. 2nd. The combination, of the buckle chamber having a corrugated side, the correspondingly corrugated metallic strap and wedging fastener constructed and operated, substantially as shown and described. 3rd. The chambered frame of the buckle, in combination with the wedge, when constructed and operated substantially as and for the purpose shown and described.

No. 24,371. Barb for Wire Fences.

(*Fil de Fer Barbelé pour Clôtures.*)

George M. Bearbower, Cherry Vale, Ks., U.S., 22nd June, 1886; 5 years.

Claim.—1st. A wire fence barb having a flat central portion, and two pointed ends standing nearly at right angles to the plane of the said flat portion, substantially as shown and described. 2nd. The combination, with the fence a, of a wire, consisting of a barb having a flat central portion, and two pointed ends standing nearly at right angles to the plane of the said flat portion, the barb being held between the fence wires which grasp the said flat portion of the barb, substantially as shown and described, whereby the barb is journaled between the fence-wires to swing parallel with the fence, and to be sprung back to a position transverse to the said wires by the action of the latter, as set forth.

No. 24,372. Refrigerating Apparatus for Railway Freight Cars. (*Appareil Refroidisseur pour Chars à Marchandises.*)

David Hennessy, New York, N.Y., U.S., 22nd June, 1886; 5 years.

Claim.—1st. In a refrigerating system for railroad cars, in which an ice machine is used, the combination of a fresh water cooler, with the refrigerating apparatus, and with the motor which operates said apparatus, substantially as specified. 2nd. The combination, with the car B, ice machine C, condenser u, the motor which operates said machine, and tank or tanks o for supplying both the condenser and motor boiler of the water cooling tank m, essentially as described. 3rd. The combination, with the car B, ice machine C and motor for operating the refrigerating apparatus of a water cooling circulating means, substantially as described, arranged beneath and outside of the car body, essentially as and for the purposes herein set forth. 4th. The perforated water supply pipes n, in combination with the tanks e, m, pump f and condenser u, substantially as specified. 5th. The combination, with the car B, ice machine C and tank or tanks o, of the tank m, coil n and spray pipes c, substantially as and for the purpose specified. 6th. The cars A, provided with pipes B1, C1, and the back and forth circulating pipes D1, substantially as described. 7th. In refrigerating cars, in which cold brine or liquid is circulated through pipes within the car, the combination, with the circulating pipes B1, brine supply pipe B2 and brine return pipe C1, of the branch inlet pipe E1 arranged to rise or incline upward from its connection with the supply pipe to its connection with the circulating pipes, substantially as and for the purpose herein set forth. 8th. In refrigerating cars, in which cold brine or liquid is circulated through pipes within the car, the combination, with the circulating pipes D1, brine supply pipe B2 and brine return pipe C1, of the branch inlet pipe E1, arranged to connect the supply pipe with the circulating pipes at or near the bottom or lower level of the latter, and the branch brine outlet pipe F1 arranged to connect the return pipe with the circulating pipes at or near their top or higher level, essentially as and for the purpose specified. 9th. The branch outlet pipe F1, constructed with an upward bend or crook it, in combination with the brine return pipe C1, and the brine circulating pipes D1, substantially as specified. 10th. In a refrigerating car, the combination, with the brine circulating pipes D1, and chairs supporting the same, of the beams G1 for carrying the chairs and for suspending the articles to be preserved within the car, essentially as described. 11th. The combination, with the brine circulating pipes D1, chairs carrying the same, and the beams G1 carrying the chairs of the screws or clips L, bars or connections k1, angle irons l, bolts m1 and roofs e1, A, substantially as and for the purposes specified. 12th. In a refrigerating car, the combination, with the brine circulating pipes D1, of the gutters at, e2, and the drip outlet pipe u1, constructed or provided with a trap v1, essentially as described. 13th. The chairs H1, constructed with a lower recess r1, and with an opening r1 in their top for reception of the brine circulating pipes D1, and gutters at for carrying off the drip from said pipes, substantially as herein set forth.

No. 24,373. Fence Post. (*Pieu de Clôture.*)

Houghton W. Wilson, Kingston, Ont., 22nd June, 1886; 5 years.

Claim.—1st. A fence post, consisting of an upright flat bar A, a flat bar foot B having a horizontal shank, and two legs twisted laterally, and a morticed block or coupling C connecting the same, and secured b, means of keys. 2nd. A fence post, consisting of an upright flat bar A, notched to be keyed in a coupling block, notched to form inclined planes in places where wire is to be fastened, and notched at the top to receive a shoe, a flat bar foot B having downwardly and laterally twisted legs, and a central horizontal shank to receive the bar A and key A1, a coupling or block C morticed to receive and connect the bar A and foot B and to hold the same by means of the tooth c and keys A2 and B1. 3rd. A fence post, consisting of a foot B, coupling C securing the same by keys to the upright A, shoe D having eared ears d and l provided with mortice engaging a notch in the upright and held therein by a key d11. 4th. The combination of the upright A, notches a, notches at, foot B having notched horizontal shank and downwardly and laterally twisted legs set in opposite directions, morticed coupling C, tooth c, keys A1, B1, shoe D, ears d and key d11. 5th. In combination with the upright A, the shoe B keyed thereon through a mortice in the bottom, the lip of said mortice engaging a notch in the bar A, and said shoe constructed with sides having perforated ears d adapted to be nailed through or clipped by staples, and said shoe adapted to receive and hold the ends of scantlings D1. 6th. The combination of the upright A, notches at forming downwardly and outwardly inclined planes, the wire fastenings F secured in said notches. 7th. The combination of the coupling C, morticed inter-centrally to receive the upright A, and foot B, keys A1, B1, and tooth c adapted to engage a notch in the bar A. 8th. The combination of the foot B having a horizontal central shank, and two downwardly and laterally bent legs set in opposite directions, and the distance between the points o being equal to the length of the horizontal shank, all substantially as shown and described and for the purpose set forth.

No. 24,374. Slotting Machine.*(Machine à Encocher.)*

David Wilson, Cappoquin, Ireland, 22nd June, 1886; 5 years.

Claim.—1st. The tool box A, constructed as shown, with hinged tool rest B, substantially as and for the purpose set forth. 2nd. The hinged tool rest B attached to the box A, substantially as set forth. 3rd. The combination of the tool D, tool rest B, bolts a, a and box A, substantially as and for the purpose set forth.

No. 24,375. Collar and Cuff and Button Hole*for Collar and Cuff, etc. (Faux-Col et Poignet, et Boutonnière de Faux Col et Poignet, etc.)*

Wallace P. Groom, Brooklyn, N.Y., U.S., 22nd June, 1886; 5 years.

Claim.—1st. A cuff or collar made of a single sheet or ply of material of approximately uniform thickness throughout its entire extent and having its marginal or edge portion offset or deflected from the plane of the article continuously around the entire perimeter, including the corners and other portions which are in proximity to the button holes, substantially as herein described. 2nd. An article of wearing apparel, provided with a button-hole made in the form of an arc-shaped or curved slot, with parallel sides or margins b, b', and having in the convex side or margin b, the notch or recess d, substantially as herein described. 3rd. An article of wearing apparel, provided with a button-hole having in one lip or edge a notch or recess d, and having at one or each end an eyelet hole or enlargement c, substantially as herein described. 4th. A cuff having button-holes in its opposite ends, arranged with their length oblique to the edge of the cuff and across the corners, so that when the button-holes in opposite ends are brought into coincidence they will cross each other at opposite angles, substantially as herein described. 5th. A cuff or other article of wearing apparel, provided with a button-hole arranged obliquely to the edges thereof and across the corner, and having in its inner edge or margin a notch or recess extending in a direction away from the corner, substantially as herein described.

No. 24,376. Lamp Burner. (Bec de Lampe.)

Philipp A. Nebeling, New York, N.Y., U.S., 22nd June, 1886; 5 years.

Claim.—1st. In a lamp, the combination of an annular wick tube, and a deflector surrounding the same, made of perforated material tapering upwardly and having the upper end turned abruptly inward. 2nd. In a lamp burner, the combination of an annular wick tube, a perforated deflector tapering upwardly and having its upper end turned abruptly inward, and a perforated air distributor arranged within said deflector. 3rd. The combination, with the post F and air distributor C, of the drip cup D, substantially as specified.

No. 24,377. Lamp. (Lampe.)

Philipp A. Nebeling, New York, N.Y., U.S., 22nd June, 1886; 5 years.

Claim.—1st. In a lamp burner, the combination, with a wick tube, of air distributors consisting of perforated shells, arranged in close proximity, but having their perforations out of line, substantially as specified. 2nd. In a lamp burner, the combination, with a wick tube, of the air distributor H, provided with perforations arranged in vertical and horizontal rows, and the air distributor K having perforations arranged in oblique rows, substantially as specified.

No. 24,378. Scalping Reel for Treating Flour, etc. (Machine à Bluter la Farine, etc.)

William D. Gray, Milwaukee, Wis., U.S., 23rd June, 1886; 5 years.

Claim.—1st. In combination with the internal and external rotary screens, the intermediate imperforate cone, and the longitudinal blades or wings. 2nd. In combination with the external conical reel, and the internal imperforate cone tapered in the opposite direction, the longitudinal blades secured externally to the cone, their outer edges being parallel with the surface of the reel. 3rd. In a scalping machine, the receptacles K and L located in one end of the machine, in combination with the outer screen communicating directly with the receptacle K, the inner screen E extended to communicate directly with the receptacle L, and the intermediate imperforate cone, as described and shown. 4th. The two annular heads G, G' and skeleton wheels D, D', in combination with the two conical screens, and the intermediate cone H having the imperforate body-portion, and provided at one end with openings a, whereby the material is permitted to pass from its interior to the inner surface of the outer reel.

No. 24,379. Baker's Oven.*(Four de Boulangerie.)*

James Dempster, Toronto, Ont., 23rd June, 1886; 5 years.

Claim.—1st. In a baker's oven, the construction of a down-flue A below the level of the oven bottom K. 2nd. In a baker's oven, a furnace door D, with a dust-trap H, in combination with a gas-flue c, constructed above and in front of the furnace-door, substantially as and for the purpose hereinbefore set forth.

No. 24,380. Digging Holes in the Earth.*(Forage dans la Terre.)*

Rockwood Cummings, Palmetto, Ga., U.S., 23rd June, 1886; 5 years.

Claim.—A gauge-shaped blade A, with a suitable handle B, having a cutting edge C and the side edges D, D', the latter being constructed with inward projections a, a', the whole being arranged and combined substantially as set forth.

No. 24,381. Cash and Parcel Transmitting Apparatus. (Appareil pour Transporter la Monnaie et les Paquets.)

Willard H. Gilman, Boston, Mass., U.S.; 23rd June, 1886; 5 years.

Claim.—1st. An organized cash and parcel transmission apparatus for store-service, in which a track consisting of a single wire or rail embodies the following features, viz: a common forwarding and return way—i. e., a single way employed for both of said purposes, one way common to a number of salesmen's stations, and such way constructed to promptly insure the automatic derailment of a series of carriers at the respective to which they belong, for the purpose desired. 2nd. A way common for both, the forwarding and return of the carriers for a number of salesmen, said way consisting of a single wire or rail, either permanently horizontal or capable of being alternately inclined in opposite directions, and having a series of graduated tripping devices connected therewith or located continuous thereto, in combination with a series of carriers, so constructed as to engage therewith, for the purpose of being automatically derailed at their proper stations, substantially as set forth. 3rd. A single wire or other single rail track having graduated tripping devices, and a series of carriers having tripping devices adapted to engage therewith, and effect the automatic derailment of the carriers at their proper stations when said carriers are moving in one direction, and allow of the uninterrupted passage of the carriers when moving in the opposite direction, constructed and arranged to operate for the object desired. 4th. A single rail or wire track having a series of graduated tripping devices, and a series of carriers provided with devices to engage therewith, in such manner that each carrier on arriving at its proper station may be liberated from its normal upright position on the track, and have its centre of gravity changed so as to destroy its equilibrium in order that the carrier may assume an inclined position and be free to be automatically derailed and removed, substantially as described. 5th. A continuous unbroken track having a single wire or rail forming a straight line, or a line partly straight and partly curved, for the common use of a number of salesmen, as a combined forwarding and return way, and provided with a series of tripping devices, in combination with carriers provided with tripping devices to engage therewith, said carriers being so constructed that their equilibrium will be automatically destroyed, and the carriers automatically derailed at their respective stations on their return from the cashier for the purpose enumerated. 6th. A continuous track without switches, having a single wire or rail, forming a straight line, or a line partly straight and partly curved, as a combined forwarding and return way for the common use of a number of salesmen, and having a series of graduated tripping devices, in combination with a series of carriers provided with tripping devices, which when the carriers are moving on the track, occupy positions under the same at graduated distances increasing from the carriers of the first station to the carrier of the last station, and so constructed that the carriers will lose their equilibrium and be automatically derailed at their respective stations on their return from the cashier, for the purpose set forth. 7th. In combination, a forwarding-way consisting of a single wire or rail, a return-way consisting of a single wire or rail, the latter provided with a series of graduated tripping devices, and a series of carriers having tripping devices to engage therewith, all constructed and arranged to destroy the equilibrium and insure the automatic derailment of the carriers at the stations to which they respectively belong. 8th. A single wire or rail inclined downward to the cashier's station, and used by the salesmen as a common forwarding way, and a single wire or rail provided with graduated tripping devices and extending either horizontally or inclining down from the cashier's station to the several stations of the salesmen, and constituting a common return-way, in combination with carriers provided with tripping devices, as and for the purpose explained. 9th. A carrier having one or more wheels, the axis of which is so hung in bearings that the wheel or wheels are capable of being swung over, and automatically derailed from a return-way provided with graduated tripping devices, the carrier leaving the track only at the station to which it belongs, as set forth. 10th. A carrier having one or more wheels, an axis supported in bearings and free to swing or rotate therein, a device actuated by a spring for locking the axis in its normal position, a tripping device connected with the carrier, and a single-rail track having a tripping device for actuating the carrier-tripping device and releasing the spring-locking device, all constructed and arranged to cause the automatic derailment of the carrier, in combination with a receiver located at its station, for the purpose specified. 11th. The receptacle c pivoted to the truck or standard in which the axis of the carrier-wheel or wheels bear, in combination with the device for locking and retaining the receptacle in its normal or upright position, and devices for tripping and unlocking the same to allow it to swing on its pivot, and automatically leave the track on its return from the cashier, substantially as herein shown and described. 12th. A carrier having one or more wheels, an axis a and the bearing or bearings o in which it is adapted to rotate, a hooked arm k pivoted to the carrier, and its spring m for pressing it into a position for locking the axis, a tripping projection d connected with the carrier, and a single-rail track having a graduated tripping device b extending out into the path of the carrier-tripping device d, all combined and arranged to operate substantially as set forth. 13th. A wheel-carrier, an axis, an upright bearing 21 having a foot-piece 22 integral therewith or secured thereto, a receptacle c pivoted to the lower end of the bearing, a spring-actuated hooked-arm k, and a tripping device d projecting therefrom, in combination with a track having a single wire or rail and a tripping device projecting therefrom, as described. 14th. In combination with a single rail or wire forwarding-track, and a single wire or rail return-track, a series of supports common to both ways, as specified. 15th. A receptacle for receiving the carrier when derailed from the return-way, in combination with and secured to the track-supports c, c, and a spring for automatically allowing of the gradual descent of the receiver when the carrier, etc., is contained therein, and for automatically elevating the receiver when empty to a position contiguous to and under the carrier-station, as described. 16th. The carrier-receiver G, its sliding sleeve p and spring q thereunder, for automatically raising the same to its receiving position.

and the rod *w* for depressing it, in combination with the track-supporting rod *c*, as set forth. 17th. A device for conveying the carrier and its contents to its position on the forwarding-way, said device consisting of a receptacle *H*, of a shape adapted for holding the carrier, and a handle *f* for elevating the same, substantially as set forth. 18th. A carrier-conveying device, in combination with a track-support having a hook *e*, as and for the purpose described.

No. 24,382. Bottle and Jar Fastener.
(*Fermeture de Bouteille et de Pot.*)

William Werts, Camden, N.J., U.S., 23rd June, 1886, 5 years.

Claim.—1st. The combination of a collar, a swinging bail pivoted to the collar, the arms pivoted on the bail and carried thereby, the finger-piece arranged at an angle to and connected with the arms, and a cover to which the arms are connected to force the same to its seat when the finger-piece is depressed, substantially as described. 2nd. The combination of a collar having the bearings, the bail journalled in the bearings and carried by the collar, the arms and finger-piece formed of a single piece of wire, and having the eyes through which the bail is passed, and a cover on which the arms bear to force the same to its seat, substantially as described. 3rd. The combination of a collar having the bearings, the bail having the trunnions journalled in the bearings of the collar, the arms and finger-piece arranged at an angle to each other and formed of a single piece of wire, and having the integral eyes through which the bail is passed, and a cover pivoted on and carried by the arms, substantially as described.

No. 24,383. Fire-Escape. (*Sauveteur d'Incendie.*)

Robert Molyneux, Ransomville, N.Y., U.S., 23rd June, 1886; 5 years.

Claim.—1st. The combination, with the rope or cable *B*, of a series of handles or projections *C* secured to the rope or cable at suitable distances apart, and each composed of a block of wood or other suitable material, secured to said rope or cable, and a metal casing *d* enclosing said block and provided with a screw-cap *d'*, substantially as set forth. 2nd. The combination, with the rope or cable *B*, of the projections *C*, composed of a metallic casing *d* inserted over the rope blocks *c*, *f*, arranged in said casing, a pin or bar secured to the rope *B* and arranged between the blocks *c*, *f*, and screw-cap *d'* applied to the open end of the casing *d*, substantially as set forth.

No. 24,384. Decorating Wall-Hangings, etc.
(*Tenure des Tentures, etc.*)

William Sochefsky, New York, N.Y., U.S., 23rd June, 1886, 5 years.

Claim.—As a new article of manufacture, a decorated fabric composed of a stiffened and embossed textile material such as muslin, coated with a suitable liquid such as a solution of shellac, and finally painted with suitable colouring-matters.

No. 24,385. Tag. (*Etiquette.*)

Ovid W. Conner, Wabash, Ind., U.S., 23rd June, 1886; 5 years.

Claim.—1st. As an improved article of manufacture, a tag-fastener *A* formed of wire bent between its ends, and provided at the point of bending with an eye *d*, and having its arms twisted together, whereby to provide a stiff shank *c*, and having said arms deflected laterally in opposite directions, and thence carried forward in approximately parallel lines, the extremities of said arms being bent back upon themselves forming hooks having their points projected toward the eye *d*, all arranged and adapted for use substantially as set forth. 2nd. The combination of the fastener formed of wire bent between its ends, provided at the point of bending with an eye *d*, and having its arms twisted together forming a shank *c* and deflected laterally, and thence carried forward in approximately parallel lines with their extremities bent back upon themselves, forming hooks having their points projected toward the eye *d*, the tag proper and a connection between such tag and fastener, substantially as set forth. 3rd. The combination, with the tag, of the flexible end connected to the tag, and the hook carried by the card, as set forth.

No. 24,386. Restaurant and Theatre Chair.
(*Fauteuil de Restaurant et de Théâtre.*)

Julia A. Callahan, Brooklyn, N.Y., U.S., 25th June, 1886; 5 years.

Claim.—1st. A chair provided with a hat support, a cane or umbrella-holding device, and a garment hook or support, substantially as described. 2nd. The combination, with a chair, of a cup for holding the lower end of an umbrella, substantially as described. 3rd. The combination, with a chair, of a garment hook or button on the chair back, and a movable suspended from the said hook or button, substantially as herein shown and described. 4th. The combination, with a chair, of a garment hook or button on the chair back and of movable supports on the chair back, and legs for supporting the lower parts of the garment hung on the said hook, substantially as herein shown and described. 5th. The combination, with a chair, of a garment hook or button on the top of the back-rest, and of levers pivoted on the hook or button, substantially as herein shown and described. 6th. The combination, with a chair, of a garment hook or button on the top of the chair back, and of an adjustable hook or support pivoted on the chair at the side for the purpose of supporting, and holding the lower part of the garment suspended from the hook or button on the back of the chair, substantially as herein shown and described.

No. 24,387. Force Pump. (*Pompe Foulante.*)

Eli R. Parker, Wyoming, Ont., 25th June, 1886; 5 years.

Claim.—The combination of cap *B*, spring valve *E* and grooved iron plunger with the working band, and also the removable strainer *I* with valve *H* attached thereto, substantially as and for the purposes hereinbefore set forth.

No. 24,388. Drying Apparatus for Pigments, etc. (*Appareil pour Sécher les Couleurs, etc.*)

Arthur Buol, New York, N.Y., U.S., 25th June, 1886, 5 years.

Claim.—1st. The method of drying pigments, etc., in small balls, cones, or hillocks, substantially as described. 2nd. A drop motion hopper having a series of holes in its bottom, combined with a travelling drying surface, substantially as described. 3rd. The hopper *E*, having a series of conical holes formed in its bottom, substantially as described. 4th. In a drying apparatus, an endless drying belt and a hopper having holes in its bottom, combined with means, substantially as described, for lifting and dropping the hopper, for depositing the material to be dried in small cones or hillocks upon the drying belt, substantially as and for the purpose set forth. 5th. The endless travelling drying belt *A*, placed upon drums adapted to be revolved for moving the belt, in combination with the hopper *E*, pivoted arms *E'*, cams or tappets *b* and arms *c*, the hopper being formed with the series of holes *e*, substantially as and for the purposes set forth. 6th. In a drying apparatus, the hopper *E* having conical outlets in its bottom, combined with the travelling drying belt *A*, and means, substantially as described, for imparting a drop motion to the hopper, as and for the purposes set forth. 7th. In a drying apparatus, the series of drying belts *A*, *A'*, *A''*, and the series of drums arranged for moving the belts in reverse directions, in combination with the hopper *E* having holes *e*, and means substantially for giving the hopper a drop motion, as and for the purposes set forth. 8th. In a drying apparatus, the series of drying belts *A*, *A'*, *A''*, placed one above the other on drums arranged at opposite ends of the main frame, and adapted to move the belts in reverse direction, in combination with the hinged hopper *E*, shaft *B*, cam *b*, and projections on the hopper for giving the latter a drop motion.

No. 24,389. Door Lock. (*Serrure de Porte.*)

Floyd N. Perkins, Cleveland, Ohio, U.S., 25th June, 1886; 5 years.

Claim.—1st. The rotating hub *18*, provided with the arm *17* and shouldered arm *22*, in combination with the stop slide *12*, bolt *4*, pivoted tumbler *23* and spring *27*, constructed and arranged to cooperate conjointly, substantially as and for the purposes set forth. 2nd. In a door lock, the slide stop *12*, provided with a stop for closing the key-holes, an opening *13* consisting of an enlarged space, and a contracted slot extending therefrom, and lugs *15*, in combination with the rimmed belt *10* having flattened sides *14* adjusted to said slot, and the bifurcated shank catch having returns *8* to engage the lugs *15*, arranged substantially as described to operate in the manner and for the purposes set forth. 3rd. The rotating hub *18*, having an arm *17*, and a flanged or shouldered arm *22*, arranged to actuate the bolt *4* and its tumbler *23*, and the stop slide *12* provided with a stop for closing the key-holes, an opening consisting of a circular space at one end and contracted slot extending therefrom, in combination with the armed hub *10* having flattened sides adjusted to said slot, the bifurcated shank of the catch *3* with returns *8* arranged in relation to the arms *11* and lugs *15*, operating in the manner and for the purpose substantially as described.

No. 24,390. Printing Telegraph.
(*Télégraphe Imprimant.*)

Samuel V. Essick, Alliance, Ohio, U.S., 28th June, 1886; 5 years.

Claim.—1st. In a printing telegraph, the combination in the line-circuit, of the lever *F*, its actuating magnets, the circuit-breaking arm *e*, of the transmitter with the lever *F'* and type-wheel *L* of the receiver, operated in unison with the circuit-breaking arm *e*, whereby when the desired letter of the type-wheel is presented to the printing lever, said circuit breaking arm is made automatically to break the circuit and stop the type-wheel in proper position to print the desired letter. 2nd. The combination, in a printing telegraph, of a transmitting instrument provided with keys for closing the line-circuit, and an arm for automatically breaking said circuit magnets in the receiving instrument, arranged in the line circuit for operating the type-wheel in unison with the circuit-breaking arm, and a local circuit for operating the printing lever of the receiving instrument automatically thrown into action by the breaking of the line circuit. 3rd. In a printing telegraph, the combination, in the line circuit, of the levers *F* and *F'*, one of the transmitter, the other of the receiver, the actuating magnets *G* and *G'* of the transmitter and *G2* and *G3* of the receiver, and the commutator of said transmitter and receiver, substantially as described. 4th. In a telegraph receiving instrument, the combination of the lever *F1*, with its pawls *g* and *g1* pivoted thereto on opposite sides of the ratchet-wheel *E1*, the magnets *G2* and *G3* for drawing said lever in opposite directions alternately, the commutator for changing the current, the type-wheel *L* and printing lever *P*, substantially as and for the purpose described. 5th. In a telegraph receiving instrument, the combination of the coil and magnet *Q*, the lever *P* acted upon by said magnet *Q*, the coil and magnet *y3*, *y4* located in line circuit for opening and closing circuit of the printing magnet *Q*, substantially as described. 6th. In a telegraphic receiving instrument, the combination of the coil and magnet *Q*, the lever *P* acted upon by said magnet *Q*, the coil and magnet *y3*, *y4* located in the line circuit, for operating and closing the local circuit of the printing magnet *Q*, the type-wheel *L* and the printing lever *P*, substantially as and for the purpose described. 7th. The combination, with the paper carrier frame *K*, of the rack bar or its equivalent and the pawl connected with and operated by the printing lever for moving said frame, substantially as described. 8th. The combination, with the paper carrier *K* and feed-rollers *y3* and *y4* carried thereby, of the ratchet wheel *Z4*, pawl *z1*, pivoted bar or lever *z* and cam or incline *y* for operating said rollers, substantially as described. 9th. The combination, with the paper carrier *K* and feed rollers *y3*, *y4* carried thereby, of the ratchet wheel *Z4*, pawl *z1*, pivoted bar or lever *z*, and cam or incline *y* for operating said rollers and weight *k3*, substantially as and for the purpose set forth. 10th. In a telegraphic receiving instrument, the combination of the lever *F* and its circuit connecting devices, magnets *G2*, *G3*, armatures *z2*, *z3*, ratchet wheel *E2*, pawls *g*, *g1*, lever *R*, coil and magnets *y3*, *y4*, mag-

net Q, printing lever P and type wheel L, substantially as described. 11th. The combination of the paper carriage K, with its toothed rack R, the lever P₁ with its armature and pawl and lever R₂, the pawls R₁ and R₂ with its armature and pawl and lever R₂, the pawls R₁ and R₂, the shipping pendant T and the stops C and C₁. 12th. The combination, in a telegraphic transmitting instrument, of the pins C corresponding to the characters to be transmitted, and provided with circuit-closing levers E and the circuit-treading arm e, substantially as described. 13th. In a printing telegraphic transmitter, the combination of the lever F with its pawls for actuating and detent for stopping the ratchet wheel E, magnets G and G₁, circuit-connecting levers e and the circuit-breaking arm e, substantially as described. 14th. In a printing telegraph, the combination of the circuit-breaking arm e, of the transmitter, the type wheel L of the receiver, the lever F of the transmitter and its actuating magnets for operating said circuit-breaking arm e and the lever F of the receiver and its actuating magnets for operating said type wheel, the two levers F and F₁ being operated in unison and simultaneously by the line currents, substantially as and for the purpose set forth.

No. 24,391. Implement for Securing Buttons to Fabrics. (*Outil pour Assujettir les Boutons aux Etoffes.*)

Franklin A. Smith, Jr., Providence, R. I., U. S., 22th June, 1886; 5 years.

Claim.—1st. In an instrument for attaching buttons to fabric, a slotted button and fastener-holding member having its lower surface formed in two planes the inner edge of the lower plane forming a perpendicular shoulder located adjacent to the slot in said member, and adapted to retain a fastener in vertical position for attachment while the staple of the fastener remains in said slot, substantially as and for the purpose specified. 2nd. In a button-setting implement, a slotted button and fastener-holding member having a perpendicular shoulder on the face of, and located adjacent to the slot in said member, and adapted to hold a fastener and support it in an upright position for attachment, substantially as described. 3rd. In an implement for attaching buttons to fabric, the member A, provided with a recess E, having a slot F provided with a shoulder G located adjacent to said slot, and the member B provided with clinching dies A, B, all arranged and combined for use substantially as herein set forth.

No. 24,392. Steam Gauge. (*Manomètre.*)

George W. Brown, Mansfield, Ohio, U. S., 23th June, 1886; 5 years.

Claim.—1st. The combination, with a casing provided with a steam chamber, of a plate secured in said casing over the chamber and provided with an opening, a diaphragm secured above the plate, a washer located between the plate and diaphragm forming a chamber between them, said casing being provided with an inlet and outlet passage, connecting with the steam chamber and valves for opening and closing said passages, substantially as set forth. 2nd. The combination, with the casing having a steam chamber formed therein, of a plate secured above the chamber and provided with an opening, a diaphragm secured above the plate with a steam space between them, said casing being provided with an inlet and outlet to the chamber, and with a passage connecting them, and valves for opening and closing said inlet and outlet, substantially as specified. 3rd. The combination, with the casing A, provided with the chamber C having the partition E, and passages G, L and M, of the plate D, washer E, diaphragm F and valves for operating the passages G and L, substantially as set forth. 4th. The combination, with the casing A, provided with the chamber C and passages G, L and M, of the plate D, washer E, diaphragm F, ring F, screw-plugs H and N and valves J, P, all of the above parts being constructed and adapted to operate substantially in the manner and for the purpose set forth.

No. 24,393. Carriage Screen. (*Store de Voiture.*)

William M. Moore, Empire City, Col., U. S., 23th June, 1886; 5 years.

Claim.—1st. The combination, with a carriage or other vehicle, of a screen roller journaled in supports carried by the vehicle, and means, substantially as herein shown and described, for unrolling the screen from the roller and rolling it thereon. 2nd. The combination, with a carriage or other vehicle, of one or more rollers carrying screens, having words or devices impressed thereon, substantially as herein shown and described. 3rd. The combination, with a carriage or other vehicle, of one or more rollers, a cord wound upon the spindle of each roller and connected with the movable axle of the vehicle, and a spring arranged to oppose the pull of the cord, substantially as herein shown and described. 4th. The combination, with a carriage or other vehicle, of screen rollers carried thereby, screens D wound upon the rollers, the spring G attached to the spindles A of the rollers, and adapted to re-wind the screens when unwound, the cords H connected with the spindles A and with the ends of the movable axle E of the vehicle, substantially as herein shown and described. 5th. The combination, with a carriage or other vehicle, of the screen rollers C, G, carrying screens D, the spring G connecting the spindles A of the rollers, the cords H, sheaves I, J and hooks J, carried by the axle and connected with the cords H, substantially as herein shown and described. 6th. The combination, with the roller C, provided with the longitudinal U-shaped groove D, of the spring clip e approximately U-shaped in cross-section, as shown, and the screen D provided with the rod e adapted to be received in the clip e, substantially as herein shown and described.

No. 24,394. Saw Blade. (*Lame de Scie.*)

William M. Moore, Empire City, Col., U. S., 23th June, 1886; 5 years.

Claim.—1st. A saw formed of a round steel wire, provided with teeth around its entire circumference, substantially as herein shown and described. 2nd. As an improved article of manufacture, a saw formed of a round steel wire with teeth around its entire circumference, and with one or more spiral grooves extending through the cutting surface of the saw, substantially as herein shown and described.

No. 24,395. Mechanical Movement,

(*Mouvement Mécanique.*)

James E. Adams, co-inventor with John W. Adams, and James P. Warren, Glassborough, N. J., U. S., 23th June, 1886; 5 years.

Claim.—1st. The herein-described mechanical movement consisting in a main driving-wheel provided with a series of teeth projections or indentations, and a pawl or pawls moving automatically into and out of contact with the teeth projections or indentations, as power is applied or discontinued. 2nd. The herein-described mechanical movement, consisting in a main driving wheel provided with an internal series of teeth projections or indentations, an arm or arms loosely mounted near the wheel, a pawl or pawls pivoted to the arms and provided with a slot or slots, and another arm mounted contiguous to the first and provided with a pin or pins entering the slot or slots in the pawl, substantially as described. 3rd. The herein-described mechanical movement consisting of a main driving wheel, provided with a series of teeth projections or indentations, an arm or arms mounted loosely upon the shaft of the wheel provided with a pawl or pawls having a slot or sleeve also mounted loosely upon the shaft provided with a driving belt and with an arm or arms provided with a pin entering the slot in the pawl, substantially as described. 4th. The herein-described mechanical movement consisting of the wheel A, provided with a circular ratchet, the sleeve having the operating straps wound thereon in opposite directions, and the arms, one mounted loosely upon the main shaft, and the other fast with the sleeve and the pivoted pawl secured to the arm which is mounted upon the shaft, and provided with a slot entered by a pin upon the arm fast upon the sleeve. 5th. The herein-described mechanical movement consisting of a wheel A, provided with a circular ratchet, the sleeve having the operating straps wound thereon in opposite directions, one of said straps being connected with the operating treadle and the other with the spring, and the arms, one mounted loosely upon the main shaft and the other fast with the sleeve, and the pivoted pawl secured to the arm which is mounted upon the shaft, and provided with an inclined slot entered by a pin upon the arm fast upon the sleeve. 6th. In combination, with the drive-wheel A, the shaft on which said wheel is mounted, the sleeve mounted loosely upon the shaft, and having formed therewith the arm B provided at its lower end with a pin, the arm C mounted loosely upon the shaft, and provided with a bifurcated lower end and an armed pawl mounted in the bifurcated end of the arm C, said pawl engaging with the ratchet on the wheel A and its arm provided with an inclined slot entered by the pin on the arm B, substantially as described.

No. 24,396. Treating Rattan.

(*Traitement du Ratin.*)

Franklin D. Newton, Queens, (assignee of Hermann Endemann, Brooklyn,) N. Y., U. S., 23th June, 1886; 5 years.

Claim.—1st. The process of removing the enamel or silex from rattan, which consists in exposing the rattan to the action of a solution of soap, substantially as set forth. 2nd. The herein-described process for bleaching rattan, which consists in first removing the enamel or silex and then treating the rattan with an oxidizing solution, such as a solution of chloride of lime. 3rd. The herein-described process of treating rattan, which consists in first treating the rattan with a solution of soap, then bleaching the same with an oxidizing solution such as a solution of the hypochlorite of magnesium, and finally immersing the bleached rattan in a die. 4th. The herein-described process for treating rattan, which consists in first removing the enamel or silex by treating the rattan with a solution of soap, then bleaching the same with an oxidizing solution, such as a solution of chloride of lime, then washing and finally boiling with a solution of boric acid in water. 5th. A stick or slip of rattan which is freed from silex, then bleached, as set forth. 6th. A stick or slip of rattan which is first freed from silex, then bleached, and finally dyed, as set forth.

No. 24,397. Lock Mechanism for Safes and Vaults.

(*Mécanisme de Serrure pour Coffres-Forts et Voutes.*)

The Chicago Safe and Lock Company, (assignee of Henry Gross,) Chicago, Ill., U. S., 23th June, 1886; 5 years.

Claim.—1st. In lock mechanism, the combination, with the permutation spindle and driving tumbler, of a yoke carrying the tumbler fence, and provided with a lifting arm for throwing the bolt mechanism out of action, substantially as described. 2nd. In lock mechanism, the combination, with the permutation spindle and driving tumbler, of the sliding yoke encircling said tumbler, and provided with the tumbler fence and lifting arm, the bolt-link K having a shoulder K₁ and the bolt-plate H, substantially as described. 3rd. In lock mechanism, the combination, with suitable permutation-work and bolt-work, of a detent for holding the bolt-work out or engagement with the turning disc, and a suitable stop for retaining the detent out of action while the permutation-work is in proper place, substantially as described. 4th. In lock mechanism, the combination, with the permutation-work and the bolt-work having the link-bar K provided with the shoulder K₁, of the spring-detent M, and a suitable stop for holding the spring detent normally out of engagement with the link-bar, substantially as described. 5th. In lock mechanism, the combination of the permutation casing provided with the stop or arm N, the spring detent M, the pivoted link-bar K having shoulders K₁, the sliding bolt-plate H, and the turning disc L, substantially as described.

No. 24,398. Safe. (*Coffre-Fort.*)

The Chicago Safe and Lock Company, (assignee of Henry Gross,) Chicago, Ill., U. S., 23th June, 1886; 5 years.

Claim.—1st. In a safe, the combination of a frame or jamb, and a door connected thereto by fixed hinges, said door and frame or jamb being provided at their top, bottom and front faces or edges with ribs and grooves adapted to mesh, and being provided on their hinged

faces or edges with ribs and grooves arranged at an angle to the plane of the ribs and grooves on their front faces or edges, substantially as described. 2nd. In a safe, the pressure mechanism for the door comprising a cam U, a bent pressure bar pivoted at one end and provided with a handle at the opposite end, a recessed retaining-plate D for said bar, and a journal pin for said bar having one end held by the retaining-plate and the opposite end held in the wall of the safe, substantially as described.

No. 24,399. Burglar Proof Safe.
(*Coffre-Fort.*)

The Chicago Safe and Lock Company (Assignee of Henry Gross), Chicago, Ill., U.S., 23th June, 1886; 5 years.

Claim.—1st. A burglar-proof safe, the walls whereof are formed of plates composed of laminae of combined iron and steel, said plates being bent to present the plane of their laminae at an angle to the walls of the safe, substantially as described. 2nd. A burglar-proof safe, the walls whereof comprise a series of plates formed of laminae of combined iron and steel, said plates being bent to present the plane of their laminae at an angle to the walls of the safe, and being interlocked to prevent separation, substantially as described. 3rd. A burglar-proof safe, the walls whereof comprise U-shaped plates formed of metals of unequal hardness, said plates being reversely or oppositely arranged and interlocked, substantially as described. 4th. A burglar-proof safe, the walls whereof comprise laminae plates of combined iron and steel, having their ends extending toward the faces of the walls, and grooved angle-bars to which said plates are each attached, substantially as described. 5th. A burglar-proof safe, the walls whereof comprise U-shaped plates of iron and steel having their ends transversely grooved, and having their sides interlocked, and angle-bars having their inner faces grooved to receive the ends of the plates, substantially as described. 6th. A burglar-proof safe, the walls whereof comprise U-shaped metal plates, reversely or oppositely arranged and interlocked to prevent their separation, substantially as described.

No. 24,400. Bit Brace. (*Vilbrequin.*)

Hiram E. Fuller and John W. Mudgett, New York, N.Y., U.S., 23th June, 1886; 5 years.

Claim.—1st. In a bit-brace, the combination, with a shank formed with a transverse recess at its outer end, of clamping-jaws formed with bevelled inner ends and secured by cross-pins extending across

said recess, a sliding sleeve and a coil-spring secured between the jaws and sleeve, the whole being arranged substantially as described, whereby the jaws are allowed a slight longitudinal movement to securely hold the bit. 2nd. In a bit-brace, the combination, with a recessed shank, a coil spring and a sliding sleeve, of clamping jaws loosely secured within said recess by cross-pins and bevelled at their inner ends, whereby the jaws are forced together by the contact of their bevelled ends with the cross-pins, substantially as set forth.

No. 24,401. Check Valve for Steam Boilers.
(*Soupage d'Arrêt pour Chaudières à Vapeur.*)

Richard McDowell, Lambertville, and Henry S. Hayward, Jersey City, N.J., U.S., 23th June, 1886; 5 years.

Claim.—1st. A check valve inclosed with the inside of the boiler, and secured thereto by any suitable means, for the purpose herein specified and set forth. 2nd. A check valve located on the inside of the boiler, in combination with a feed-pipe, and adapted to be operated by means of an injector pumps, in the manner specified. 3rd. A check valve located on the inside of the boiler, in combination with an outside check valve adapted to be operated in connection therewith by means of injector or pump, as and for the purpose described. 4th. A check valve located on the inside of the boiler, and adapted to be operated as described, in combination with an exterior and interior feed pipe and its, as specified and for the purpose set forth. 5th. A check valve provided with a socket E, or suitable projection formed to engage with a tool inserted from the outside of the boiler, for the purpose of grinding and seating said valve, as described and specified. 6th. A check valve constructed of a casting A, as herein described, and provided with the guard D for the purpose of holding the hanger in position, should the bolt become broken or detached, as set forth and specified. 7th. A check valve, constructed as herein described, consisting of the casting A provided with the flange B, guard D and lip d, in combination with the hanger c and valve provided with the socket E, all as and for the purpose herein specified and set forth.

No. 24,402. Railroad Tie Support.

(*Support de Traversée de Chemin de Fer.*)

Abraham A. Shobe, Jerseyville, Ill., U.S., 23th June, 1886; 5 years.

Claim. The combination, with a railroad tie, of the central support C, constructed substantially as herein described and for the purpose set forth.

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

- | | |
|--|---|
| <p>628. J. P. JOHNSON, B. J. THORNE and R. THORNE, 2nd 5 years of No. 19,119 from the 7th day of June, 1886. Improvements on a Spring Waggon, 5th June, 1886.</p> | <p>639. L. E. WALLLEY, 2nd 5 years of No. 13,041, from the 30th day of June, 1886. Improvements on Submerged Pumps, 21st June, 1886.</p> |
| <p>629. W. BAMBRIDGE, 2nd 5 years of No. 12,991, from the 15th June, 1886. Improvements on Buggy Gearing, 5th June, 1886.</p> | <p>640. J. KAISER, 2nd 5 years of No. 13,066, from the 9th day of July, 1886. Improvements on Spring Beds, 22nd June, 1886.</p> |
| <p>630. THE ELECTRICAL ACCUMULATOR CO. (Assignee) 2nd 5 years of No. 12,901 from the 6th day of June, 1886. Improvements on Polarization Galvanic Batteries, 5th June, 1886.</p> | <p>641. J. HIGGINBOTTOM, 2nd 5 years of No. 13,032, from the 29th day of June, 1886. Improvements on Grinding Mills, more especially in relation to the Dress thereof, 25rd day of June, 1886.</p> |
| <p>631. V. E. FULLER, 3rd 5 years of No. 6,211, from the 16th day of June, 1886. Improvements in Nailing Machines, 9th June 1886.</p> | <p>642. THE BELL TELEPHONE CO OF CANADA (Assignee), 2nd 5 years of No. 13,049, from the 30th day of June, 1886. Improvements on that class of Instruments by means of which Sounds, Articulate or otherwise, are Produced through the Agency of Electricity at a Distance from the Transmitting Station, 26th June, 1886.</p> |
| <p>632. G. A. and C. A. DICK, 2nd 5 years of No. 12,994, from the 15th day of June, 1886. Improvements in the Manufacture of Metallic Alloys or Compounds, 9th June, 1886.</p> | <p>643. A. KLINE, 2nd 5 years of No. 13,039, from the 30th day of June, 1886. Improvements on Fanning Mills, 26th June, 1886.</p> |
| <p>633. C. B. GREGORY, 2nd 5 years of No. 13,002, from the 15th day of June, 1886. Improvements on Heating Furnaces, 9th June, 1886.</p> | <p>644. THE BELL TELEPHONE CO. OF CANADA (Assignee), from the 25th day of July, 1886. Improvements in Switches for Telephone Circuits, 26th June, 1886.</p> |
| <p>634. THE ONTARIO PUMP CO., 2nd 5 years of No. 12,939, from the 10th day of June, 1886. Improvements on Pumps, 10th June, 1886.</p> | <p>645. THE BELL TELEPHONE CO. OF CANADA (Assignee), 2nd 5 years of No. 13,246, from the 12th day of August, 1886. Improvements in Telephone, Transmission 26th June, 1886.</p> |
| <p>635. L. COTÉ, 2nd and 3rd 5 years of No. 24,073, from the 17th day of May, 1886. Improvements in Heel-Nailing Machines, 10th June, 1886.</p> | <p>646. THE BELL TELEPHONE CO. OF CANADA (Assignee), 2nd 5 years of No. 14,247, from the 12th day of August 1886. Improvement in Telephone Exchange Systems, 26th June, 1886.</p> |
| <p>636. H. DELOWIS, 3rd 5 years of No. 6,235, from the 21st day of June, 1886. Improvements on a Soap for Washing Clothes, 14th June, 1886.</p> | <p>647. THE BELL TELEPHONE CO. OF CANADA (Assignee) 2nd 5 years of No. 14,454, from the 21st day of March, 1887. Improvements in Contact or Microphonic Telephones, 26th June, 1886.</p> |
| <p>637. W. G. RAOUL, 2nd 5 years of No. 12,987, from the 15th day of June, 1885. Improvements on Car Axle Boxes, 15th June, 1886.</p> | <p>648. THE BELL TELEPHONE CO. OF CANADA (Assignee), 2nd 5 years of No. 13,863, from the 2nd day of September, 1886. Improvements in Electric Speaking Telephones, 30th June, 1886.</p> |
| <p>638. J. WHEELOCK, 2nd and 3rd 5 years of No. 24,137, from the 25th day of May, 1891. Improvements on Steam Engines, 17th June, 1886.</p> | |

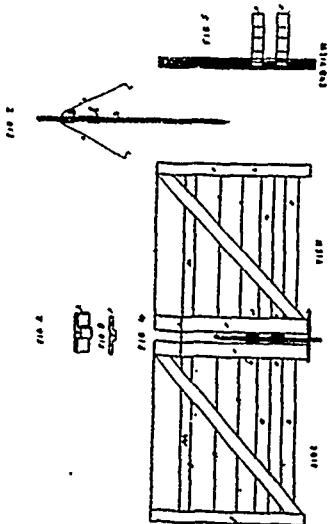
THE
CANADIAN PATENT OFFICE RECORD.

ILLUSTRATIONS.

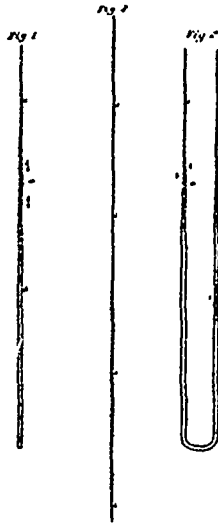
Vol. XIV.

JULY, 1886.

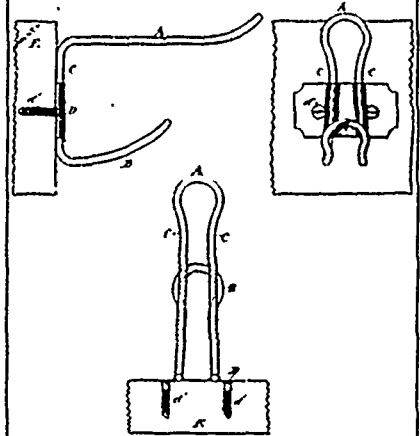
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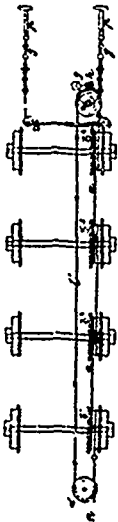
24183 Penfound's Method of Connecting and Supporting Fences.



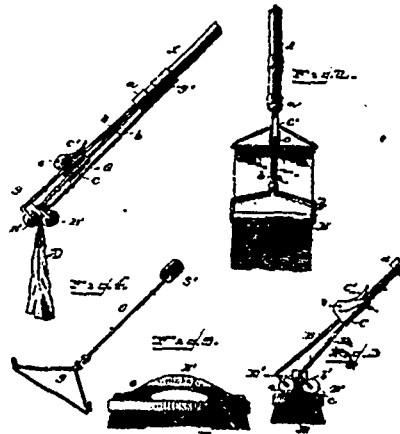
24184 Arnold's Waxed Ends for Cordwainers, etc.



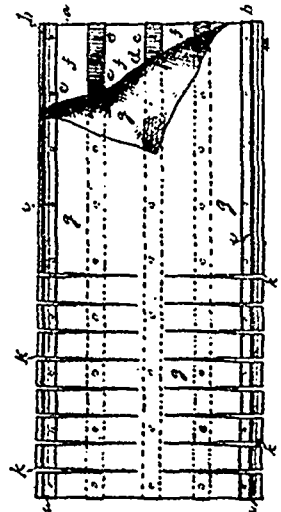
24185 Walker's Clothes Hook.



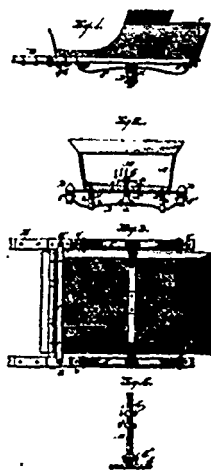
24186 Argo's Brake for Vehicles, etc.



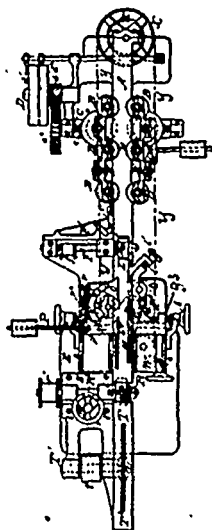
24187 Doshon's Mop and Brush Holder.



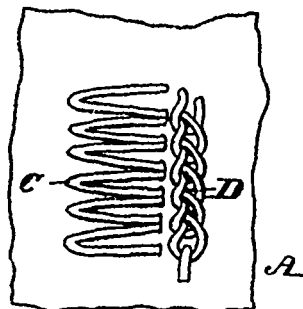
24188 Cosgrove's Paper Keg or Barrel.



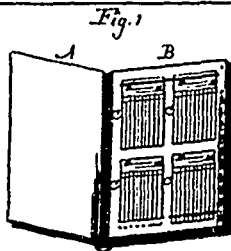
24189 Schwartz's Shaft Spring.



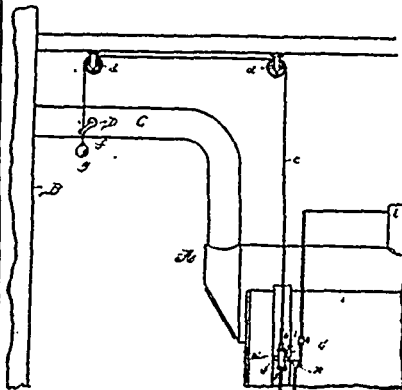
24190 Lhote's Planing or Weatherboard Machine.



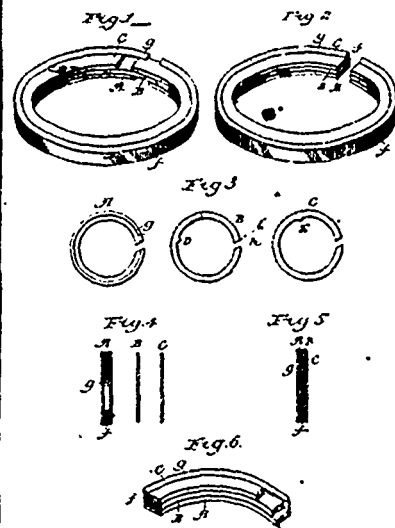
24191 Lamb & Morley's Loop for Garments, etc.



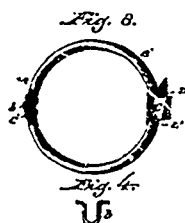
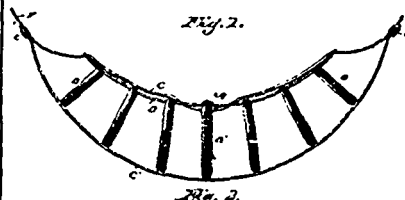
24192 Will's Account Book or Holder.



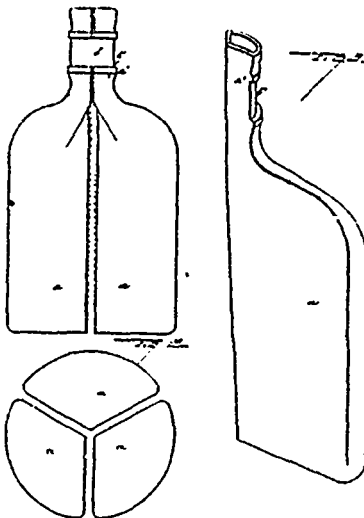
24193 McDonald & Townsend's Damper Regulator.



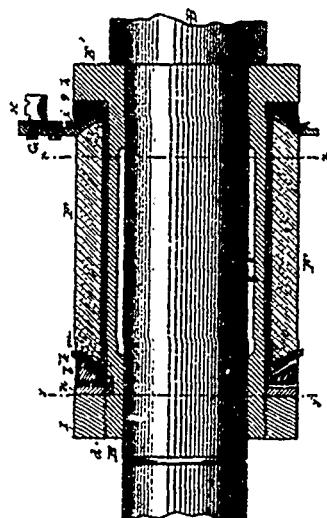
24194 Henry's Key Ring.



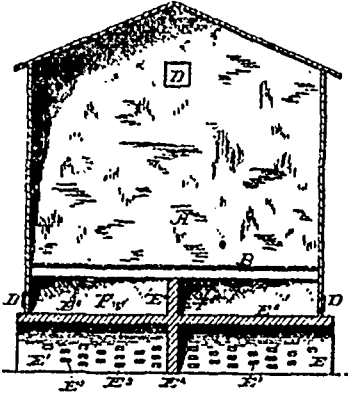
24195 Rico's Bustle.



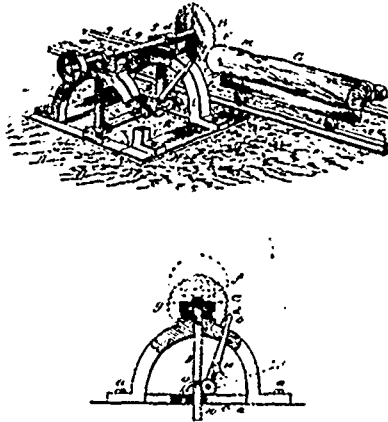
24196 Jones' Hand Grenade Fire Extinguisher.



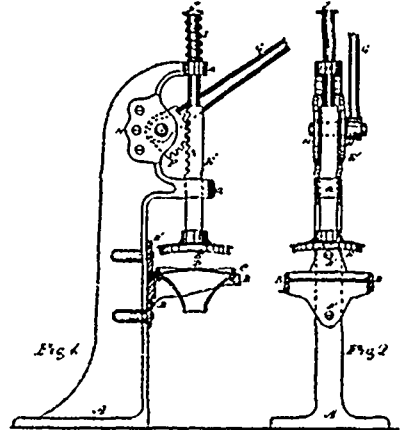
24197 Batchelor's Dynamo Electric Machine.



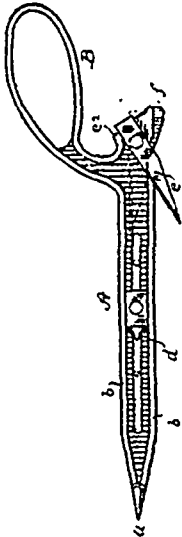
24198 Cole's Lumber and Bark Drier.



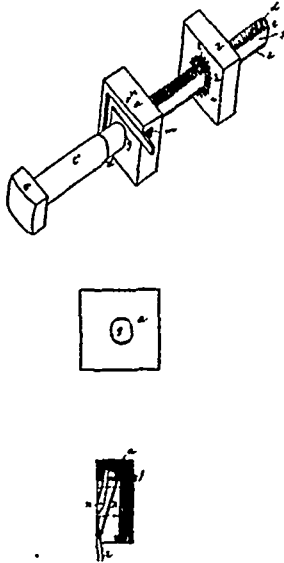
24199 Holt's Circular Saw Mill.



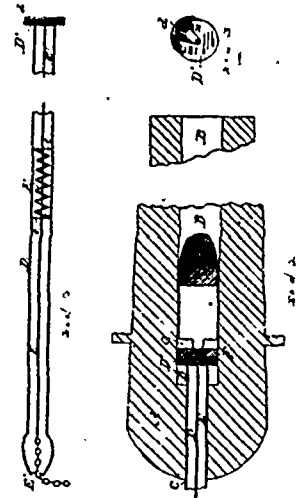
24200 Crawford's Lemon Squeezer.



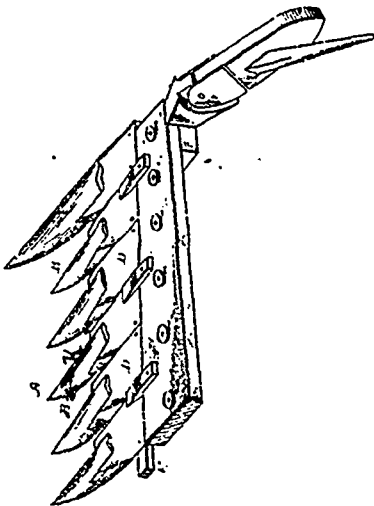
24201 Way & Clark's Can Opener.



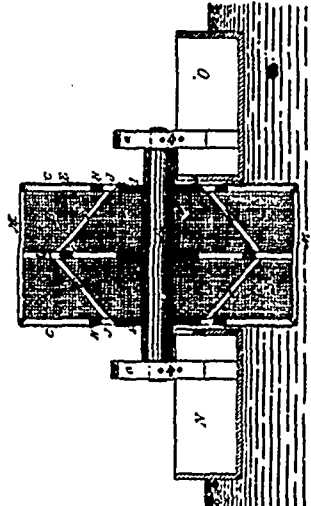
24202 Carrier and Fluetto's Nut Lock.



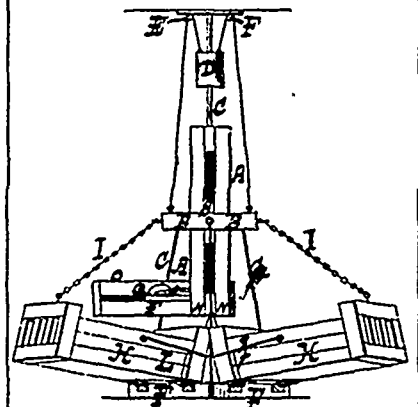
24203 Ettfott's Loading Apparatus for Ordnance.



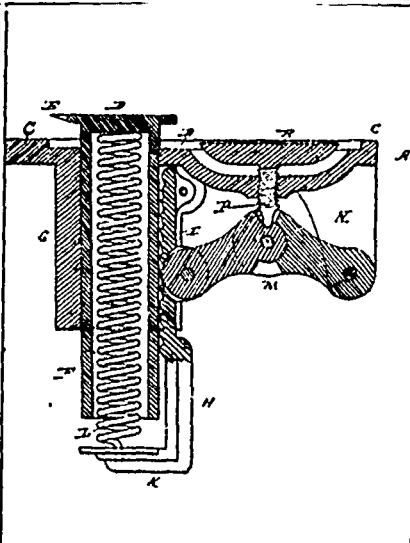
24204 Boyce's Sickle Bar.



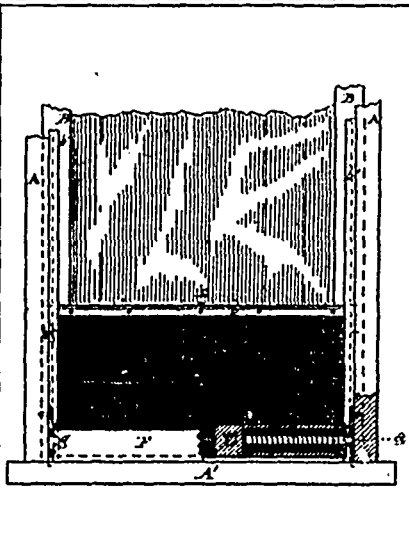
24205 Clark's Rotary Fish Net.



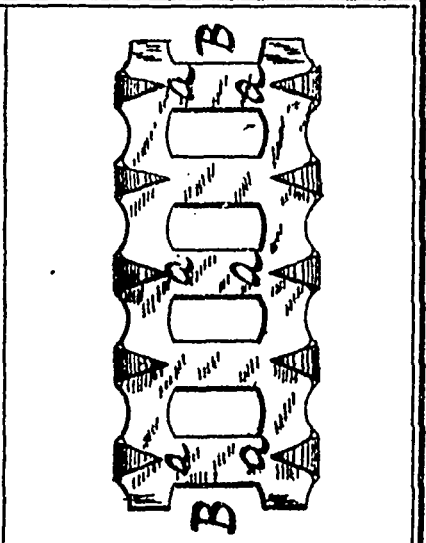
24206 Walker's Pool Rack, Ball Spotter and Game Register.



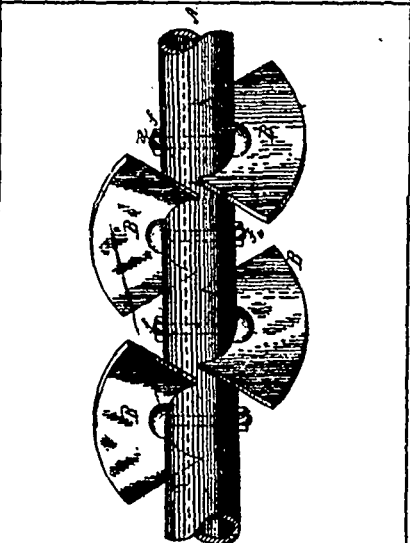
24207 Tyler's Bench Hook.



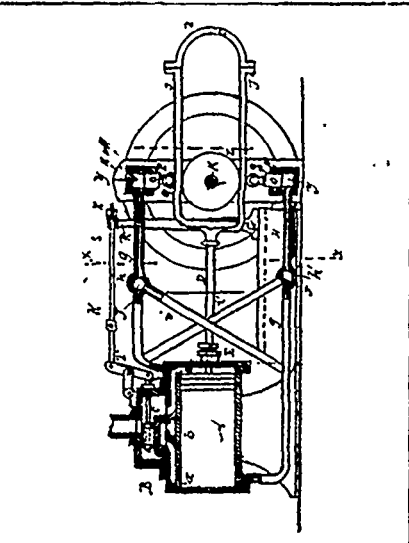
24208 Donovan's Window Screen.



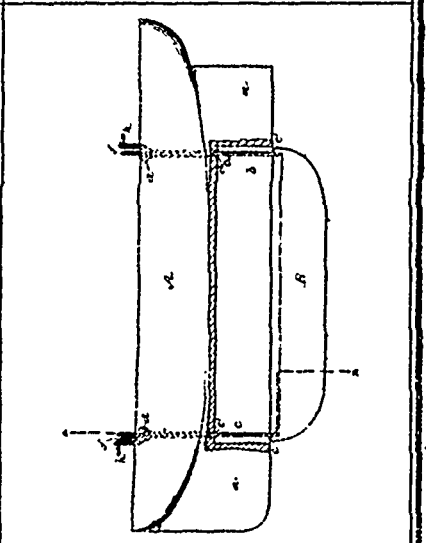
24209 Smith's Belt Fastener.



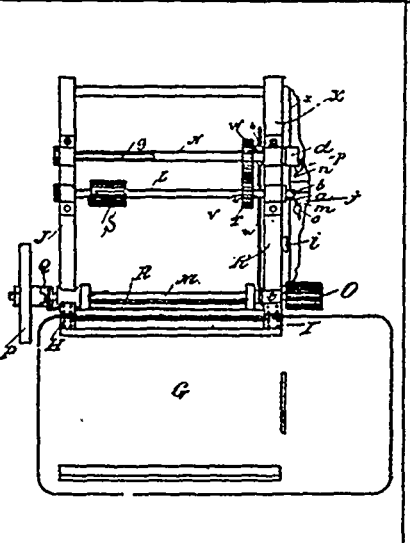
24210 Morgan's Conveyor.



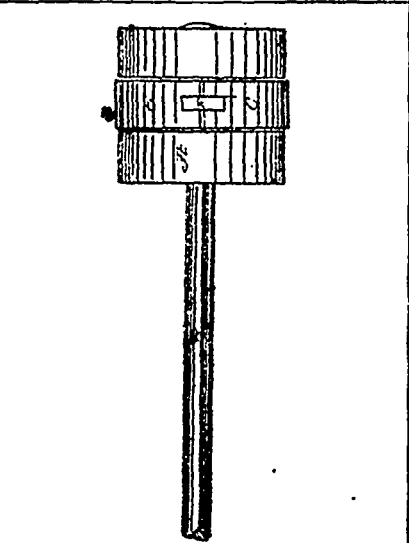
24211 Webb's Steam Engine.



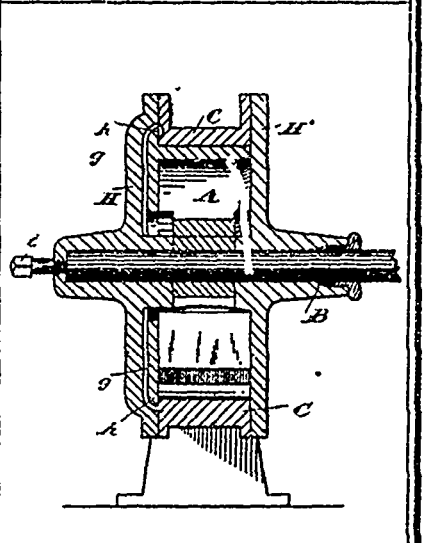
24212 Deering's Swinging Control Board for Vessels.



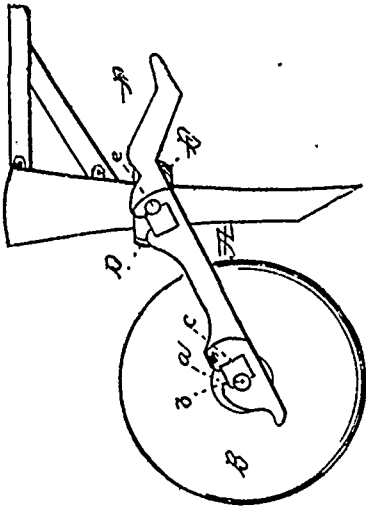
24213 Picard's Wood Working Machine.



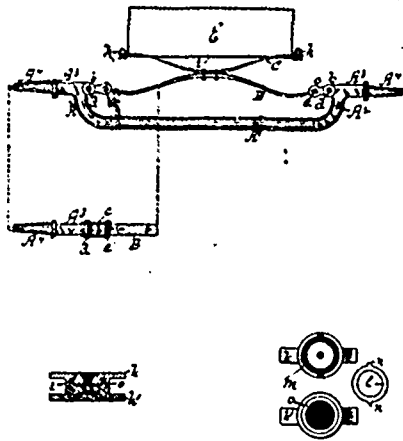
24214 McTyre's Piston Packing.



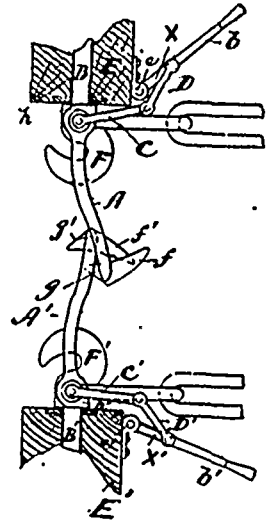
24215 Dowson's Engine for Steam or Water Power



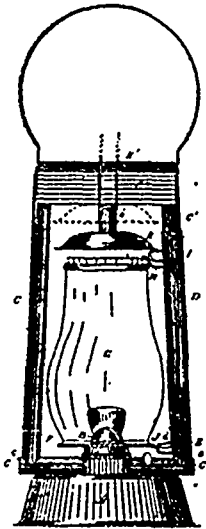
24216 Lathrop's Grain Drill Attachment.



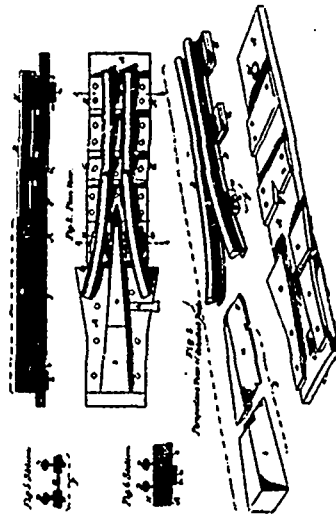
24217 Brown's Vehicle Gear.



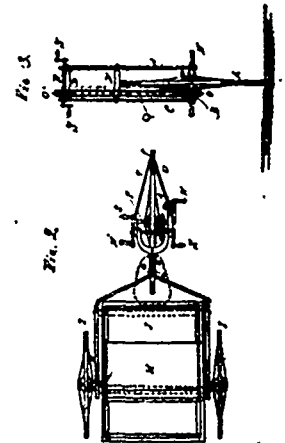
24218 Copland & Gilmour's Car Coupling.



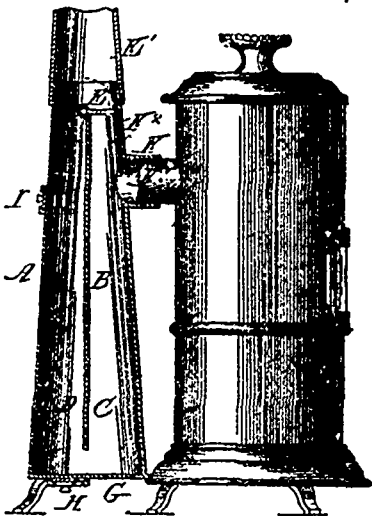
24219 Kennedy's Tubular Lantern



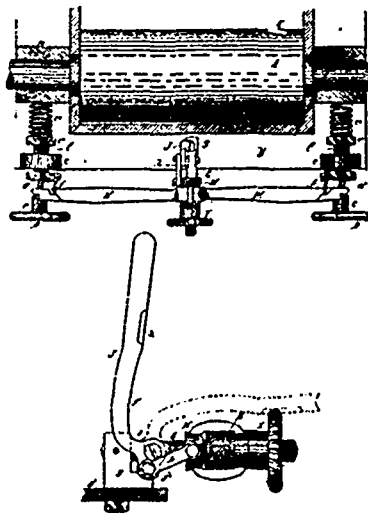
24220 Perry's Railway Frog.



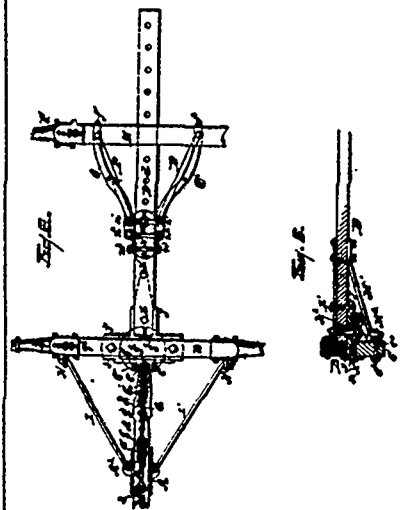
24221 Lacasse's Velocipede Waggon.



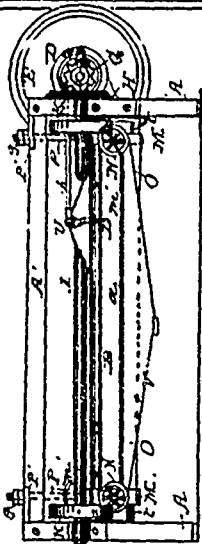
24222 McGuire's Heating Attachment for Stoves.



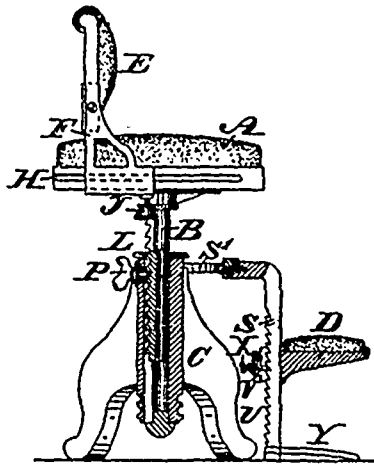
24223 Morgan's Roller-Mill.



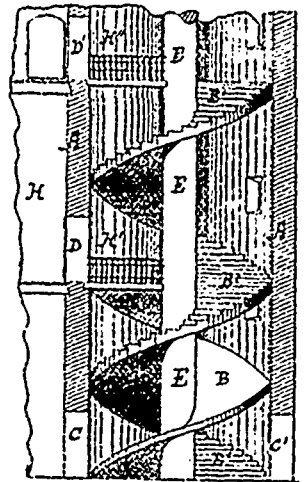
24224 Oviatt's Waggon.



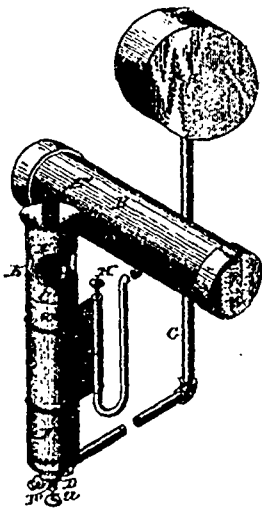
24225 Stuelair's Ore Concentrator.



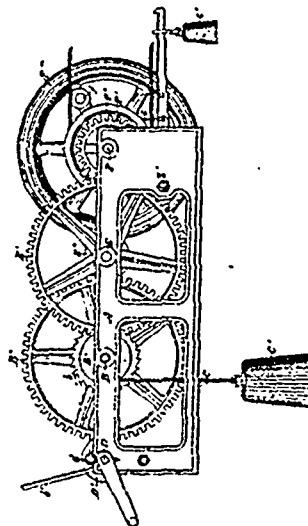
24226 Hayne's Stool for Planos, etc.



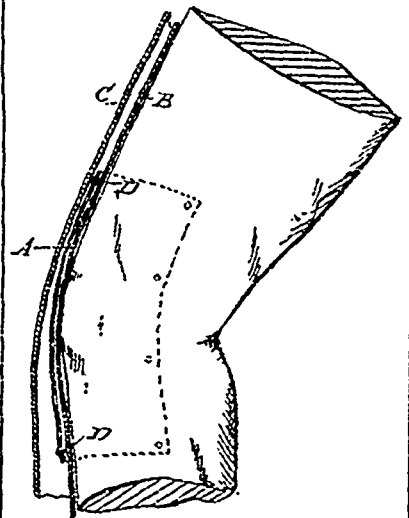
24227 Clarke's Fire Escape Tower.



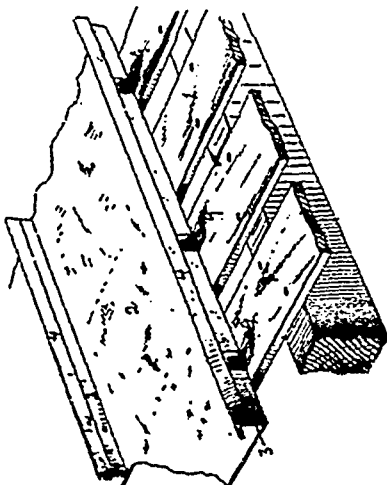
24228 Zimmerling's Heating Lamp.



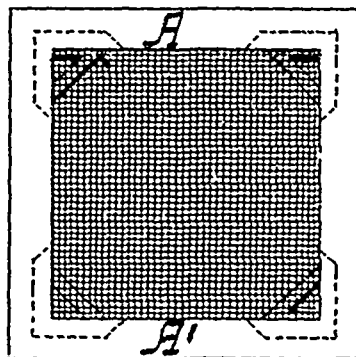
24229 Henry's Weight Motor.



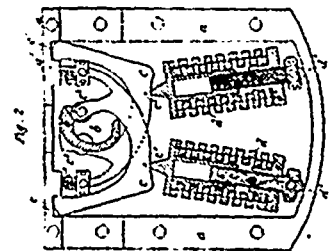
24230 Olcott's Shield for the Knees of Trousers.



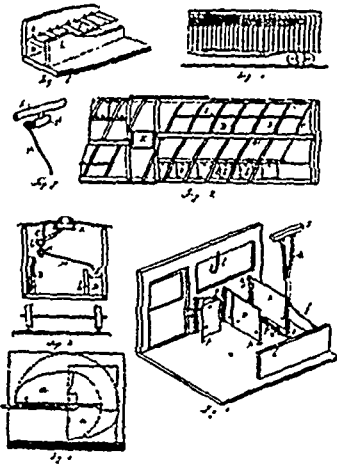
24232 Caldwell's Cap and Anchor for Metallic Roofing.



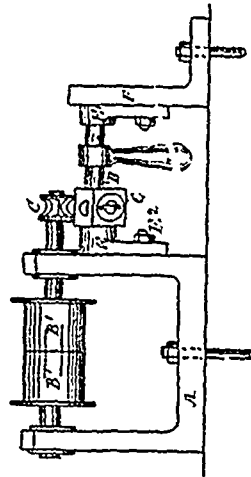
24233 Porter's Attachment for Extension Window Screens.



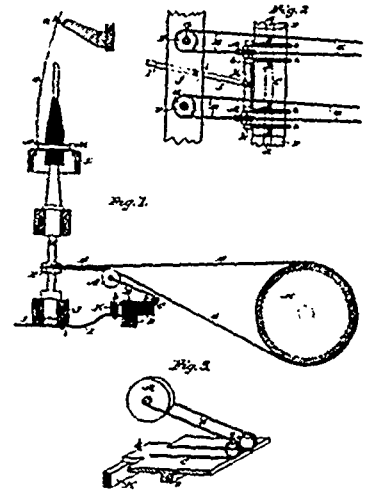
24234 Adams' Door Spring.



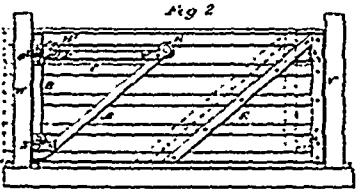
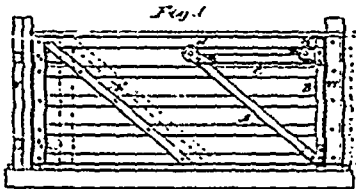
24235 Grossman's Stock Car.



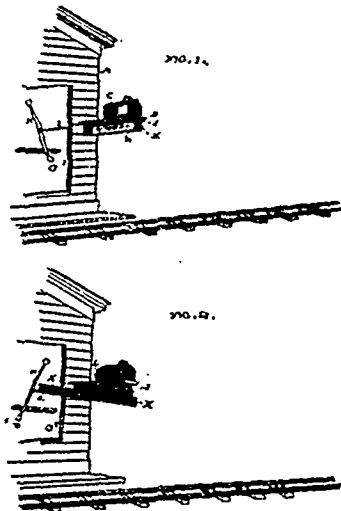
24236 Acton's Machine for Manufacturing Handles for Walking Sticks, etc.



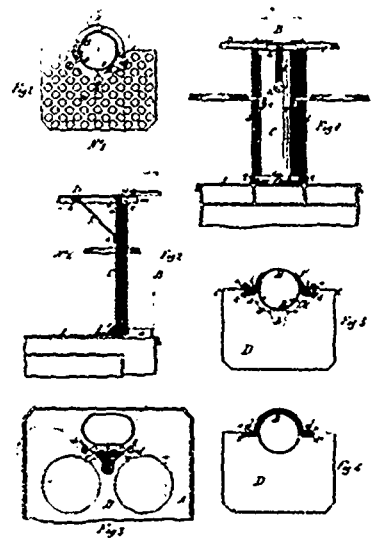
24237 Baird's Spinning and Twisting Machine.



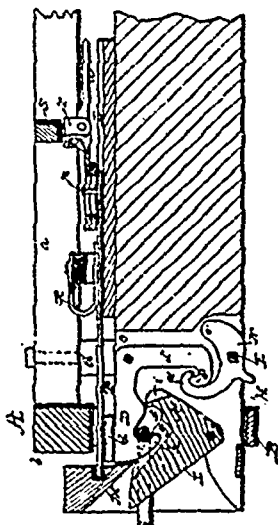
24238 Stanon's Gate.



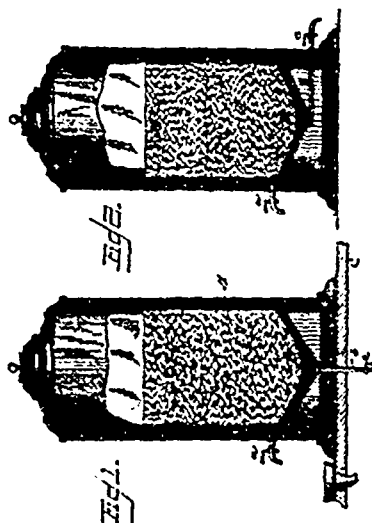
24239 Sprague's Railway Station Signal.



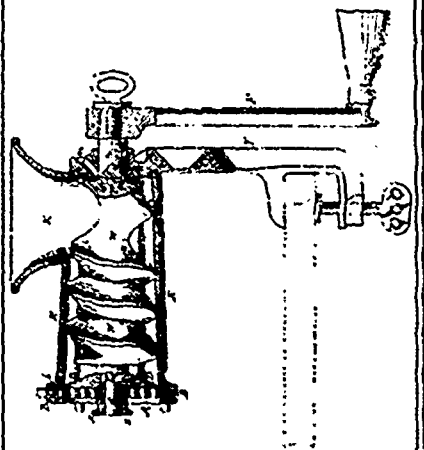
24240 Barnard's Portable Stove Pipe Shelf.



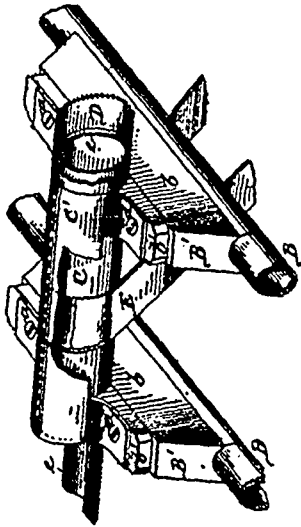
24241 Eastman's Car Coupler.



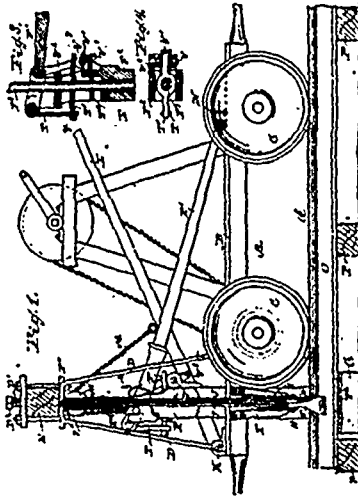
24242 Brookbank's Water Cooler.



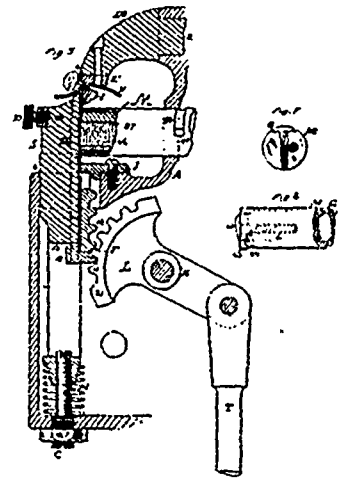
24243 Baker's Machine for Cutting Meat.



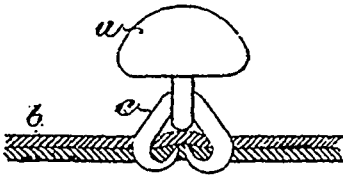
24244 Whittaker's Sawing Machine.



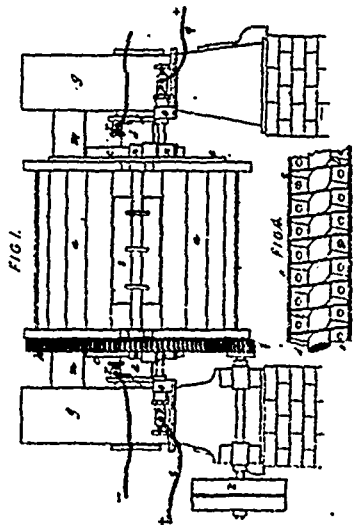
24245 McDonald's Track Lifter.



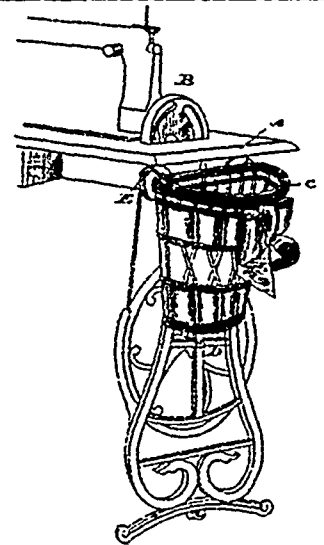
24246 Richard's Button Fastening Setting Machine.



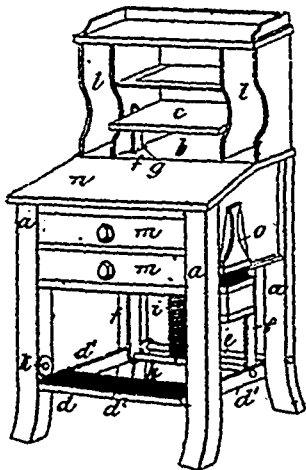
24247 Vinton's Button Fastening Staple.



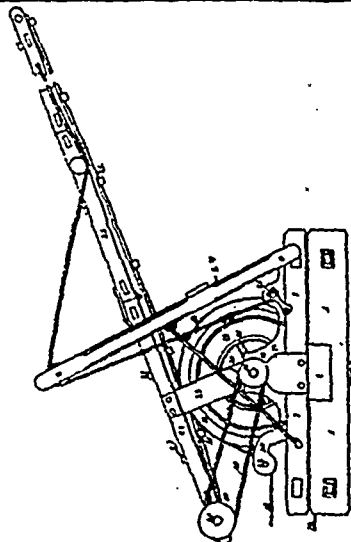
24248 Cassel's Apparatus for Treating Metal Alloys, etc.



24249 Doarborn's Sewing Machine Attachment.



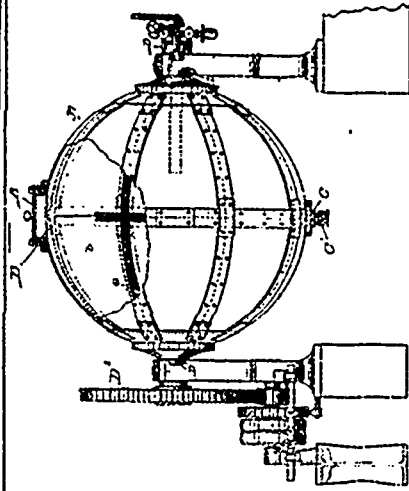
24250 Hoscock's Gun Case.



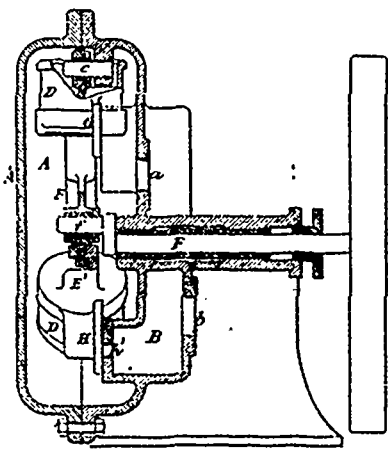
24251 Mitchell's Device for Transmitting Power.



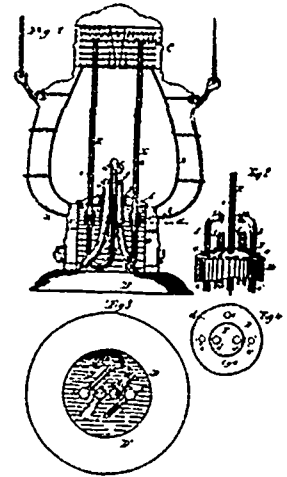
24252 Pray's Cutlery Handle.



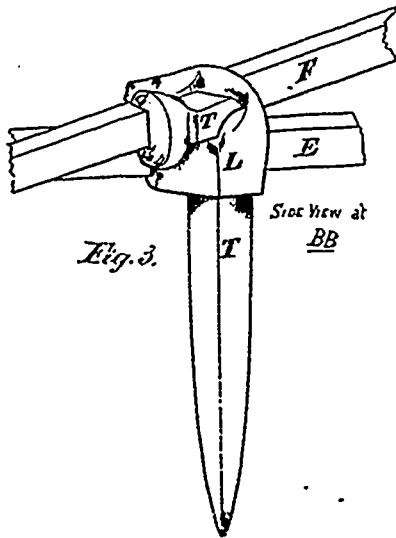
24253 Mabin's Pulp Boiler.



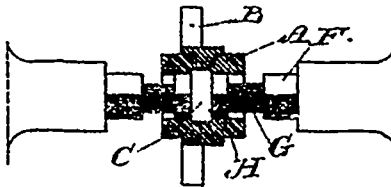
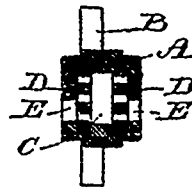
24254 Schouheyde's Fluid Pressure Engine.



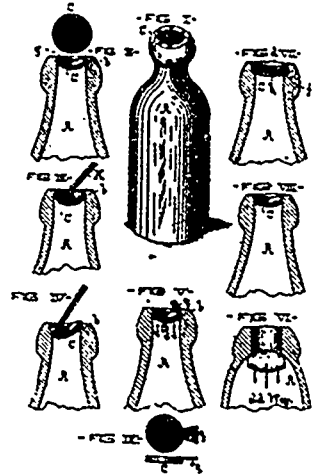
24255 Wood's Lantern.



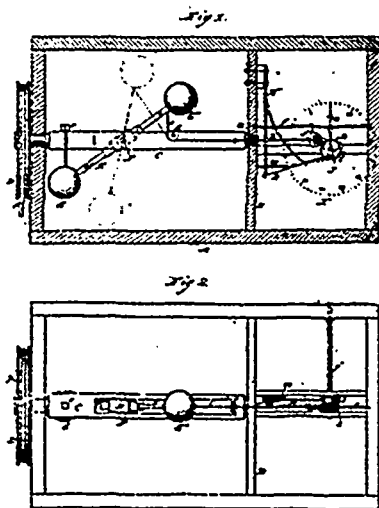
24256 Callender's Iron Harrow.



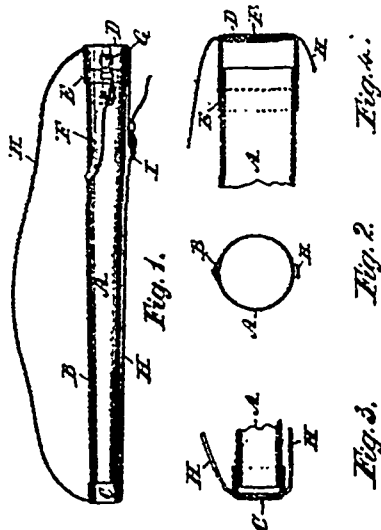
24257 Alvon's Knob Attachment.



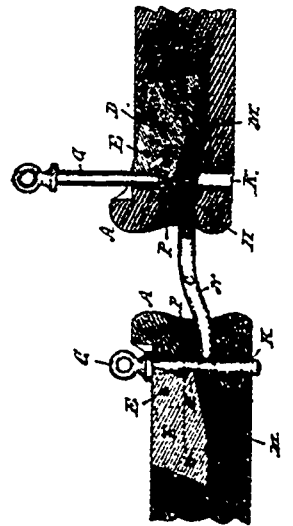
24258 Painter's Bottle Stopper.



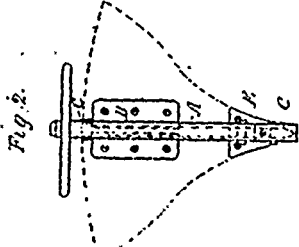
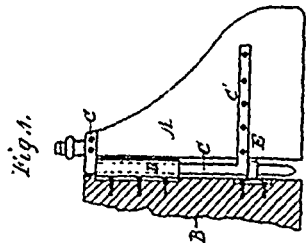
24259 Herdon's Centrifugal Speed Indicator.



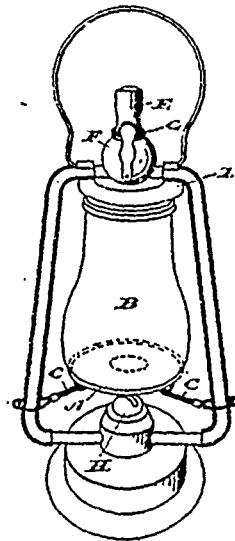
24260 Beacock's Tubular Case for Umbrellas, etc.



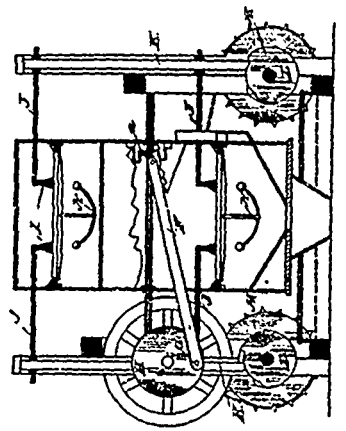
24261 McKinnon's Car Coupling.



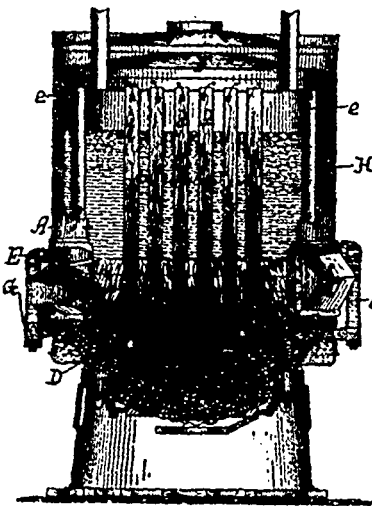
24262 Frampton's Means of Attaching Rudders to Boats.



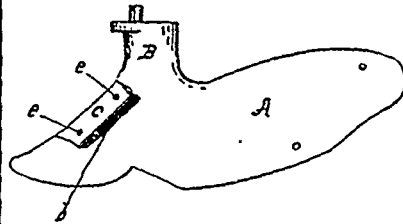
24263 Faulstich's Tubular Lantern.



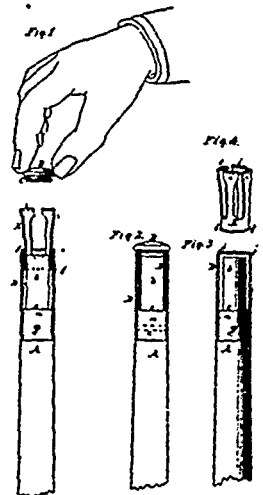
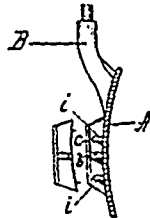
24264 Huxtable's Dotting Machine.



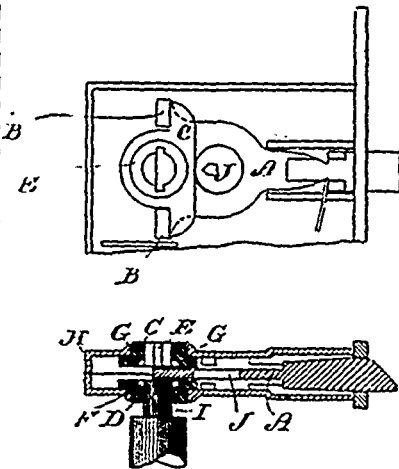
24265 Gorton's Steam Generator.



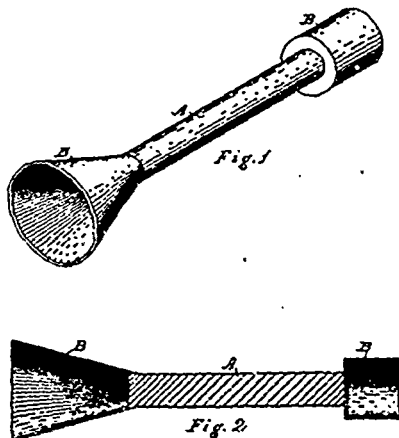
24266 Gorry's Tool for Mould Boards.



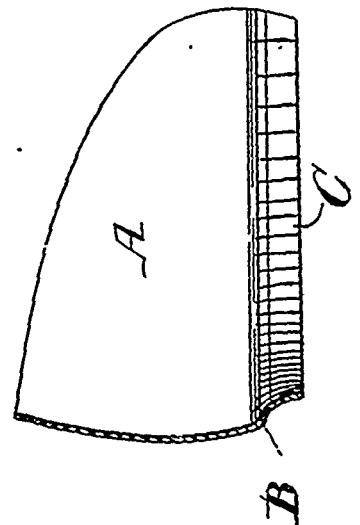
24267 Ferchland's Pad Fastening to Billiard Cues.



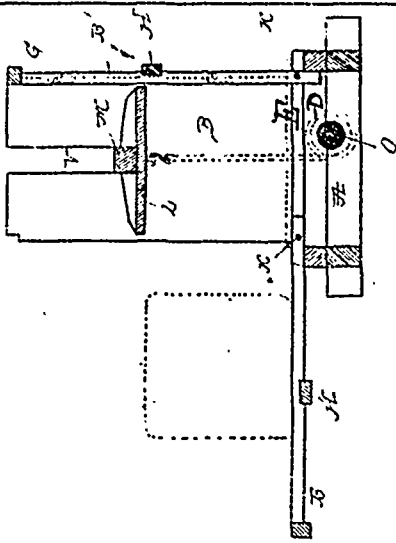
24268 Alvord's Knob Attachment.



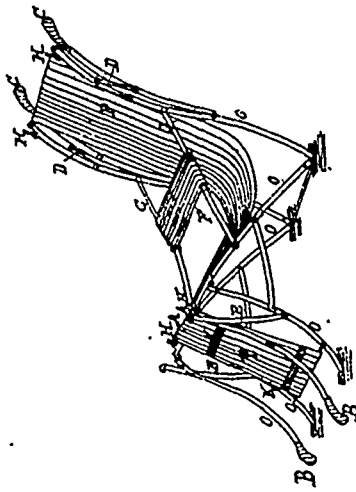
24269 McKillop's Washing Implement.



24270 Kieffer's Wool Counter.



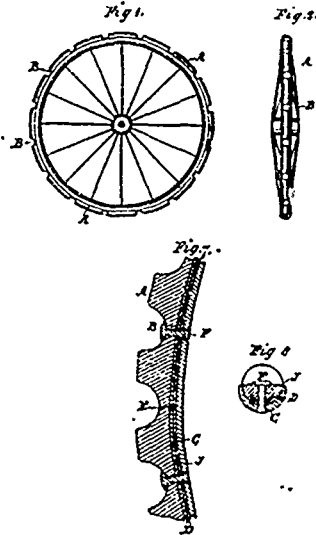
24271 Hausen's Hay and Cotton Press.



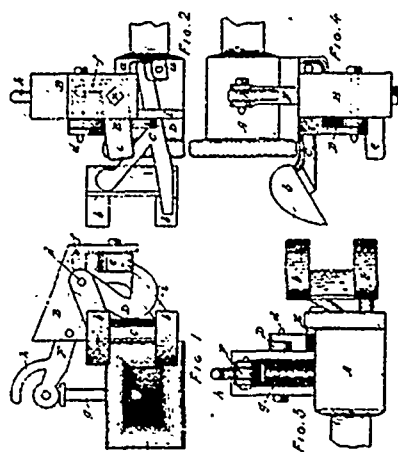
24272 Mowll's Folding Ambulance Chair.



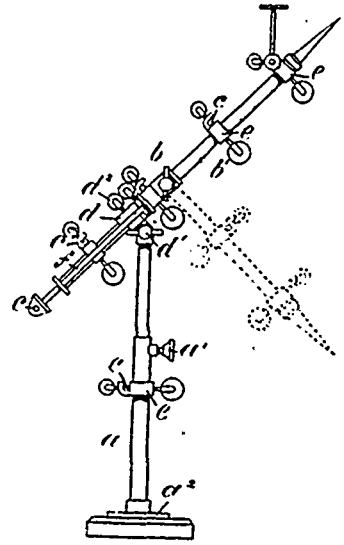
24273 Slack's Sleeve and Glove Protector.



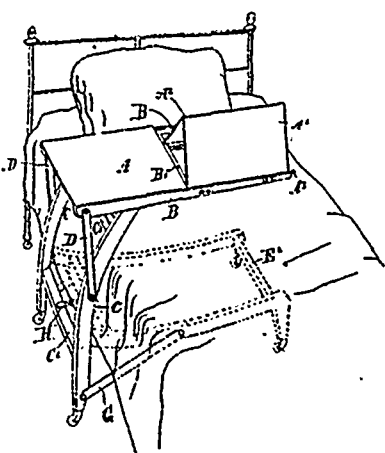
24274 Grout's Elastic Tyres for Velocipedes, etc.



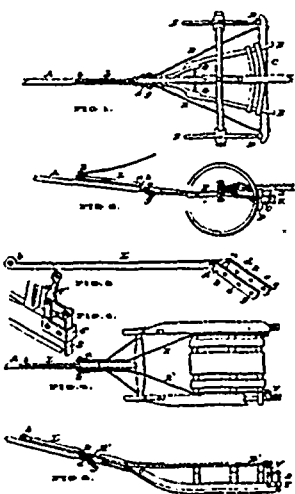
24275 Hanson's Car Coupler.



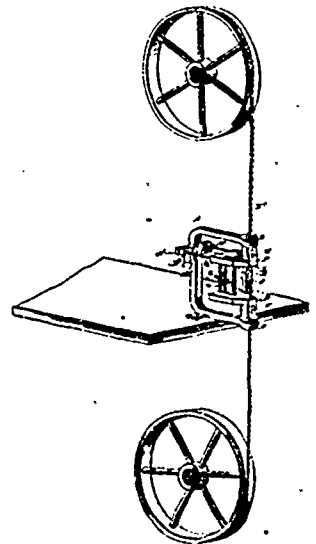
24276 Foster's Display Frame.



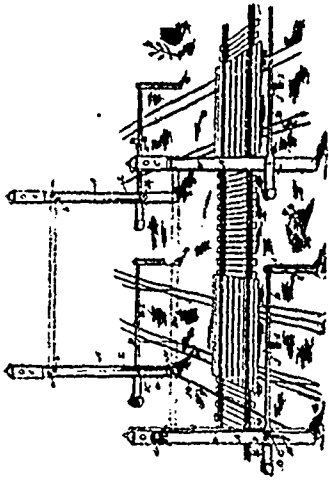
24277 Fee's Folding Table.



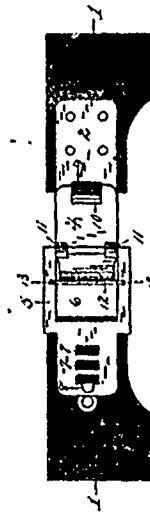
24278 Smith's Vehicle Brake.



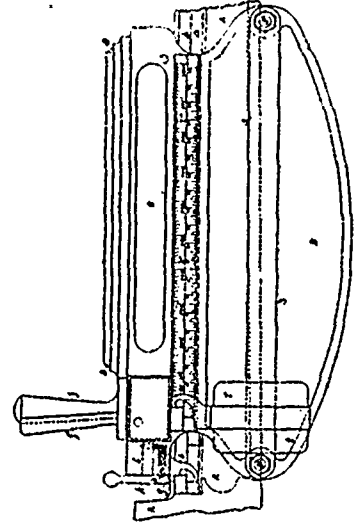
24279 Ballow's Guide for Hoop Sawing Machines.



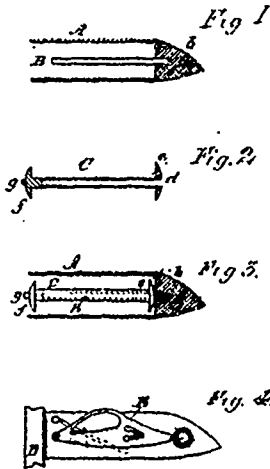
24280 Piper's Railway Semaphore and Gate.



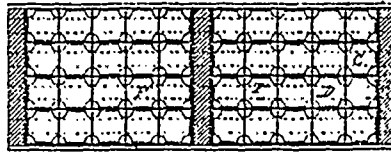
24281 Mocker's Fastener for Shoes, etc.



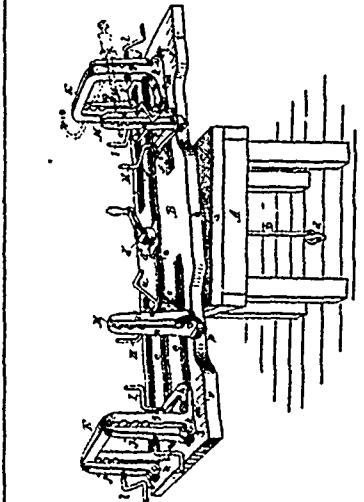
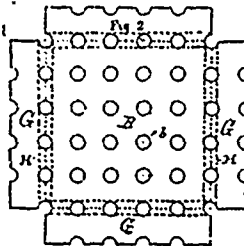
24282 Pooloy's Steelyard for Weighing Apparatus



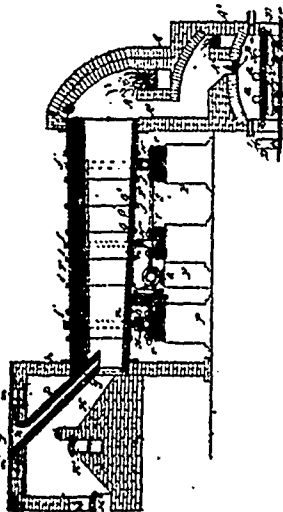
24283 Wilson's Sewing Machine Shuttle.



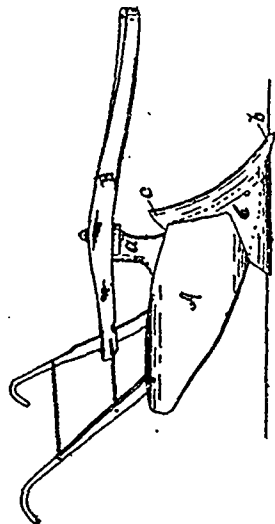
24284 Jenkins' Fruit Packing Box.



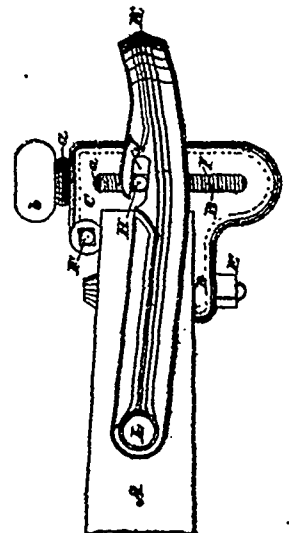
24285 Kirkland's Carriage Top Form.



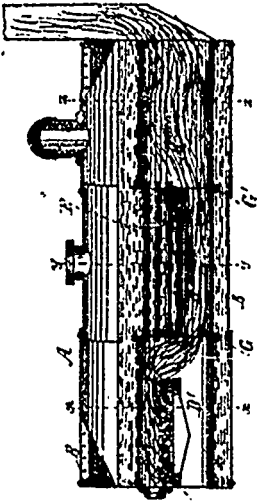
24286 Mathey's Revolving Furnace.



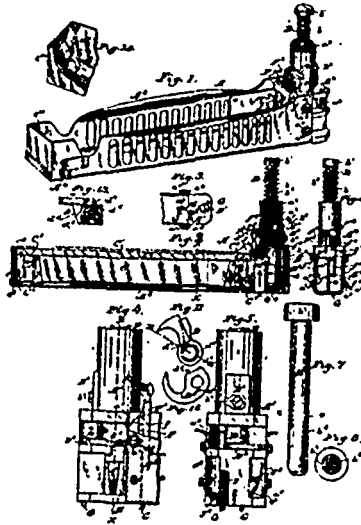
24287 Gorry's Plough.



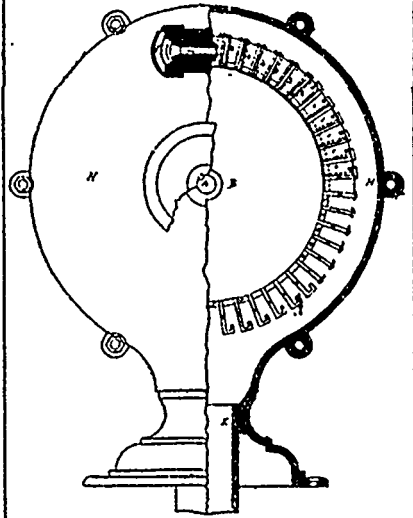
24288 Esalg's Plough Clevis.



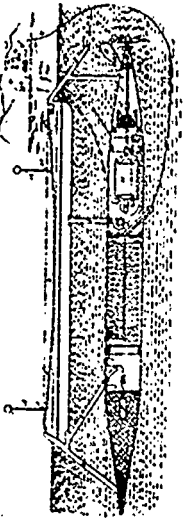
24289 Jopling's Steam Boiler.



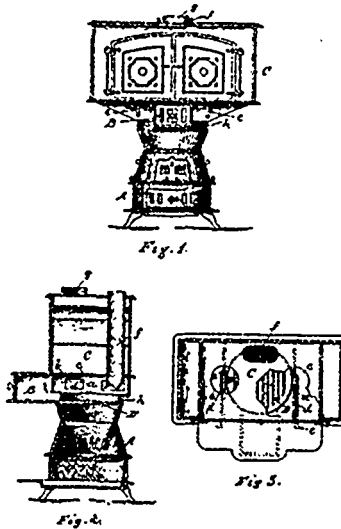
24290 Perry's Nail Driver.



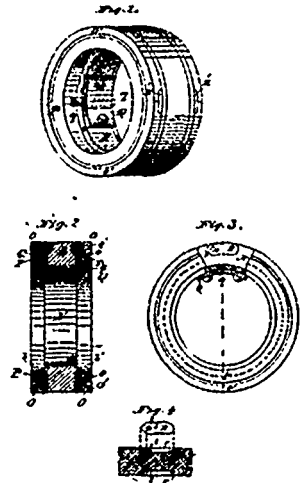
24291 Panet & Hallé's Water Motor.



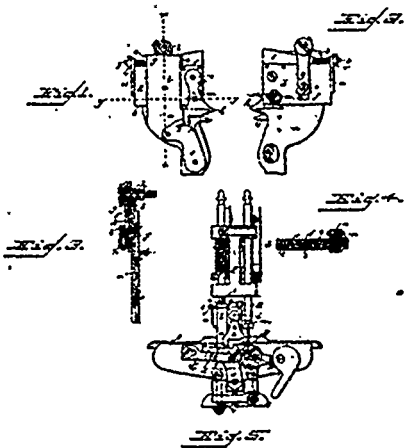
24292 Sims' Torpedo Boat.



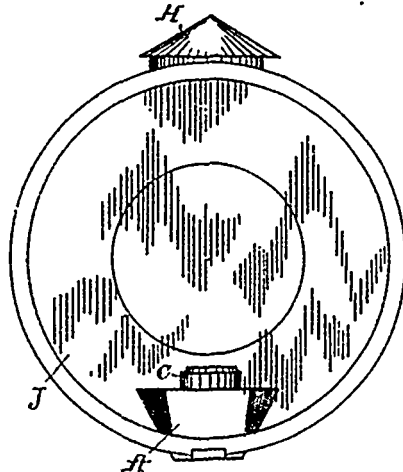
24293 Gadoury's Cooking Stove.



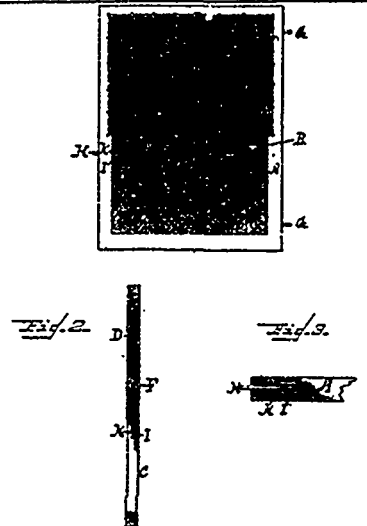
24294 St. John's Piston Packing.



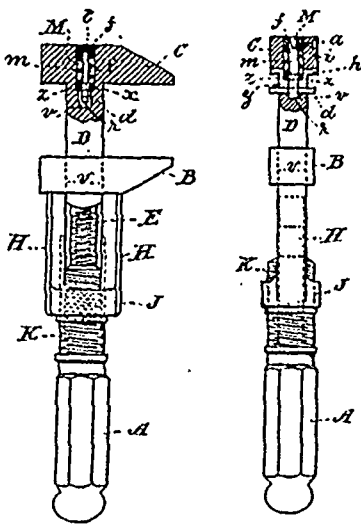
24295 Clark & Murphy's Trimming Attachment for Sewing Machines.



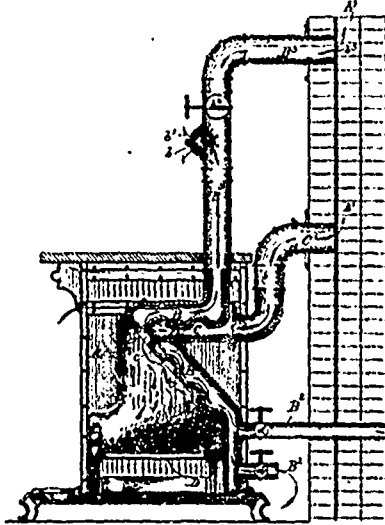
24296 Schuyver's Lamp.



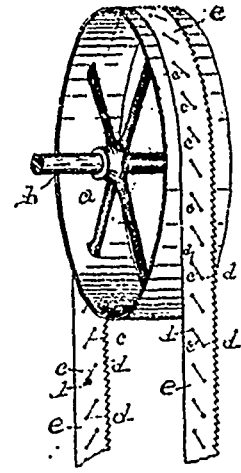
24297 Falce's Window Screen.



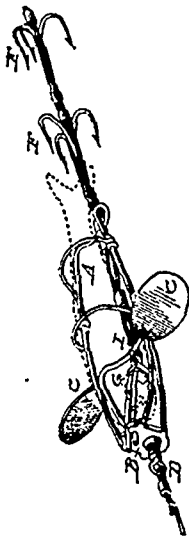
24298 Bornstein's Wrench.



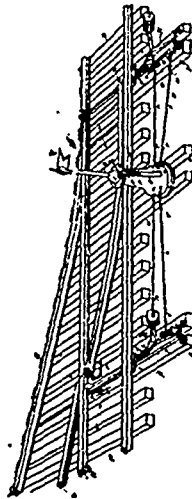
24299 Le Via's Portable Heater.



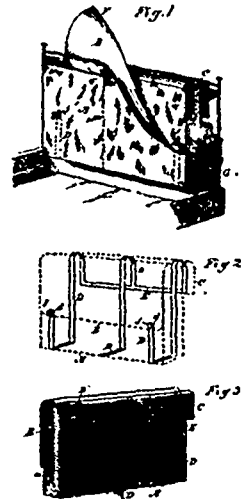
24300 Ward's Saw.



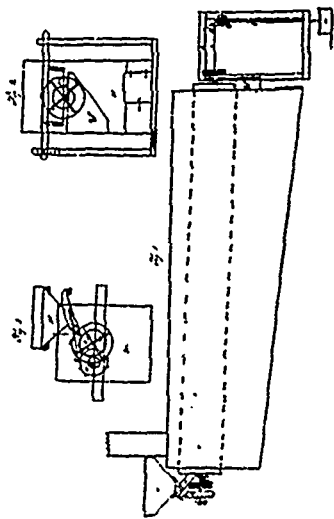
24301 Wakeman's Dait for Fishing.



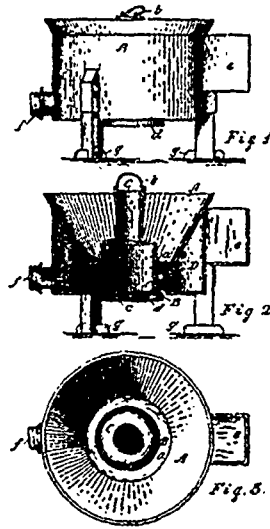
24302 Morgan & Baker's Switch.



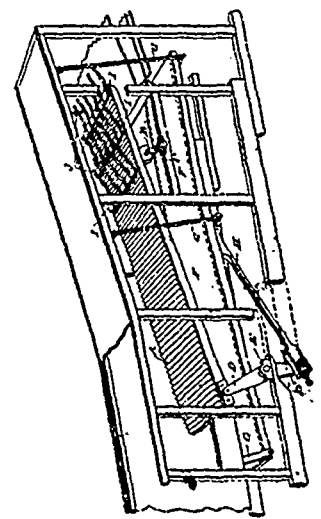
31303 Fahy's Attachment for Dash Boards.



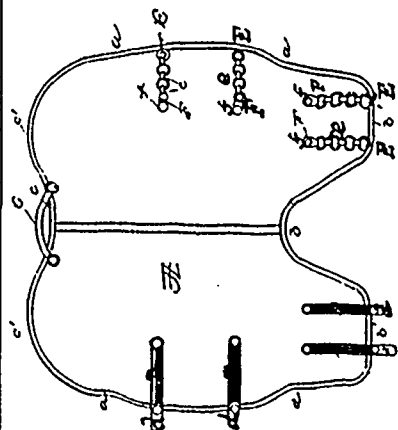
24504 Leslie's Kiln for Drying Grain.



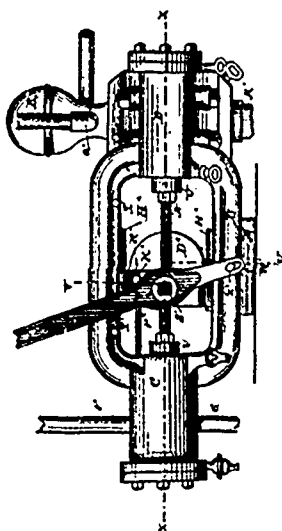
24305 Nash's Milk Cooler and Strainer.



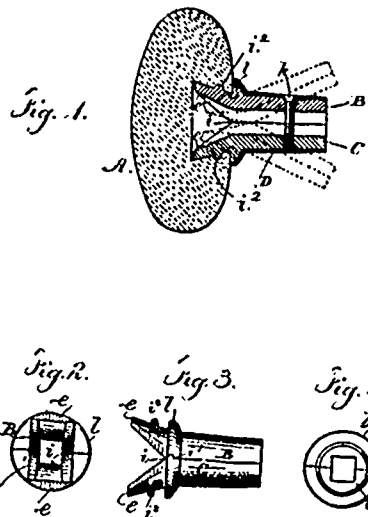
24506 Morris' Threshing Machine.



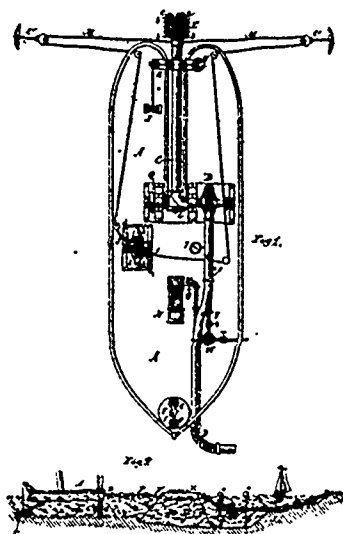
24307 Magoon's Horse Blanket.



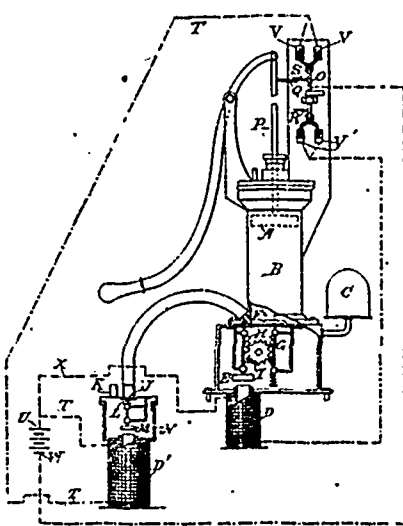
24308 Eby's Steam Pump.



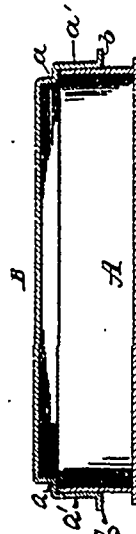
24309 Van Winkle's Knob Attachment.



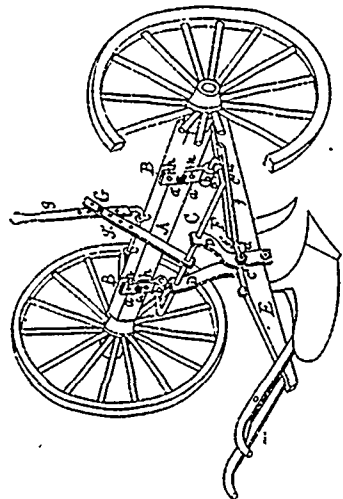
24310 Bowers' Dredging Apparatus.



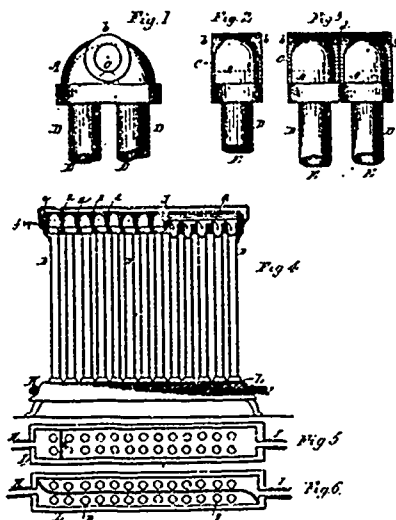
24312 Worth's Electric Air pump



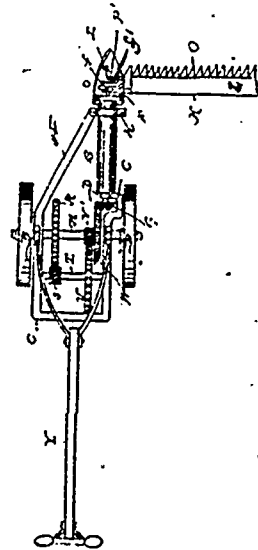
24313 Jackson's Blacking Box.



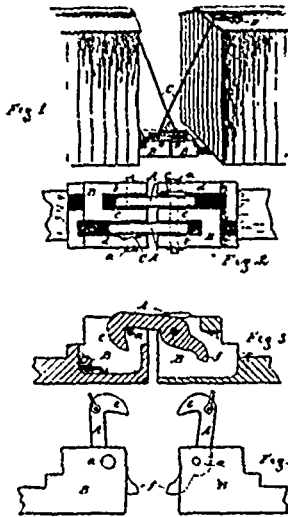
24314 Sovereign's Sulky Plough.



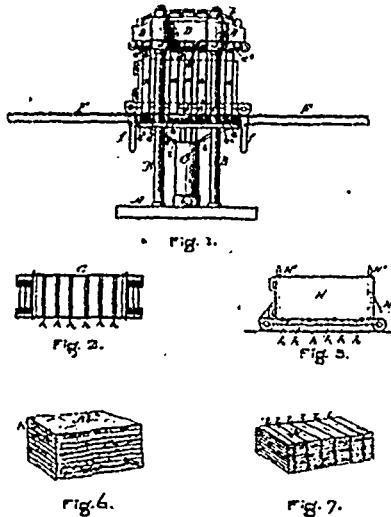
24315 McPhie's Hot Water Radiator



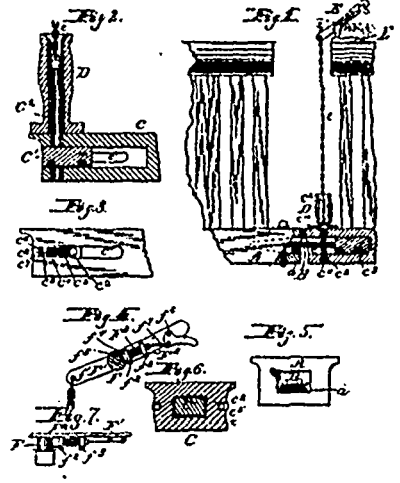
24316 Cheney's Lawn Mower.



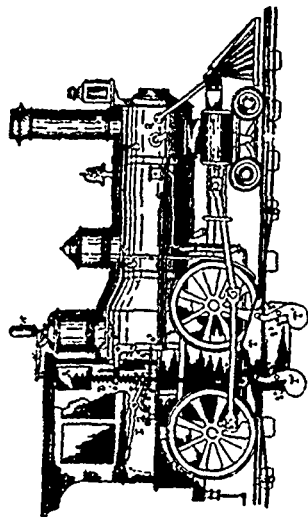
24317 Scott's Car Coupler.



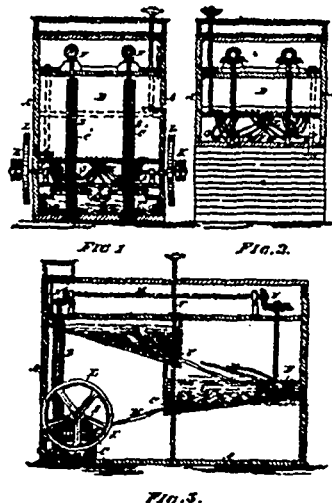
24318 Dalgneau's Bark Press.



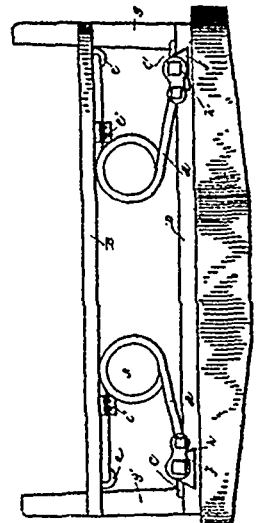
24319 Hayes' Car Coupler.



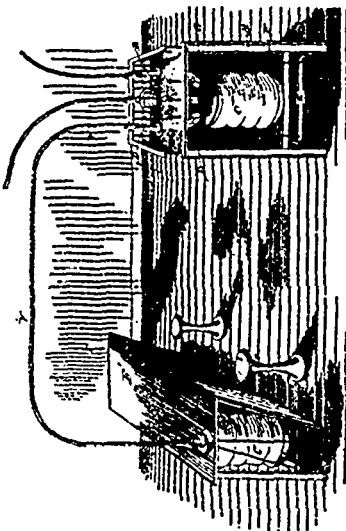
24320 Rice's Railway Signalling System.



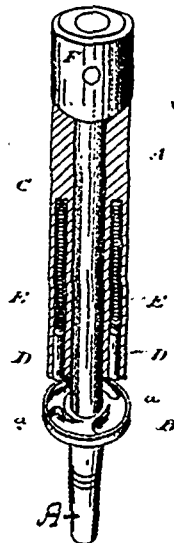
24321 Lucier's Water Motor.



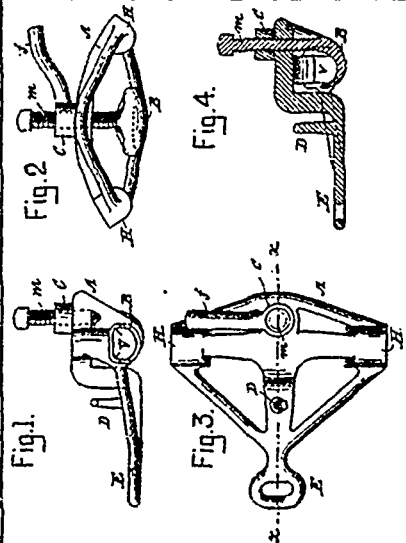
24322 Hunt's Vehicle Spring.



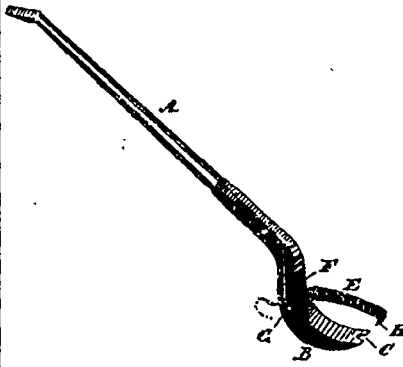
24323 Davis & Hinman's Cash Carrier.



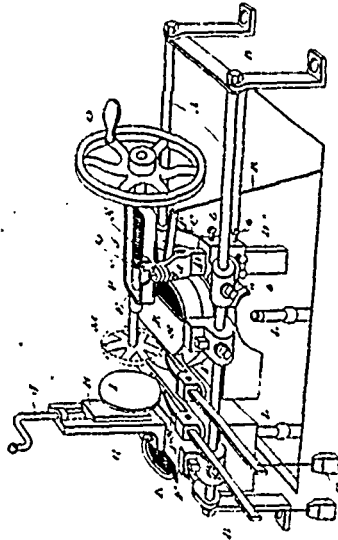
24324 Conover's Watch and Clock Key.



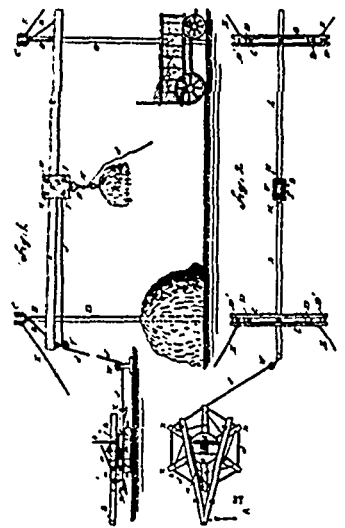
24325 Holland's Device for Hitching Horses.



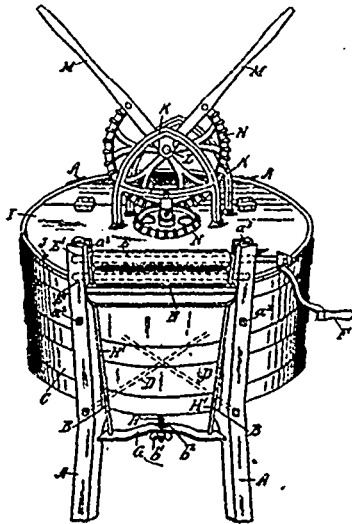
24328 Faugborn's Claw Bar.



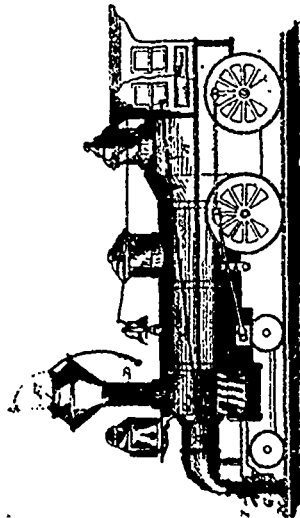
24327 Ross' Soldering Machine.



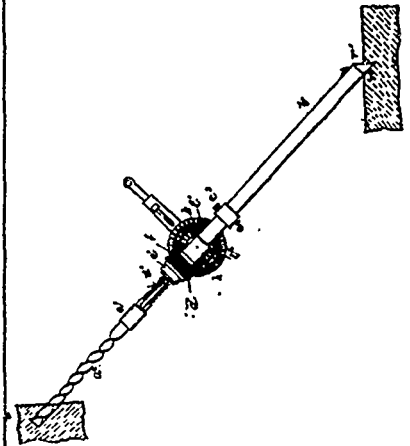
24328 Davidson's Hay Carrier.



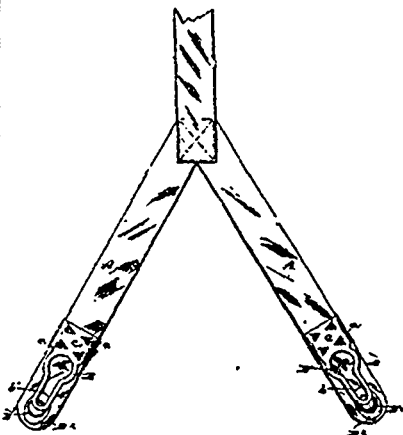
24329 Hunt's Washer and Wringer.



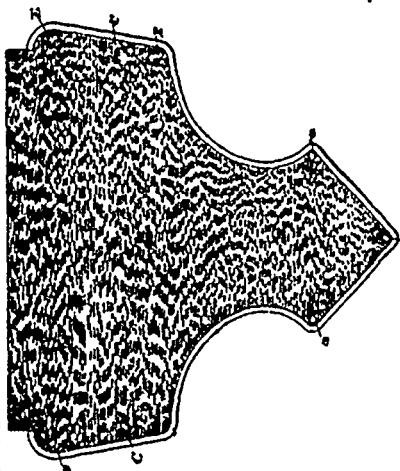
24330 Haworth's Method of Destroying Vegetation about Railways and Apparatus therefor.



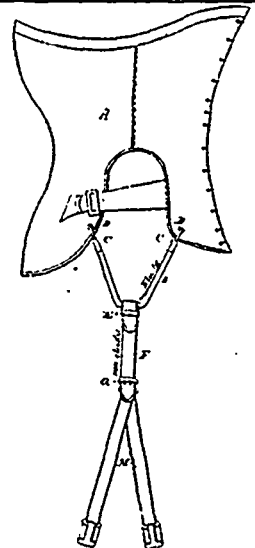
24331 Willard's Rock and Coal Drill.



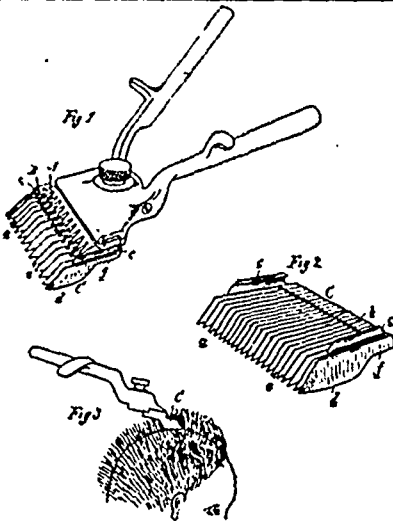
24332 Seymour's Garment Support.



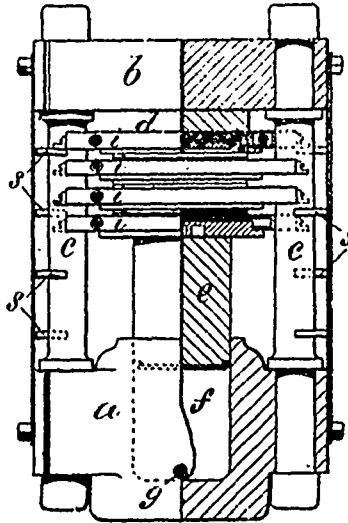
24333* Baldwin's Diaper.



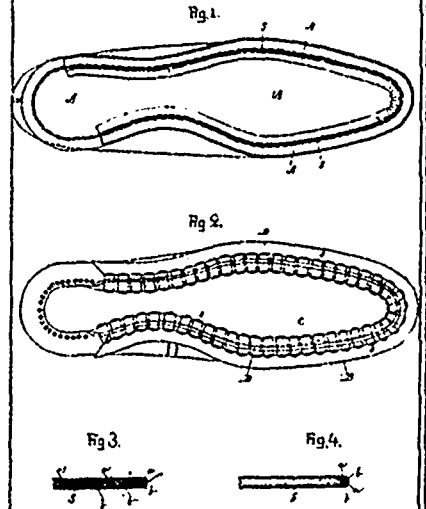
24334 Shelby's Stocking Supporter.



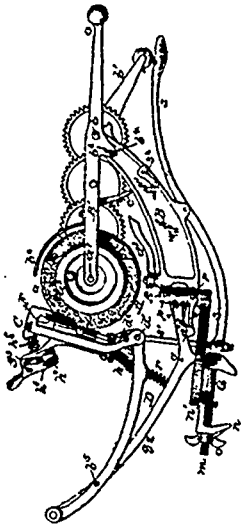
24335 Burwell's Hair Clippers.



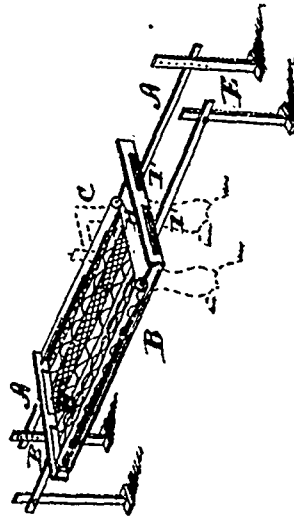
24336 Hotchkiss' Press for Drying Palp Barrel Heads.



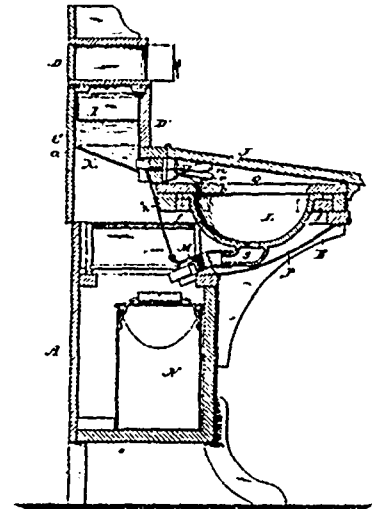
24337 Brown's Boot or Shoe.



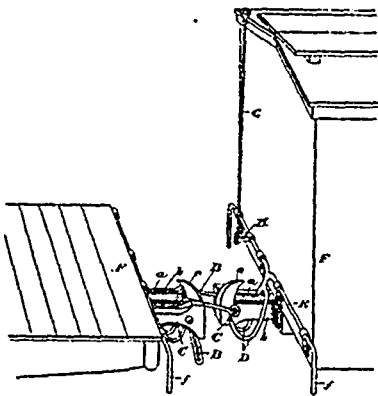
24338 Dutton's Machine for Grinding Mower Knives.



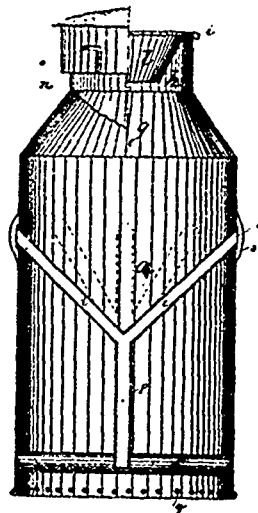
24339 Tallafiero's Quilting Frame for Sewing Machines.



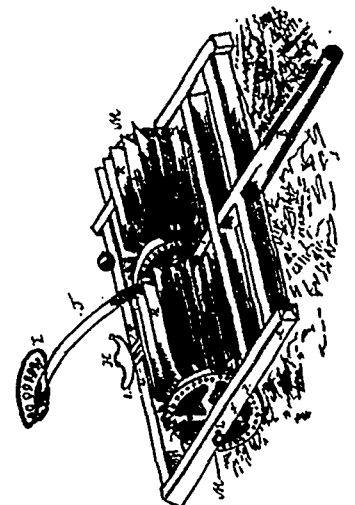
24340 Bond's Washstand and Desk.



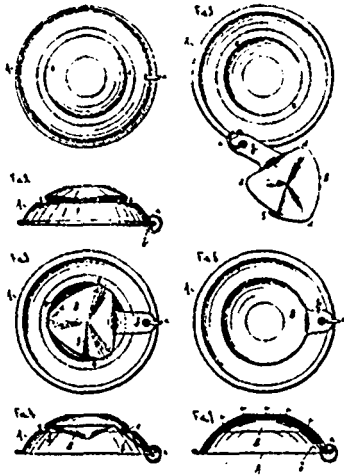
24341 Yeatman's Car Coupler.



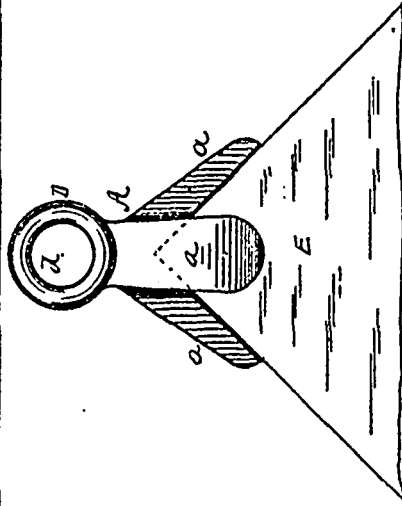
24342 Duranceau's Creamer.



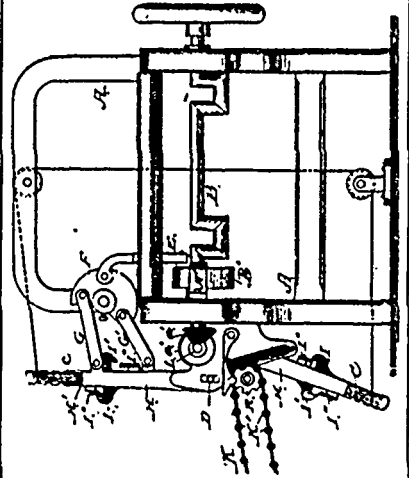
24343 Emans' Clod Crusher and Pulverizer.



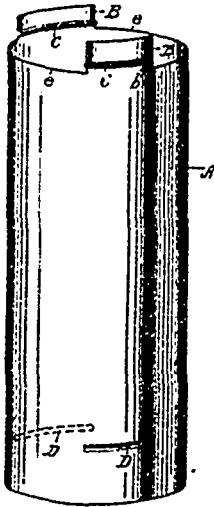
24344 Macomber's Flying Target.



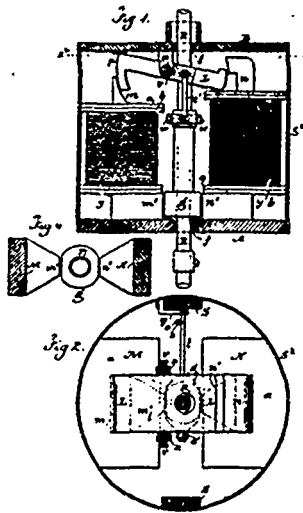
24345 Goddard's Frame Holder.



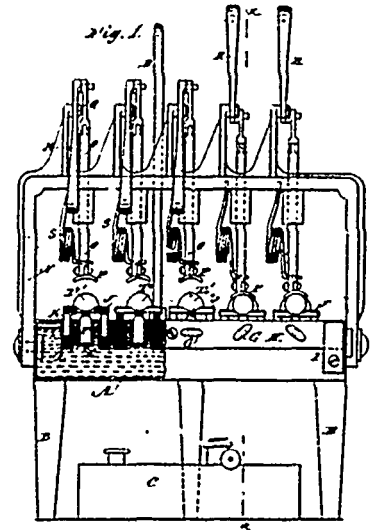
24346 Cress's Shedding Mechanism for Looms.



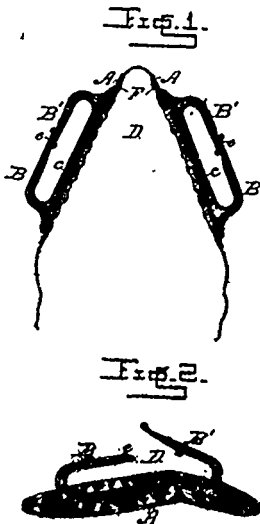
24347 Mackey's Safety Sheet Metal Pipe.



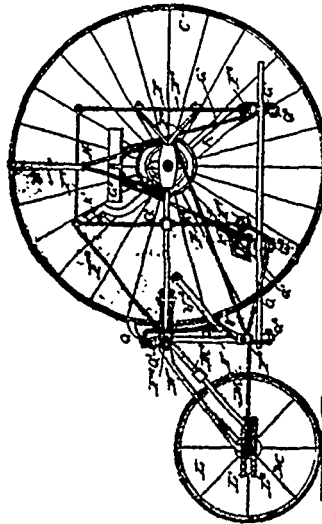
24348 Teale's Electric Arc Lamp.



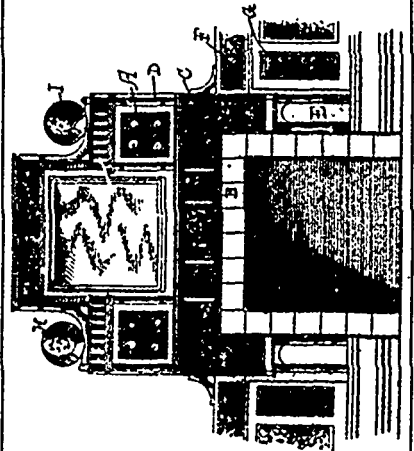
24350 Grathwol's Machine for Stamping Cigars.



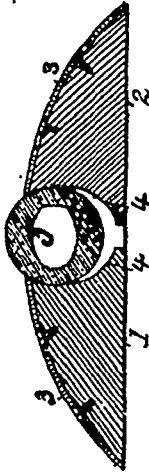
24351 Dejardins' Eeln Support.



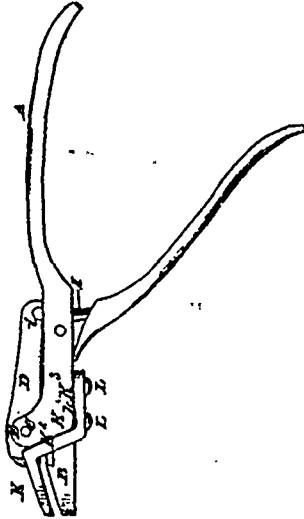
24352 Martin's Tricycle.



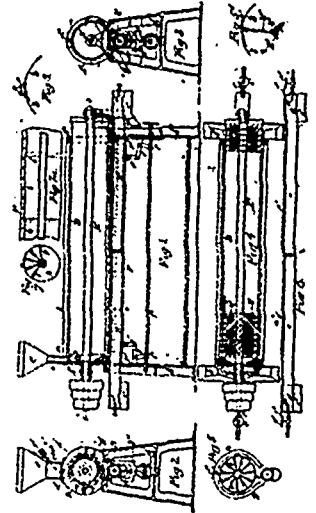
24353 Boyston's Ornamentation Work.



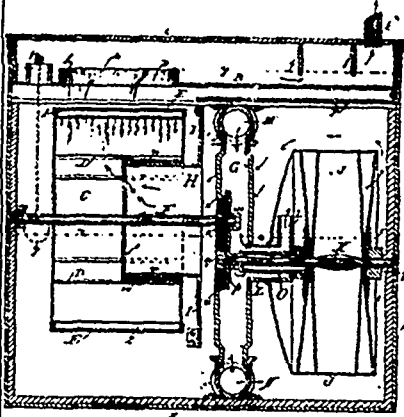
24354 Johnston's Threshold.



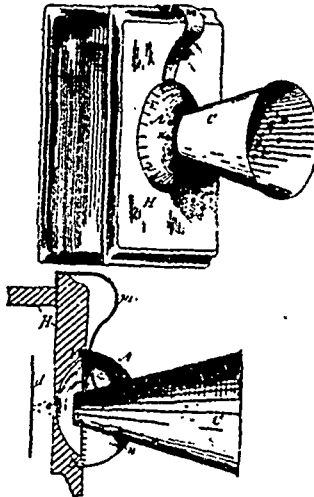
24355 Gibbons' Saw Set.



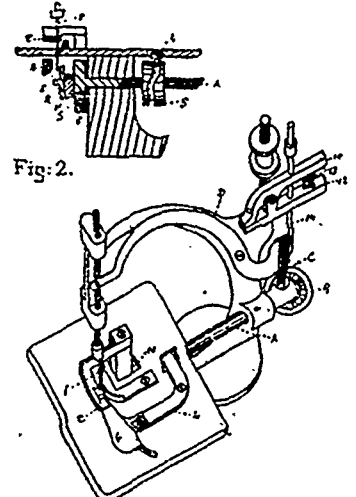
24356 Inderwick's Apparatus for Torrefying Grain.



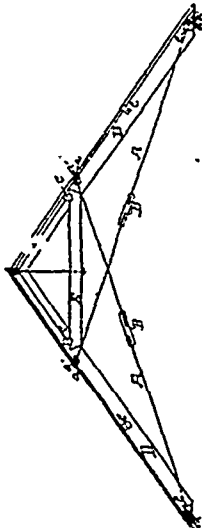
24357 Fraul's Gas Machine.



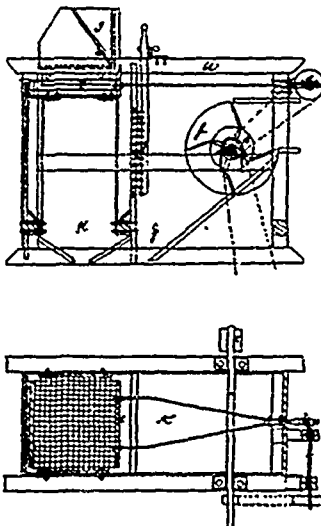
24358 Tanner's Mouth Piece for Telephones.



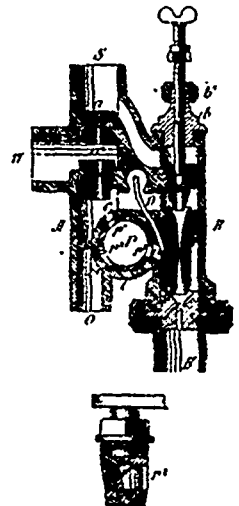
24360 Tucker's Sewing Machine.



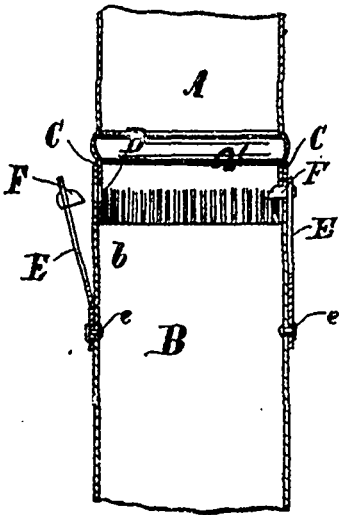
24361 Duckley's Truss Frame for Roofs.



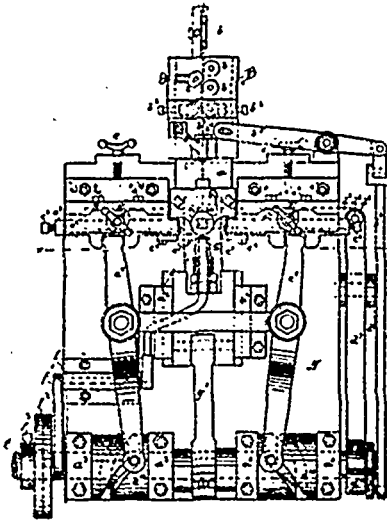
24362 Earle's Machine for Grading Barley.



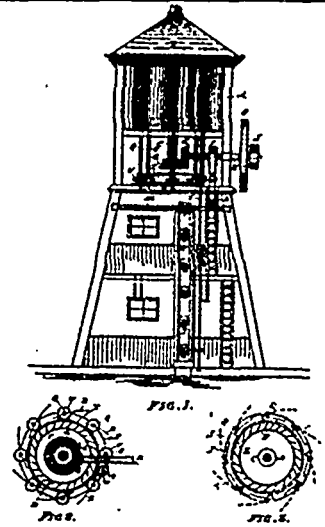
24363 Hogue's Injector for Steam Boilers.



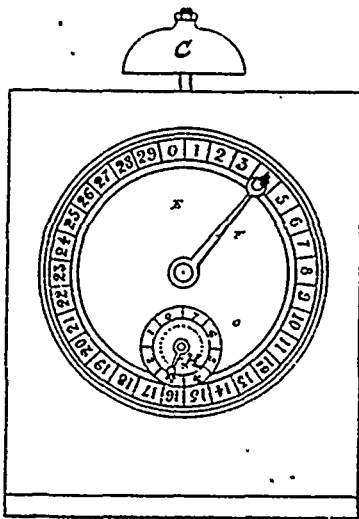
24364 Clendinning's Sheet Metal Pipe.



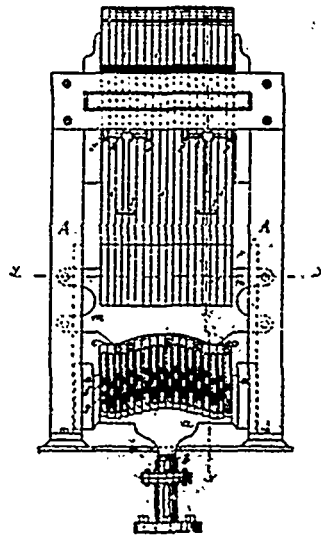
24365 Hassall's Machine for Making Wire Nails.



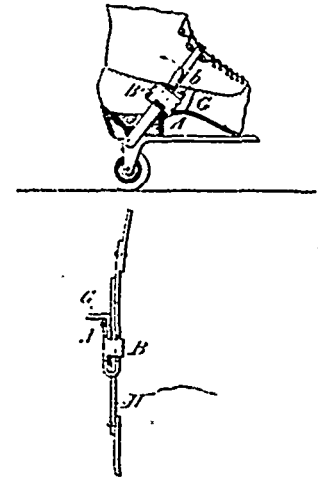
24366 Lucier's Windmill.



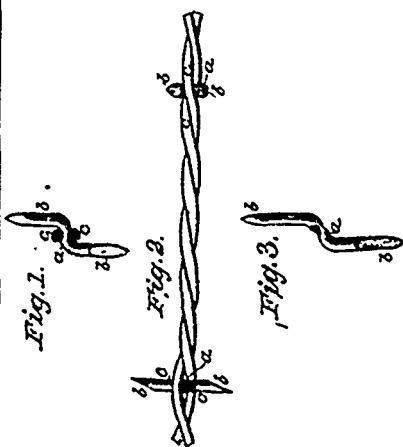
24367 Nagle's Ellard Room Register.



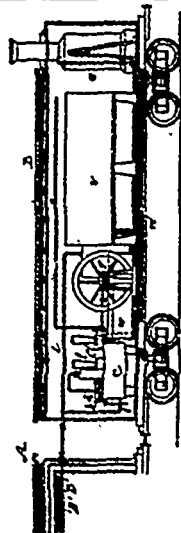
24368 Passenger's Machine for Setting Springs.



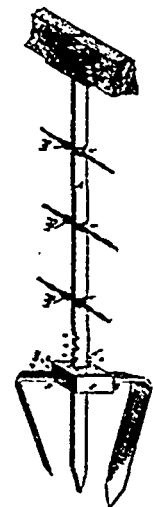
24370 Mitchell's Buckle.



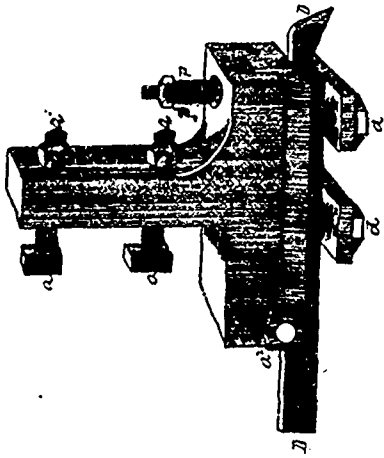
24371 Beerbower's Barb for Wire Fences.



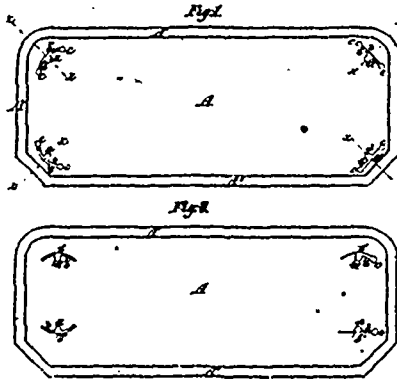
24372 Hennessy's Refrigerating Apparatus.



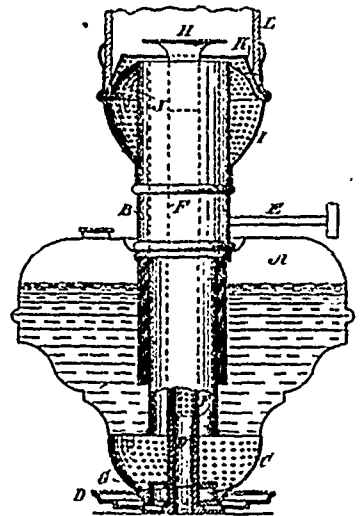
24373 Wilson's Fence Post.



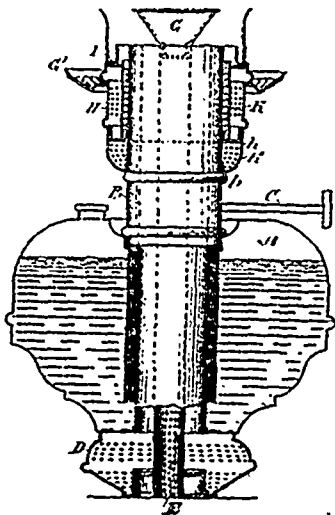
24374 Wilson's Slotting Machine.



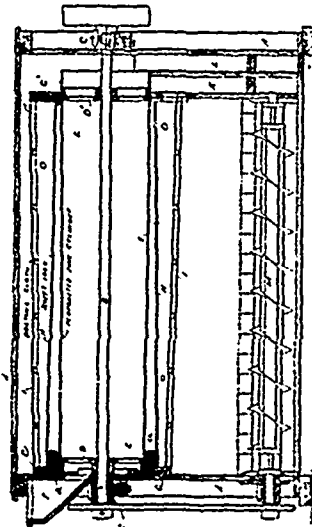
24375 Groom's Collar and Cuff, etc.



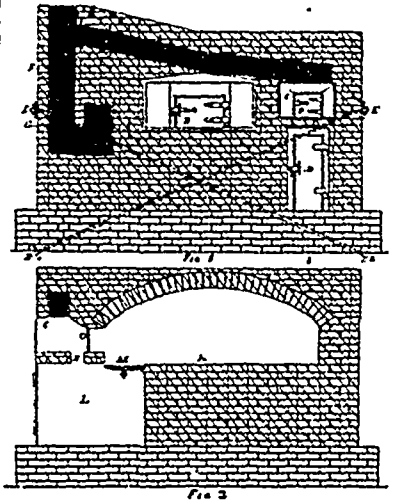
24376 Nobel's Lamp Burner.



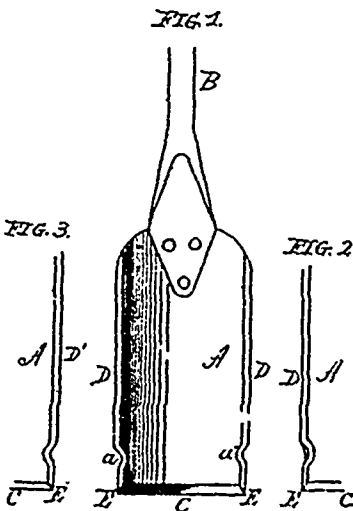
24377 Nobel's Lamp.



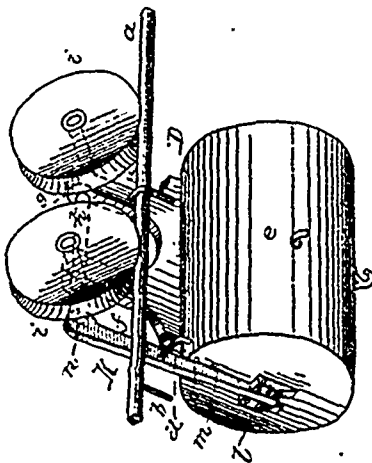
24378 Gray's Scalping Reel for Flour, etc.



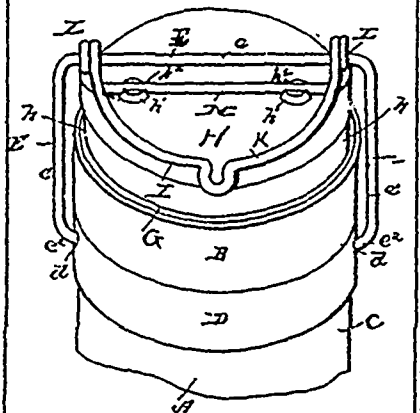
24379 Dempster's Oven.



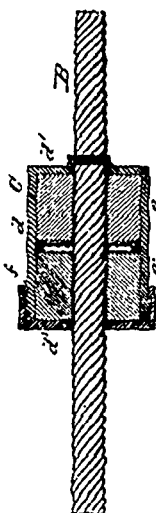
24380 Cumming's Hole Digging Implement.



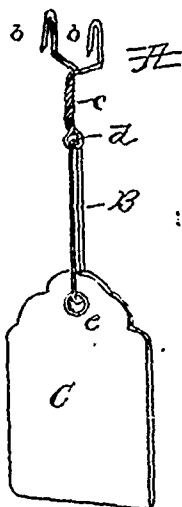
24381 Gillman's Cash and Parcel Transmitter.



24382 Werts' Bottle and Jar Fastener.



24383 Molyneux's Fire Escape.



24385 Conner's Tag.

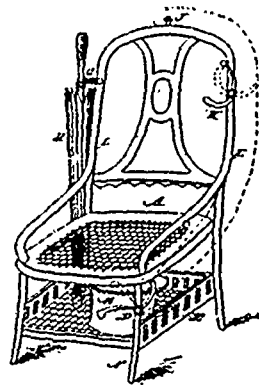
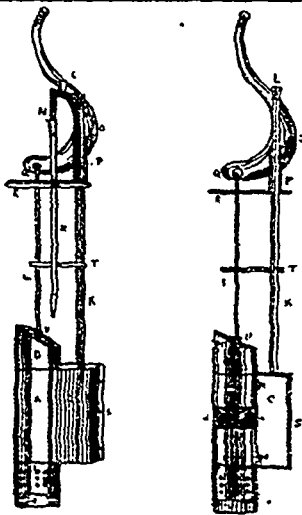


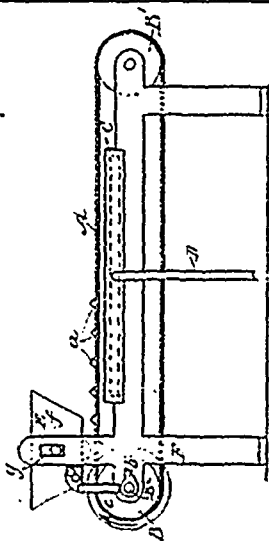
Fig. 2



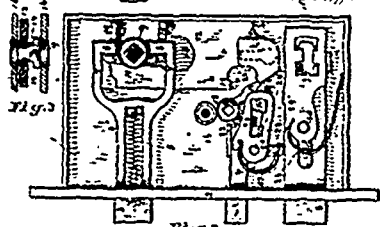
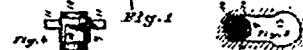
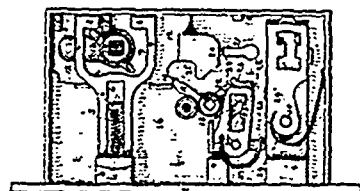
24395 Callahan's Restaurant and Theatre Chair.



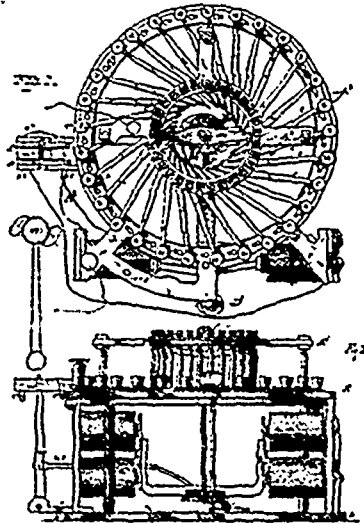
24387 Parker's Force Pump.



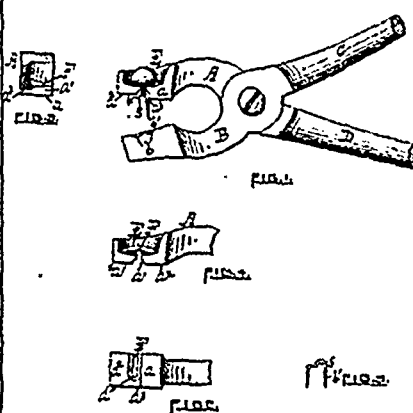
24393 Buel's Drying Apparatus for Pigments.



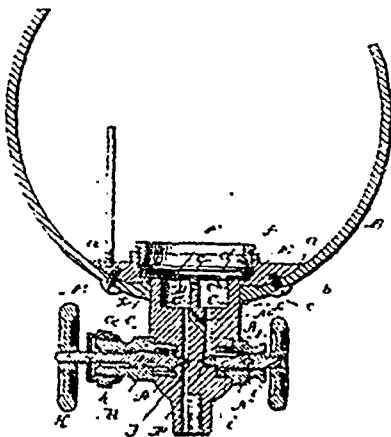
24389 Perkins' Door Lock.



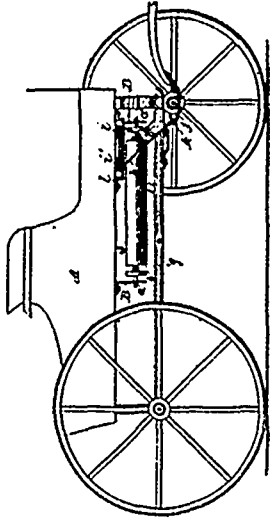
24390 Eslick's Printing Telegraph.



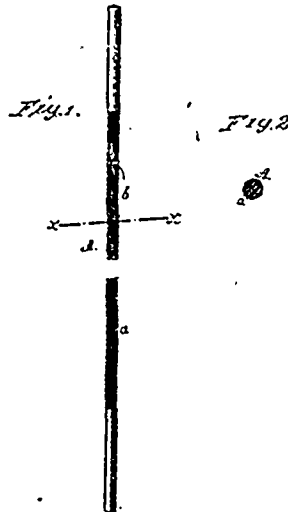
24391 Smith's Implement for Securing Buttons



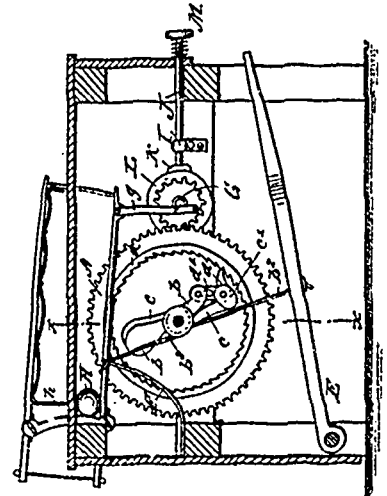
24392 Brown's Steam Gauge



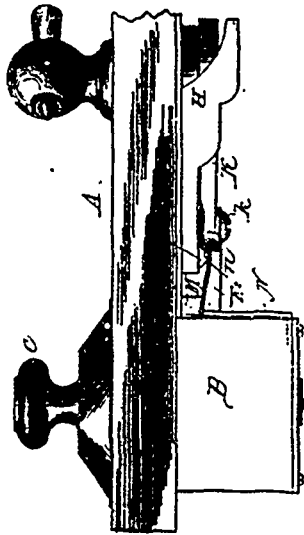
24393 Moore's Carriage Screen.



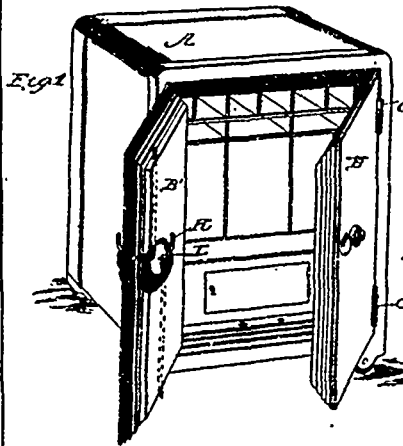
24394 Moore's Saw Blade.



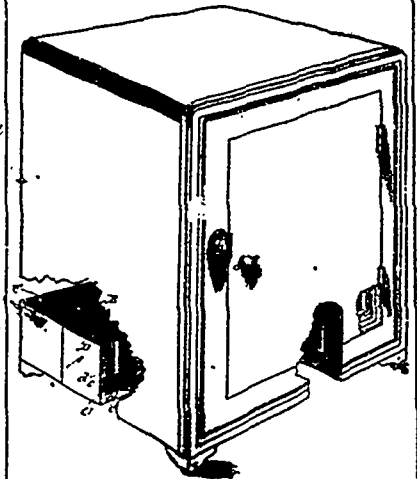
24395 Adams' Mechanical Movement.



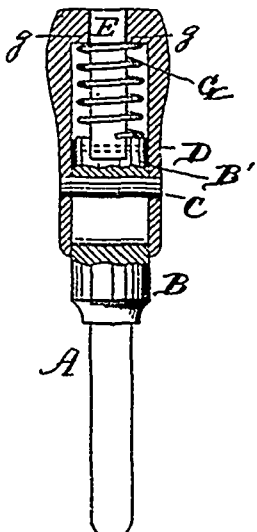
24397 Gross' Lock Mechanism.



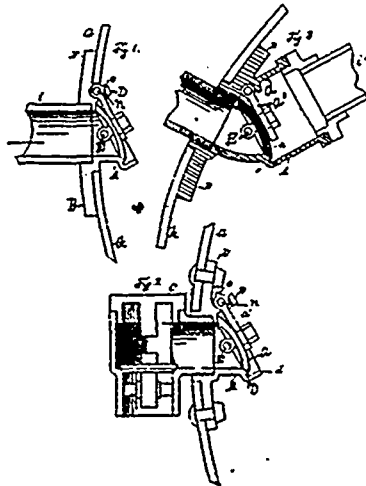
24398 Gross' Safe.



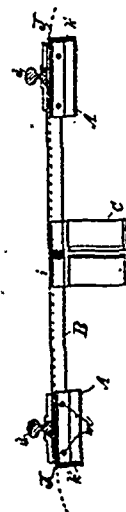
24399 Gross' Burglar Proof Safe.



24400 Fuller's Eit Brace.



24401 McDowell's Check Valve.



24402 Shobe's Railway Tie Support.