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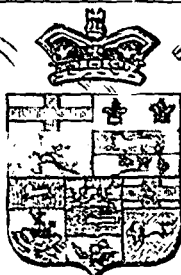

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INVENTIONS PATENTED.

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

No. 29,601. Process for Refining Coal Oil Containing Sulphur or Arsenic, or both. (*Procédé pour raffiner le pétrole contenant du soufre, ou de l'arsenic, ou les deux ensemble.*)

Carl V. Potraeus, Camden, N. J., U.S., 1st August, 1888; 5 years.

Claim.—1st. The herein described process of refining coal oil containing sulphur, which consists in treating the oil to be refined with salts of hyposulphurous or chloric acid, and then distilling the oil so treated, substantially as and for the purpose described. 2nd. The herein described process of refining coal oil containing sulphur or arsenic or both, which consists in treating the oil to be refined with salts of hyposulphurous or chloric acid, and then distilling the oil so treated, substantially as and for the purposes described.

No. 29,602. Bob-Sled. (*Traineaux accouplés.*)

Festus Chapin and William J. Edwards, Portage la Prairie, Man., 1st August, 1888; 5 years.

Claim.—1st. In a bob sled, the combination of the runners A, an oscillating beam or axle B journaled in the knees and held therein by screws b, the knees C secured upon the runners and formed with a partial journal bearing at the top completed by an attached cap G, said journal bearing adapted to carry the beam B and allow the same to oscillate therein, the roller D and tongue E connected by braces F by which said roller is pivotally coupled to the forward ends of the runners by means of the straps G, the rod H connected to the roller and tongue by means of the clevis I, and to the beam B by a forked strap J through which passes the king bolt, and having an eye f or coupling the rear bob thereto and the king bolt K, substantially as set forth. 2nd. In a bob sled, the combination of the runners A, the inner runner straps G having a loop p, and having their forward ends turned at a right angle and inserted and projecting through the runner, and secured at the other side thereof by a nut q, the tongue braces F secured to the tongue E and roller D, and having a hooked or eyed end f engaging the loop p pivotally, substantially as set forth. 3rd. In a bob sled, the combination of the roller D, clevis I having loop r, the draft rod H having eyed ends A, h engaged by the clevis loop r, and strap L, the forked strap J having prongs u, v clipping the beam, and an eyed extending tail end s engaging the beam B and eyed projecting end t, and the king bolt K passing through the prongs u and the beam B, substantially as set forth. 4th. In a bob sled, the combination of the runners A, the knees C each having a concave top e, outwardly sloping legs k with feet c, and inner tapering flanges e1, circular caps C1 secured to the tops of said knees by lugs e11, and forming with the concave tops c circular bearings for the beam B, and the beam B supported in the bearings of the said knees and held therein by the screws b, substantially as set forth.

No. 29,603. Conveyor and Dumper for the Formation of Railroad Embankments and the Operation of the Quarry, etc. (*Tombereau pour faire les terrassements des chemins de fer et l'exploitation des carrières, etc.*)

James Faulkner, Toronto, Ont., 1st August, 1888; 5 years.

Claim.—In a conveyor and dumper constructed as described, the combination of the carriage D, with pulley d, checks E, E, pivot F, arms G, G, trip arm J and sliding trip L, as shown and described and operating as set forth.

No. 29,604. Door Mat. (*Paillasson.*)

Joseph Chattaway, Potoskey, Mich., U.S., 1st August, 1888; 5 years.

Claim.—1st. A mat, brush, or broom composed of a series of independently-removable sections, each section consisting of a central strip and two outside clamping-strips, the straw or other material being folded around the central strip and clamped in place by the two outside strips, substantially as described. 2nd. A mat composed of independently-removable sections, each section consisting of a central strip, and two outside clamping-strips for holding the straw which is folded around the central strip, the straw upon the outside sections being of less height than the middle sections, whereby ridges are formed for the purpose described. 3rd. A door mat composed of independently-removable sections, each section consisting of a central strip, and outside clamping-strips adapted to hold the straw between them, the central strip being of less height than the outside strips, whereby the material clamped between the strips is permitted to spread and to close up all spaces between the sections, substantially as described.

No. 29,605. Rubber Boot. (*Botte de caoutchouc.*)

Joseph D. Thomas, South Framingham, Mass., U. S., 1st August, 1888; 5 years.

Claim.—As an improved article of manufacture, a rubber boot having a rubber foot part, a leg formed of the inner and outer cloth layers c, d and intervening rubber layer f, and a fur guard k secured to the cloth layers at the top edge of the boot, and overlapping said edge and extending upon both the inside and outside thereof, substantially as described.

No. 29,606. Regenerative Gas Lamp.

(*Lampe à gaz à régénérateur.*)

Edwin Fallford and Henry T. Van Laun, London, Eng., 1st August, 1888; 5 years.

Claim.—1st. In regenerative gas lamps, the combination of the gas pipe a and burner b, transparent globe or bowl c and chimney e, with the air passages d, partly rotating tube n and handle o to turn the said tube, substantially as set forth and shown. 2nd. The combination of the gas pipe a and burner b, transparent globe or bowl c, with the tube f and rising and falling passages d and chimney e, substantially as set forth. 3rd. The combination of the hinged frame ic, lever or arm x and link, with the rising and falling air passages d and chimney e, substantially as set forth. 4th. The combination, with the tube f and burner b, of the perforated pipe p, and hole r, substantially as set forth. 5th. In regenerative gas lamps, the combination, with the burner b and air tube f, of the conical set of horizontal parallel plates l or l', substantially as set forth. 6th. The combination, with the gas supply pipe a and burner b having a ring of small holes, of the conical stopper f and inner gas pipe r, substantially as set forth. 7th. The combination, with the hinged frame ic and glass globe or bowl c, of the hinged lever A having a catch engaging with the slotted holding plate B and the balance weight C, substantially as set forth. 8th. In burners for regenerative and other gas lamps, the combination, with the gas supply pipe a1, of the outer flanged tube B, the inner tube p1, flange h1 below the perforations l1 through the tube, notched or perforated flange i1, inner cylinder or plug m1, flange n1, handle o1 and screwed nut or cross bar r1, substantially as herein set forth. 9th. The combination, with the cylinder or plug m1, and screwed nut or cross bar r1, of the spindle p1 and nut or stop s1, substantially as set forth. 10th. In combination, with the gas supply pipe a1 and flanged tube B, the lower flange n1, handle o1, spindle p1, cross bar r1 and tube t1, substantially as set forth and shown in figure 19.

No. 29,607. Manufacture of Butter and Apparatus therefor. (*Fabrication du beurre et appareil pour cet objet.*)

Carl A. Johanson, Stockholm, Sweden, 1st August, 1888; 5 years.

Claim.—1st. The mode of churning which is performed in a continuously working centrifugal apparatus, simultaneously with and during the separation of the cream from the milk, the cream being

worked by means of fixed or movable obstructions or agitators, while the said cream in the centrifugal apparatus remains still, as a layer floating on the milk from which it is separated, and by means of pipes or gutters removing the butter in proportion as it is formed or letting it pass away over the lower border of the centrifugal apparatus. 2nd. A churn consisting of a revolving vessel A open at the lower end, and which at the top has a device for letting in the milk, the said vessel having inside a horizontal or inclined partition S causing all the cream to pass over the border of the partition, and at the bottom provided with a crowning or depression U surrounding the mouth of the vessel for receiving the ready made butter, produced by the beating or dividing of the cream layer by wheels or drums, with spokes or projections in the circumference, or by means of fixed combs introduced in the layer of cream, the butter being led off from the receptacle in the said crowning U by means of one or more adjustable pipes or gutters M entering into the same. 3rd. In the apparatus indicated in the second claim, a device for leading off the butter consisting in forming the mouth of the revolving vessel by a crowning U, inside of which the produced butter sinking down over the border of the vessel is collected, and by the pressure delivered from the attaching milk which is enabled to return into the vessel through holes, and inside of this crowning enters the mouths of a pipe or the end of a gutter M directed against the rotary direction of the butter layer, and which can be introduced more or less therein, in order that the butter may be led off to a receptacle through the pipe or the gutter. 4th. In a churn of the kind or class herein described, the arrangement of the wheels or drums to be introduced in the revolving cream layer, consisting therein that the wheels are at their circumference provided with axial spokes, cones, or pyramids, arranged in an inclined or a helical position, or consisting of concentrically rifled cylinders or of fixed combs provided with points. 5th. In an apparatus for the churning of butter as above described, a device consisting of one or more posts introduced in the centrifugal apparatus, and provided with short pipes, the ends of which are directed against and introduced in the revolving layer of cream, while their opposite ends are turned somewhat off the same layer, with the view of causing the cream to pass through the pipes and to come in contact with the cream layer behind the pipes. 6th. The modified arrangement of the apparatus above described, consisting of a vessel open at the top, with the view of introducing the revolving or fixed obstacles, and that the bottom of the vessel has a number of holes or openings Y through which the butter can sink down in order to get into the compartment enclosed by the crowning U. 7th. In the modified arrangement described in the sixth claim, of an apparatus for the churning of butter, the arrangement for introducing the fixed or movable obstruction consisting in fixing the post of the fixed obstruction on the shaft of the movable obstruction in one end of a lever D, pivoted at a point on the envelope b, or casing of the revolving vessel, while the opposite end of the lever can be fixed in the desired position by the handle being made in the shape of a nut, and can be screwed inward against or outward from a bow shaped projection on the casing of the machine. 8th. In a churn, a device for regulating the introduction of the butter delivery pipe into the layer of butter, consisting in bending the point of the conical delivery pipe sideways, and fixing it in the one end of a lever pivoted at the same end, the other end of which lever can be fixed by means of a handle, as above described.

No. 29,608. Manufacture of Scrubbing Brushes. (*Fabrication des broses à frotter*)

Emil C. Boeckh and Charles Boeckh, Jr., Toronto, Ont., 1st August, 1888, 5 years.

Claim.—A brush having a recess formed in its back, immediately above the point where the bristles or other fibre are connected, in combination with a strip fitted and fixed into the said recess, substantially as and for the purpose specified.

No. 29,609. Apparatus for Extracting Stumps. (*Appareil à arracher les souches*)

Lemuel Lajo, Pittsburgh, N.H., U.S., 1st August, 1888, 5 years.

Claim.—A metallic stump-extractor frame, formed of two integral arms carrying a windlass near their front ends and provided at the curve *a* with an attaching device for a chain, in combination with ratchets pawls and levers, all being constructed substantially as and for the purposes specified.

No. 29,610. Car-Coupler. (*Attelage de chars*)

Frank A. Fox, Henry H. Gordon and Charles Bishop, New York, N. Y., U.S., 1st August, 1888, 5 years.

Claim.—1st. The combination of top and bottom bars *a, a*, and of perforated cross pieces *b, b*, the cross piece *b* having lateral extension *b₁*, with the draw head *c*, sliding bolt *d* and spring *e*, the sliding bolt *c* having shoulder *e₁*, and with the operating lever *g* pivoted to extension *b₂* and having a forked end *g₁* that engages bolt *c*, substantially as specified. 2nd. The combination of draw bar *A*, with a sliding bolt, spring and operating lever, and with a pivoted draw head *e* having a corrugated face *e₁*, substantially as specified. 3rd. The combination of a draw bar *A* having the cross piece *b* that is provided with lateral extension *b₁*, and of sliding bolt, spring and operating lever, with a pivoted draw head *e* having lateral hook-shaped extension *c* that is adapted to engage the extension *b₁*, substantially as specified. 4th. The combination of a draw bar *A*, with a sliding bolt, spring and operating lever, and with a pivoted draw head *e* having a perforation for engagement with the sliding bolt, the edge of the draw head being straight at one side of the perforation, and being curved and hook-shaped at the other side of the perforation, to limit the motion of the draw head in both directions, substantially as specified. 5th. The combination of a draw-bar *A* having a pair of jaws, with a hook-shaped draw-head *e* having slotted shank *c* that is pivoted between the said jaws, and with a spring bolt *h* having a bevelled edge, substantially as specified.

No. 29,611. Nut Lock. (*Arrête-técrou*)

Robert W. Burton and William C. Harless, New River, Va., U.S., 1st August, 1888, 5 years.

Claim.—In a nut lock, the combination, with the bolts, washers surrounding the bolts, and nuts screwed on the bolts and bearing on the washers, of the locking plate, comprising the arm or arms *K* arranged under the nuts, and provided with slots *G* embracing the said washers, the upturned ears *E, E* at the outer ends of the said arm, having ratchet teeth on their inner edges, and the spring *D*, whereby the ratchet teeth on the said ears are normally held in engagement with the angles of the nuts, substantially as specified.

No. 29,612. Stove Grate. (*Grille de poêle*)

Leroy D. Webber, (assignee of Stobbins S. Webber), La Porte, Ind., U.S., 1st August, 1888, 5 years.

Claim.—1st. The two-part grate, one part movable upon the other, each provided with two series of draft openings so placed relatively to each other that the opening of the outside series closes the inside series, and the opening of the inside series closes the outside series, substantially as specified. 2nd. In combination with the two-part grate having an outside draft, and a central draft so constructed that when the outer draft is opened the inner draft is closed, substantially as specified, the central deflecting plate for deflecting the central draft to cause the currents to impinge against the sides of the stove, substantially as and for the purpose set forth.

No. 29,613. Machine for Making Rolled Forging. (*Machine à laminer*)

Charles E. Gould, Thurston A. Gould and Frank H. Cook, Loomister, Mass., U.S., 1st August, 1888, 5 years.

Claim.—1st. In a machine for making rolled forgings, the combination of the following instrumentalities, to wit: a die having a working face which is convex in longitudinal section, a companion die having a working face which is concave in longitudinal section, means for supporting said dies, and means for causing one of the dies to move longitudinally past the other through the arc of a circle, their working faces being adjacent as they pass, substantially as set forth. 2nd. In a machine for making rolled forgings, the combination of the following instrumentalities, to wit: a die having a working face which is convex in longitudinal section, a companion die having a working face which is concave in longitudinal section, means for supporting said dies, and means for causing them to move longitudinally and simultaneously past each other in opposite directions through arcs of different circles respectively, their working faces being adjacent as they pass, substantially as described. 3rd. In a machine for making rolled forgings, the combination of the following instrumentalities, to wit: a die having a working face which is convex in longitudinal section, a companion die having a working face which is concave in longitudinal section, means for supporting said dies, means for causing one of said dies to move longitudinally past the other through the arc of a circle, the working faces of the dies being adjacent, as they pass, and a rest for the rod or ingot, substantially as set forth. 4th. In a machine for making rolled forgings, the combination of the following instrumentalities, to wit: a die having a working face which is convex in longitudinal section, a companion die having a working face which is concave in longitudinal section, means for supporting said dies, means for causing the dies to move longitudinally and simultaneously past each other in opposite directions through arcs of different circles respectively, the working faces of the dies being adjacent as they pass, and a rest for the rod or ingot, substantially as described. 5th. In a machine for making rolled forgings, the combination of the following instrumentalities, to wit: a disk having a chamber opening outward through one of its sides, and provided within said chamber with an inwardly facing die having a working face which is concave in longitudinal section, a disk disposed within said chamber and provided with an outwardly facing die having a working face which is convex in longitudinal section, and means for rotating one of said disks and carrying its die longitudinally past the companion die, said dies standing at right angles to the axis of the rotating disk and being so arranged that their working faces will be adjacent as they pass, substantially as set forth. 6th. In a machine for making rolled forgings, the combination of the following instrumentalities, to wit: a disk having a chamber opening outward through one of its sides, and provided within said chamber with an inwardly facing die having a working face which is concave in longitudinal section, a disk disposed within said chamber and provided with an outwardly facing die having a working face which is convex in longitudinal section, and means for rotating said disks simultaneously in opposite directions to carry the dies longitudinally past each other, said dies standing at right angles to the axis of the rotating disk, and being so arranged that their working faces will be adjacent as they pass, substantially as described. 7th. In a machine for making rolled forgings, the combination of the following instrumentalities, to wit: a die having a working face which is convex in longitudinal section, a companion die having a working face which is concave in longitudinal section, means for supporting said dies, means for causing one of the dies to move longitudinally past the other through the arc of a circle, their working faces being adjacent as they pass, and means for rotating the rod or ingot, substantially as set forth. 8th. In a machine for making rolled forgings, the combination of the following instrumentalities, to wit: a die having a working face which is convex in longitudinal section, a companion die having a working face which is concave in longitudinal section, means for supporting said dies, means for causing them to move longitudinally and simultaneously past each other in opposite directions through arcs of different circles respectively, their working faces being adjacent as they pass, and means for rotating the rod or ingot, substantially as described. 9th. In a machine for making rolled forgings, the combination of the following instrumentalities, to wit: a die having a working face which is convex in longitudinal section, a companion die having a working face which is concave in longitudinal section, means for supporting said dies, means for causing one of said dies

to move longitudinally past the other through the arc of a circle, the working faces of the dies being adjacent as they pass, a rest for the rod or ingot, and means for rotating the rod or ingot, substantially as set forth. 10th. In a machine for making rolled forgings, the combination of the following instrumentalities, to wit a die having a working face which is convex in longitudinal section, a companion die having a working face which is concave in longitudinal section, means for supporting said dies, means for causing the dies to move longitudinally and simultaneously past each other in opposite directions through the arcs of different circles respectively, the working faces of the dies being adjacent as they pass, a rest for the rod or ingot and means for rotating the rod or ingot, substantially as described. 11th. In a machine for making rolled forgings, the combination of the following instrumentalities, to wit a disk having a chamber opening outward through one of its sides, and provided with said chamber with an inwardly facing die having a working face which is concave in longitudinal section, a disk disposed within said chamber, and provided with an outwardly facing die having a working face which is convex in longitudinal section, means for rotating one of said disks, and carrying its die longitudinally past the companion die, said dies standing at right angles to the axis of the rotating disk, and being so arranged that their working faces will be adjacent as they pass, and a rest for the rod or ingot, substantially as set forth. 12th. In a machine for making rolled forgings, the combination of the following instrumentalities, to wit a disk having a chamber opening outward through one of its sides, and provided within said chamber with an inwardly facing die having a working face which is concave in longitudinal section, a disk disposed within said chamber and provided with an outwardly facing die having a working face which is convex in longitudinal section, means for rotating one of said disks and carrying its die longitudinally past the companion die, said dies standing at right angles to the axis of the rotating disk, and being so arranged that their working faces will be adjacent as they pass, a rest for the rod or ingot, and means for rotating the rod or ingot, substantially as described. 13th. In a machine for making rolled forgings, the combination of the following instrumentalities, to wit a disk having a chamber opening outward through one of its sides and provided within said chamber with an inwardly facing die having a working face which is concave in longitudinal section, a disk disposed within said chamber and provided with an outwardly facing die having a working face which is convex in longitudinal section, means for rotating said disks simultaneously in opposite directions to carry the dies longitudinally past each other, said dies standing at right angles to the axis of the rotating disk, and being so arranged that their working faces will be adjacent as they pass, a rest for the rod or ingot and means for rotating the rod or ingot, substantially as described. 14th. In a machine for making rolled forgings, the combination of the following instrumentalities, to wit a disk having a chamber opening outward through one of its sides, and provided within said chamber with an inwardly facing die having a working face which is concave in longitudinal section, a disk disposed within said chamber and provided with an outwardly facing die having a working face which is convex in longitudinal section, means for rotating said disks in opposite directions simultaneously to carry the dies longitudinally past each other, said dies standing at right angles to the axis of the rotating disk, and being so arranged that their working faces will be adjacent as they pass, and two rests for the rod or ingot, one of which rests is adapted to yield, substantially as set forth. 15th. In a machine for making rolled forgings, the combination of the following instrumentalities, to wit a disk having a chamber opening outward through one of its sides, and provided within said chamber with an inwardly facing die having a working face which is concave in longitudinal section, a disk disposed within said chamber and provided with an outwardly facing die having a working face which is convex in longitudinal section, means for rotating said disks simultaneously in opposite directions to carry the dies longitudinally past each other, said dies standing at right angles to the axis of the rotating disk, and being so arranged that their working faces will be adjacent as they pass, means for rotating the rod or ingot, and two rests for the rod or ingot, one of which is adapted to yield, substantially as described. 16th. In a machine for making rolled forgings, the combination of the following instrumentalities, to wit a disk having a chamber opening outward through one of its sides, and provided within said chamber with an inwardly facing die having a working face which is concave in longitudinal section, a disk disposed within said chamber and provided with an outwardly facing die having a working face which is convex in longitudinal section, means for rotating said disks simultaneously in opposite directions to carry the dies longitudinally past each other, said dies standing at right angles to the axis of the rotating disk, and being so arranged that their working faces will be adjacent as they pass, means for rotating the rod or ingot, and two rests for the rod or ingot, one of which is adapted to yield, substantially as described. 17th. In a machine for making rolled forgings, the chambered disk R provided with a concave die as *b*, and mounted on the sleeve P, the disk S mounted on the shaft G within said chamber and provided with a convex die as *a*, and means for actuating said sleeve and shaft to rotate said disks in opposite directions, substantially as set forth. 18th. In a machine for making rolled forgings, the chambered disk R provided with a concave die as *b*, and mounted on the sleeve P, the disk S mounted on the shaft G within said chamber and provided with a convex die as *a*, means for actuating said sleeve and shaft to rotate said disks in opposite directions, substantially as set forth. 19th. In a machine for making rolled forgings, the chambered disk R provided with a concave die as *b*, and mounted on the sleeve P, the disk S mounted on the shaft G within said chamber, and provided with a convex die as *a*, means for actuating said sleeve and shaft to rotate said disks in opposite directions, means for rotating the rod or ingot, and two rests for the rod or ingot, one of said rests being adapted to yield, substantially as described. 20th. In a machine for making rolled forgings, the chambered disk R

provided with a concave die as *b*, and mounted on the sleeve P, the disk S mounted on the shaft G within said chamber and provided with a convex die as *a*, means for actuating said sleeve and shaft to rotate said disks in opposite directions, and means for adjusting the die on said disk S, substantially as set forth. 21st. In a machine for making rolled forgings, a die as *a* having a working face which is convex in longitudinal section, and provided on said face with a longitudinally arranged groove, *a-44*, said groove being wider and deeper at one end than at the other, substantially as described. 22d. In a machine for making rolled forgings, a die as *a* having a working face which is convex in longitudinal section, said die being provided on said face with a longitudinally arranged groove which is wider and deeper at one end than at the other, as *44*, and with cutting flanges or bosses at the sides of said groove, as *59*, the flanges being higher at the wide end of the groove than at their opposite ends, substantially as set forth. 23th. In a machine for making rolled forgings, a die as *b* having a working face which is concave in longitudinal section, and provided on said face with a longitudinally arranged groove as *44*, said groove being wider and deeper at one end than at the other, substantially as described. 24th. In a machine for making rolled forgings, a die as *b* having a working face which is concave in longitudinal section, said die being provided on said face with a longitudinally arranged groove which is wider and deeper at one end than at the other, as *44*, and with cutting flanges or bosses at the sides of said groove, as *59*, the flanges being higher at the wide end of the groove than at their opposite ends, substantially as described. 25th. In a machine for making rolled forgings, the die *a* having a working face which is convex in longitudinal section, and provided with the grooves *44* and cutting bosses *59*, the die *b* having a working face which is concave in longitudinal section, and provided with the grooves *44* and cutting bosses *59* and supporting and actuating mechanism for said dies, whereby one may be moved over or past the other longitudinally through the arc of a circle, their working faces being adjacent as they pass, and their ends *42* respectively in advance as they approach each other to pass, substantially as set forth. 26th. In a machine for making rolled forgings, the block V provided with a die on its curved edge, in combination with the disk S mounted on the shaft G, and screws for adjusting and securing said block on said disk, substantially as described. 27th. In a machine for making rolled forgings, the disk R mounted on the sleeve P, and provided with a concave die as *b*, means for adjustably securing said disk on said sleeve, the disk S mounted on the shaft G and provided with a convex die as *a* means for adjustably securing said disk on said shaft, and actuating mechanism for the sleeve and shaft, whereby the disks may be revolved in opposite directions, substantially as set forth. 28th. In a machine for making rolled forgings, a stop, as *8*, in combination with the disk R provided with a concave die, as *b*, and disk S provided with a convex die as *a*, substantially as described for the purpose set forth. 29th. In a machine for making rolled forgings, the ingot rest *t*, in combination with the die-carrying disks S, R and actuating mechanism therefor, said rest being arranged substantially as described. 30th. In a machine for making rolled forgings, the yielding rest *t*, in combination with the die-carrying disks S, R and actuating mechanism therefor, said rest being arranged substantially as described. 31st. In a machine for making rolled forgings, the rest *t* and yielding rest *t*, in combination with the die-carrying disks S, R, and actuating mechanism therefor, said rests being arranged at opposite sides of the axis of the disk S, substantially as described. 32d. In a machine for making rolled forgings, the plate *f* having a curved serrated edge *62*, in combination with the disk S carrying a die, as *a*, substantially as set forth. 33th. In a machine for making rolled forgings, the plate *f* having a curved serrated edge *62* and secured to the adjustable block V, in combination with the disk S carrying a die, as *a*, substantially as described. 34th. In a machine for making rolled forgings, the plate *g* secured to the disk R and provided with a curved serrated edge *92*, substantially as set forth. 35th. In a machine for making rolled forgings, the disk S provided with the plate *f* having the curved serrated edge *62*, in combination with the disk R provided with the plate *g* having the curved serrated edge *92*, said plates being arranged substantially as described. 36th. In a machine for making rolled forgings, the journalled shaft G, provided with the gear M and disk S, the sleeve P disposed on said shaft and provided with the gear O and disk R, the journalled pinion N intermeshing with the gear O, the journalled gear K provided with the pinion L, said pinion intermeshing with the gear M and pinion N, the pulley H provided with the pinion J and loosely mounted on the shaft G, said pinion intermeshing with the gear K the journals *m*, *k* and suitable supports for said journals and shaft, combined and arranged to operate substantially as set forth.

No. 29,614. Wine Bin. (*Cuve à vin*.)

George King, East Haddon, and William A. Smith, Weedon, Eng., 1st August, 1888; 5 years

Claim.—A wine bin consisting of a number of hexagonal cells of brick or such like material piled together, each cell adapted to contain a bottle, substantially as and for the purposes set forth.

No. 29,615. Repeating Rifle.

(*Carabine à répétition*.)

William M. Cooper, (Co-inventor with Edwin J. Cashmore), Toronto, Ont., 1st August, 1888; 5 years.

Claim.—1st. The combination, with the barrel of a repeating rifle, of a recoil-block located between the end of the barrel and the case containing the action of the repeater, substantially as and for the purpose specified. 2nd. A cartridge-magazine made parallel with, and forming an integral part of, a rifle-barrel, substantially as and for the purpose specified. 3rd. The combination, with the magazine of a repeating rifle, of an adjustable cut-off arranged to lock cartridges in the magazine, to enable the rifle to be used as an ordinary single shot breech-loader, substantially as specified. 4th. A cartridge-magazine made parallel with and forming an integral part of a rifle-barrel, in combination with a bayonet having a shank formed to fit onto the magazine, and a clip arranged to connect the neck of the bayonet with the barrel of the rifle, substantially as and for the pur-

pose specified. 5th. An adjustable recoil-block fitted into the case immediately behind the inner end of the barrel of the rifle, in combination with a firing-needle inserted into the recoil-block, and a plunger arranged to convey the blow of the hammer to the gap of the cartridge, substantially as and for the purpose specified. 6th. A sliding-bolt arranged to close the opening in the body or case of the rifle through which the empty cartridge is discharged, in combination with an extractor fitted into the sliding-bolt, and having a hooked end to project behind the head of the cartridge when the sliding-bolt is closed, substantially as and for the purpose specified. 7th. A sliding-bolt arranged to close the opening in the body or case of the rifle through which the empty cartridge is discharged, in combination with a trigger-guard lever pivoted in the body of the rifle, and having an end projecting into the said body, so as to engage with the sliding-bolt for the purpose of operating the same. 8th. A pivoted trigger-guard lever, having an end arranged to engage with the sliding bolt having a slanting bottom side to engage with and throw back the hammer, substantially as and for the purpose specified. 9th. The pivoted trigger-guard lever K having a lug O formed on it, in combination with a pivoted lever N, and recoil-block D, substantially as and for the purpose specified. 10th. The pivoted carrier R having a tail Q formed on it, in combination with the pivoted trigger-guard lever K, arranged substantially as and for the purpose specified. 11th. The pivoted carrier R, designed to be adjusted so as to convey a single cartridge from the mouth of the magazine to the mouth of the rifle-barrel, in combination with the pivoted cartridge-stop S, designed to close the mouth of the magazine when the carrier is opposite to the rifle-barrel, substantially as and for the purpose specified. 12th. A cartridge-stop S pivoted on the carrier R, and shaped so as to prevent the cartridges escaping from the magazine while the carrier is conveying a cartridge to the rifle-barrel, substantially as and for the purpose specified. 13th. A rifle body or case having an opening protected by a suitable pivoted cover, and leading from the bottom of the body to the mouth of the cartridge magazine, substantially as and for the purpose specified.

No. 29,616. Loom. (*Méier à tisser.*)

Thibureau Lafontaine, St. Stanislas, Que., 1st August, 1888; 5 years.

Résumé.—10. La combinaison de la poulie E, de la roue B, et des bras D, U, tel que décrit. 20. La combinaison de la charpente A et des clefs c, e, tel que ci-dessus décrit et pour les fins indiquées.

No. 29,617. Paint Compound.

(*Composition à peinture.*)

Anthony W. Burko, Toronto, Ont., 1st August, 1888; 5 years.

Claim.—A paint compound composed of soluble glass, alum, sulphate of zinc, sugar, flour, lime, salt, water and petroleum oil, the whole compounded as and in about the proportionate quantities specified, with the addition of plaster paris, colored pigments or petroleum gas tar in variable quantity, as and for the purpose set forth.

No. 29,618. Apparatus for the Prevention and Consumption of Smoke and more Complete Combustion of Fuel in Steam Boilers and other Furnaces. (*Appareil pour empêcher et consommer la fumée et mieux brûler le combustible pour les foyers des chaudières à vapeur et autres.*)

Alfred Don, Sydney, N.S.W., 1st August, 1888; 5 years.

Claim.—1st. As a new article of manufacture an attachment for steam boiler and other furnaces, consisting of an L-shaped air-pipe secured to the end of the furnace with its curved portion entering the fire-box, said pipe having a bell-shaped mouth fitted with an adjustable lid or cover, and a bell-shaped exit deflected downwardly over the fuel in said fire-box, and a pipe leading from the steam chest of the furnace to and within the L-shaped pipe, and having its exit within the bent portion thereof, substantially as shown and described for the purpose herein set forth. 2nd. The combination, with a steam boiler or other furnace, of an air-pipe entering the fire-box of said furnace, and having a bell-shaped mouth provided with a lid or cover, and a bell-shaped exit deflected downwardly over the fuel in the fire-box, and a valve pipe connected to the steam chest of the furnace or other source of supply, and adapted to discharge steam into said air-pipe, substantially as shown and described for the purpose herein set forth. 3rd. In an apparatus for consuming smoke in steam boiler and other furnaces, the combination, with an L-shaped pipe secured to the end of the furnace, and formed with a bell-shaped mouth provided with a lid or cover, and bell-shaped exit projected into the fire-box and having a downward deflection over the fuel therein, of a pipe D provided with a valve E connected to the steam chest of the furnace or other source of supply, and adapted to discharge steam within the bent portion of the pipe C, substantially as shown and described.

No. 29,619. Washer. (*Rondelle.*)

John W Parks and Peter G Roquemore, Marshall, Texas, U. S., 1st August, 1888; 5 years.

Claim.—As a new article of manufacture, a rectangular washer made of tempered steel and having a bolt hole, one side of the washer being cut through from the edge to the bolt hole, and the ends thus formed being bent in opposite directions to substantially the same degree, and each end being beveled from one side to the other to form a knife edge, substantially as described.

No. 29,620. Shoe for Horses, etc.

(*Fer pour chevaux, etc.*)

Charles J. Jutson and Frederick A. Poupard, London, England, 1st August, 1888; 5 years.

Claim.—1st. A nailless shoe for horses and other hoofed animals, having a toe, tongue and clips upon the exterior edge of the shoe, and interior clips upon the shoe at suitable points, together with a fastening band or bands extending from points at the rear of the shoe, as near as possible to the upper tread, to the top of said front tongue, substantially as hereinbefore described. 2nd. The combination of a long toe tongue in front and a pair of short clips upon the exterior edge of the shoe at its heel, and a fastening band or bands extending from said clips to the top of said tongue, substantially as described. 3rd. The combination, with clips upon the exterior edge of the shoe at heel and toe, of interior clips upon the shoe to embed themselves in the soles of the hoof, substantially as described. 4th. A toe tongue having a turned upper end forming a pair of wedge-shaped prongs, and provided with a locking device, in combination with fastening band or bands, having a pair of loops or their equivalent to engage with said prongs and locking device, substantially as described. 5th. The combination of an internal spring L, with the toe-tongue B, of the frame, to ensure a bearing of the frame upon the hoof by the spring, even when the hoof is not quite fitted home into the toe of the frame.

No. 29,621. Automatic Signal Buoy.

(*Bouée de signal automatique.*)

Henry McLaughlin, Bangor, Me., U. S., 1st August, 1888; 5 years.

Claim.—1st. The combination, with the buoy A, constructed substantially as described, of the longitudinal ribs Q at the sides of the buoy, substantially as shown and described for the purpose set forth. 2nd. The combination, with the buoy A having the ballast block B, the deck C, the longitudinal ribs Q and the central rod D and the gong E secured on said rod, of the radial guides F beneath said gong, and the balls G adapted to travel in said guides to and from said gong, substantially as shown and described for the purpose set forth. 3rd. The combination, with the buoy A having the ballast block B, the deck C, the longitudinal ribs Q and the central rod D, and the gong E secured on said rod, of the radial conductors H on the deck of the buoy, and having open inner ends adjacent to the gong, and the balls J adapted to travel in said conductors to and from said gong, substantially as shown and described for the purpose set forth. 4th. The combination, with the buoy A having the ballast block B, the deck C, the longitudinal ribs Q and the central rod D, and the gong E secured on said rod, of the radial conductors H on the deck of the buoy, and having open inner ends adjacent to the gong, the springs K in the open ends of said conductors, the headed pins M passing through said springs, and the balls J adapted to travel in said conductors to and from said pins, substantially as shown and described for the purpose set forth. 5th. The combination, with the buoy A having the ballast block B, the deck C, the longitudinal ribs Q and the central rod D, and the gong E secured on said rod, of the radial guides F beneath said gong, the balls G adapted to travel in said guides, the radial conductors H on the deck of the buoy and having open inner ends adjacent to the gong, the balls J adapted to travel in said conductors to and from said gong, substantially as shown and described for the purpose set forth. 6th. The combination, with the buoy A having the ballast block B, the deck C, the longitudinal ribs Q and the central rod D, and the gong E secured on said rod, of the radial guides F beneath said gong, the balls G adapted to travel in said guides, the radial conductors H on the deck of the buoy, and having open inner ends adjacent to the gong, the springs K in the open ends of said conductors, the headed pins M passing through said springs, and the balls J adapted to travel in said conductors to and from said pins, substantially as shown and described for the purposes set forth.

No. 29,622. Jack Mechanism for Supporting Boots and Shoes. (*Porte-forme de corlonnerie.*)

Frank W. Stone, Lynn, Mass., U. S., 1st August, 1888; 5 years.

Claim.—1st. The post A having upwardly projecting bosses *a*, the sleeve F provided with trunnions, and a last supporting mechanism, combined, substantially as described. 2nd. The sleeve F having trunnions *a*, combined with post A, and mechanism for clamping and holding the trunnions, and a last supporting mechanism mounted on the sleeve, substantially as described. 3rd. In a jack mechanism, constructed substantially as described, the supporting column A having upward projections or bosses adapted to receive the trunnions *a*, and a screw *t* for closing together the projections and clamping the trunnions, substantially as and for the purposes described.

No. 29,623. Car Coupling. (*Attelage de chars.*)

Elam R. Yauger, Rookwood, Penn., U. S., 3rd August, 1888; 5 years.

Claim.—1st. In a car coupling drawhead A, follower D and spring G, all formed, arranged and combined substantially as and for the purpose hereinbefore set forth. 2nd. In a car coupling, the combination with the drawhead A, of the coupling pin K, the vertically movable uncoupling rod N having the horizontal arm M, and the chain or other flexible connection between the said pin and the horizontal arm M, and the stud or stop P on the end of the car, adapted to be engaged by the said horizontal arm when the coupling pin is elevated, substantially as specified.

No. 29,624. Combined Washing, Scalding and Snow Melting Apparatus. (*Appareil combiné pour blanchir, échauder et fondre la neige.*)

Frederick C. Mercer, Winnipeg, Man., 1st August, 1888; 5 years.

Claim.—1st. A upright boiler connected by two tubes, one above the other, with a tank placed at a higher level than the boiler, and provided with gauge cocks, a removable top and a branch pipe for

conducting steam from said tank, substantially as shown and described. 2nd. This combination of the boiler B, having an internal fire pot or furnace A, draining pipe *At* and the circulation tubes *ct* and *dt*, placed substantially as shown, with the tank C having the removable top D, with its opening *ct*, and the cap *ct*, branch pipe *pt*, draining pipe *ct* and gauge cocks *pt*, substantially as shown and described and for the purpose set forth.

No. 29,625. Shutter Bower.

(*Fermeture de persienne.*)

Henry W. Steiner, Easton, Penn., U. S., 1st August, 1888; 5 years.

Claim.—1st. A combined shutter bower and fastener, comprising a bar capable of being attached to one of a pair of shutters, and consisting of a single piece of wire bent in the middle to form a loop and twisted to form depressions or notches along its entire length, a cap adapted to fit over the end of the bar and prevent the wire from becoming untwisted, and a flexible wire catch designed to be attached to the other shutter and to receive the bar, substantially as described. 2nd. A shutter bower, comprising a bar adapted to be attached to one of a pair of shutters, and a catch adapted to be attached to the other shutter and engaging the bar, the said catch consisting of a flexible wire bent into a U-shape, and having its ends secured to the shutter, as set forth.

No. 29,626. Car Coupling. (*Attelage de chars.*)

Catherino A. Bond, Seneca, N. Y., U. S., 1st August, 1888; 5 years.

Claim.—The improved car coupling, comprising the drawhead having the longitudinal slots C, *Ct* in its upper and lower sides, and the boss *ct* on its upper side at the rear end of the slot C, the said boss having its front side bevelled downwardly and outwardly, the lever arm having its rear end pivoted in said boss and similarly bevelled, and having its front end bifurcated and provided with the slots *ct* in the arms of the bifurcations, the coupling pin arranged in the slots C, *Ct*, and having its upper end projecting through the bifurcation of the lever arm, the pivot pin *ct* inserted through the slots *ct*, and the coupling pin, and the arm *ct* journaled in the boss *ct* and having the crank arm *g* secured to the lever arm in advance of its pivot, substantially as described.

No. 29,627. Vent Plug for Steam Radiators.

(*Bouchon conique pour distributeurs de vapeur.*)

Edward P. Waggoner, Syracuse, N. Y., U. S., 1st August, 1888; 5 years.

Claim.—1st. The herein described vent plug for steam radiators, consisting of the combination of an automatic and a positive vent, arranged and located on the same stem, substantially as and for the purpose set forth. 2nd. The combination of the automatic vent plug A, with the positive vent plug B, substantially as and for the purpose set forth.

No. 29,628. Dumping Car. (*Char à bascule.*)

Benjamin F. Bean, Pawling, Penn., U. S., 1st August, 1888; 5 years.

Claim.—1st. In a dumping car, having a falling door or doors at the bottom, a tube or passage, substantially as described, adapted to permit the application of a rod or weight to drive the doors downward. 2nd. In a dumping car, the combination of the body, a hinged falling door at its bottom, and a vertical tube or passage extending from the top of the car downward and terminating directly over the door. 3rd. In a dumping car, the body, the hinged falling door at its bottom, the vertical tube or passage terminating immediately above the door, and the cap or cover for closing said passage, all combined as described.

No. 29,629. Steam Road Vehicle.

(*Voiture à vapeur routière.*)

James H. Lullard, Springfield, Mass., U. S., 1st August, 1888; 5 years.

Claim.—1st. A steam-propelled road vehicle, consisting of a frame substantially as described, an axle having suitable bearings in said frame, and having thereon the main supporting and driving wheels, one or more steering and supporting wheels, substantially as described, attached to one end of said frame, a boiler-furnace and a boiler, substantially as described, attached to the latter, a steam engine connected with said boiler and with said axle, a steam-actuated air pump also connected with said boiler, one or more water tanks, a suitable feed-pump, substantially as described, connected with said tanks and with said boiler, a condenser, substantially as described, located in one or both of said tanks, connected with and receiving the exhaust steam from the engine and from said air pump, a liquid-fuel tank supported near said furnace and connected with said air pump by a suitable pipe, and a series of fuel-injectors and atomizers, substantially as described, attached to said fuel tank and injecting liquid fuel through the walls of said furnace. 2nd. A steam-propelled road vehicle, consisting of a frame, substantially as described, an axle having suitable bearings in said frame and having thereon the main supporting and driving wheels, one or more steering and supporting wheels, substantially as described, attached to one end of said frame, a boiler-furnace and a boiler, substantially as described, attached to the latter, a steam engine connected with said boiler and with said axle, a steam-actuated air pump also connected with said boiler, one or more water tanks, a suitable feed-pump, substantially as described, connected with said tanks and with said boiler, a liquid-fuel tank supported near said furnace and connected with said air pump by a suitable pipe, and a series of fuel

injectors and atomizers, substantially as described, attached to said fuel tank and injecting liquid fuel through the walls of said furnace. 3rd. In a steam-propelled road vehicle, a boiler and a furnace, substantially as described, a steam engine connected with said boiler and with the axle of the vehicle, a steam-actuated air pump connected by a suitable steam pipe with said boiler, a valve 73 connected in said air pump, steam pipe to automatically close the steam passage in the latter, one or more water tanks, a suitable feed-pump, substantially as described, connected with one or both of said tanks and with said boiler, a liquid-fuel tank supported near said furnace having therein one or more perforated diaphragms 42, and connected with said air pump by a suitable pipe, whereby air is forced into said fuel tank, and a series of fuel injectors and atomizers, substantially as described, attached to said fuel tank and injecting liquid fuel through the walls of said furnace. 5th. In a steam road vehicle, a boiler and a furnace, substantially as described, a steam engine connected with said boiler and with the axle of the vehicle, an air pump connected by a suitable steam pipe with said boiler, a valve 73 connected in said air pump, steam pipe to automatically close and open the steam passage in the latter, a liquid-fuel tank supported near said furnace and connected with said air pump by a suitable pipe, whereby air is forced into said fuel tank, a valve, substantially as described, connected in the pipe between the air pump and the fuel tank, and actuated by the air pressure in said tank, having its end entering transversely the passage in the steam pipe at the air pump to restrict said passage, and a series of fuel injectors and atomizers, substantially as described, attached to said fuel tank and injecting liquid fuel into said furnace. 6th. A steam-propelled road vehicle, consisting of a frame, substantially as described, an axle having suitable bearings in said frame, and having thereon the main supporting and driving wheels, one or more steering and supporting wheels, substantially as described, attached to one end of said frame, a boiler-furnace and a boiler, substantially as described, attached to the latter, a steam engine connected with said boiler and with said axle, a steam-actuated air pump also connected with said boiler, one or more water tanks, a suitable feed-pump, substantially as described, connected with said tanks and with said boiler, a liquid-fuel tank supported near said furnace and connected with said air pump by a suitable pipe, a fuel-lighting lamp, substantially as described, supplying a flame within said furnace, and a series of fuel injectors and atomizers, substantially as described, attached to said fuel tank and injecting liquid fuel through the walls of said furnace. 7th. In combination, the water tank 16, the boiler, the feed pump 49 connected with said tank and with the feed pipe leading to said boiler, the valve 55 connected in said feed pipe, the float 57 connected with said valve, the case 58 enclosing said float, a steam pipe connecting said case with the boiler, a pass-pipe 61 connected between the suction pipe of said pump and tank, and a spring-actuated valve 62 located in said pass-pipe, substantially as set forth. 8th. The steering bar 10 having pins 91 therein, the support 81, the spring-actuated eye-bolt 87 having a central pivotal connection with said bar, the plate 86 secured to said support under said bar and having the sockets *z, z* in its edge, the yoke 83 having curved slots therein in which said pins 91 engage, the steering post 82 having one end connected to said yoke, a tubular support 93 through which said post passes, a handle-bar connected by a universal joint to said post, the wheels 5 hung on the reciprocally rotating hollow posts 6, the latter having the arms 8 thereon, and the rods 9 connecting said arms with said steering bar, combined and operating substantially as set forth. 9th. In combination, a furnace, substantially as described, the boiler 26 consisting of the hollow head 27 and a series of tubes connected by one end to said head, the furnace 11 enclosing said boiler, the liquid-fuel tank 13 located under the latter having a series of injector and atomizing tubes connected therewith to inject the liquid fuel into said furnace, the bed 30 interposed between the boiler and the fuel tank, a road vehicle, substantially as described, a steam engine attached to said boiler and connected with the axle of the said vehicle, an air pump to force air into said fuel tank, suitable water tanks and a feed pump to force water from the latter into said boiler.

No. 29,630. Brake Shoe. (*Sabot de frein.*)

George Sanderson, (assignee of Samuel Hatt), Montreal, Que., 2nd August, 1888; 5 years.

Claim.—1st. As an improved article of manufacture, a brake-shoe having a marginal portion of chilled or hard metal, and a central portion of soft metal, substantially as described. 2nd. The combination in a brake-shoe of the hard marginal portion E, which does not extend quite to the face of the shoe, with a central soft portion F, the whole substantially as described for the purposes set forth.

No. 29,631. Brake-shoe. (*Sabot de frein.*)

George Sanderson, (assignee of Samuel Hatt), Montreal, Que., 2nd August, 1888; 5 years.

Claim.—1st. As an improved article of manufacture, a brake-shoe consisting of a body of ordinary or soft cast iron provided with a groove, and a separate core of chilled iron cast within said groove within said body, the whole substantially as described. 2nd. The combination of the body A, cast with a dovetailed groove E, with a core F cast within said groove F, the whole substantially as described.

No. 29,632. Self-heating Sad Iron.*(Fer à repasser à réchaud.)*

Gustavos Heidel and Thomas F. Kennedy, St. Louis, Mo., U.S., 2nd August, 1888 5 years.

Claim.—1st. The combination, in a self-heating sad-iron, of an elevated reservoir 11 for the combustible liquid, a burner in the base of the iron adapted to burn the liquid, and a duct leading from the reservoir in the burner. 2nd. The combination, in a self-heating sad-iron, of a hollow handle adapted to contain a combustible liquid, a burner for the liquid in the base of the iron, and a duct leading from the interior of the handle to the burner. 3rd. A self-heating sad iron having a chamber in its base, with side openings admitting a free passage of air into the upper part of the chamber, substantially as set forth. 4th. A self-heating sad-iron having a chamber 9 in the base, with a burner therein, openings 8 at the top allowing free ingress and egress of air, and a horizontal plate interposed between the burner and the top of the chamber with space between the edge of the plate and the sides of the chamber 9, substantially as set forth. 5th. The combination, in a self-heating sad-iron, of a base having a chamber therein, a burner in the chamber, and side openings 8 with flanges forming the top of said openings, curved as described, so as to deflect downward the air issuing from the chamber, substantially as set forth. 6th. The combination, in a self-heating sad-iron, of a chambered base containing a burner, a chambered handle forming a reservoir for the combustible liquid, a duct between the reservoir and the burner, and a valve 13, 15 inserted in the reservoir, for the purpose set forth.

No. 29,633. Iron Fence. (Clôture en fer.)

The Rogers Fence Co., (assignee of Timothy Rogers), Springfield, Ohio, U.S., 2nd August, 1888; 5 years.

Claim.—1st. In a fence, the combination, with a duplex rail composed of two double flanged bars, the upper flanges having their adjacent edges notched for the reception of two picket rods and its ornament, of said picket rods and their ornaments fitted into said notches, and ornaments provided with projections which engage one of the bars between said flanges and clamping bolts. 2nd. In a fence the combination, with two iron bars flanged at their upper edges and notched to receive picket rods and their ornaments, and bolts to draw the bars together, the said flanges meeting each other and preventing the lateral collapse of the bars. 3rd. In a fence, the combination, with a duplex rail composed of two bars, of a coupling consisting of two members having interior projections which enter openings in the bars, and a bolt to clamp the parts together, whereby the rails are held firmly but are allowed contraction and expansion. 4th. In a fence, the combination, with a rail composed of two bars, each having an opening of a coupling composed of two angular plates having lugs that enter said openings, and which meet each other and are of greater interior transverse dimensions than the transverse dimensions of the rail, whereby the rail is permitted to have free expansion and contraction. 5th. In a fence, the combination, with a fence rail and a gate-post coupling, composed of two plates having flanges at their upper and lower edges which form an interior pocket for the reception of the ends of the rails, notches in said flanges to form an opening for the gate post, and bolts to secure the plates together and to the rail. 6th. In a fence, the combination, with the rail having a transverse opening and a bolt fitted to said opening, of a gate post clamp consisting of two plates having a flange at their upper and lower edges having a pocket to receive the rail, and having openings to receive tail bolts, the flanges being also notched to form a gate post opening and one plate provided with an interlocking lug and slot. 7th. In a fence, the combination, with the rail, of a gate post clamp consisting of two plates flanged at their upper and lower edges, tapered near one end thereof, a bolt by which the end of the rail is secured within said pocket, whereby the parts are held together, and the coupling adapted to be adjusted up and down irrespective of the line of the fence.

No. 29,634. Bell Collar for Cattle.*(Collier de clochette pour les bestiaux.)*

John R. Hill and Elijah R. Hill, New Albany, Miss., U.S., 4th August, 1888; 5 years.

Claim.—1st. The combination, in a bell collar, of the yoke A provided with staples a, the clasp B having apertures c for receiving the staples a, and the leather tongues C provided with heads d and adapted to enter the staples a, substantially as described. 2nd. As an improved article of manufacture, a bell collar for cattle formed of a wooden yoke A provided with staples a, the clasp B furnished with apertures c for receiving the staples a and provided with curved ends c', the leather lining e secured to the clasp B, and the tongue C provided with T heads d, substantially as described.

No. 29,635. Car Axle Box. (Boîte à graisse.)

James M. Hallows, New York, N. Y., U. S., 4th August, 1888; 5 years.

Claim.—1st. The axle box A, having the perforated lug a, combined with the door a, having the lug a', provided with the tapered hole a', and the screw bolt B, substantially as set forth. 2nd. The axle and the packing ring C, having the slot c', combined with the circular plate C and screw c, substantially as set forth. 3rd. The axle and the packing ring C, having the slot c', combined with the plate C, screw c and spring D, substantially as specified. 4th. The axle box A, combined with the interior end stop E and bolts e, substantially as set forth.

No. 29,636. Semaphore Lever.*(Lever de sémaphore.)*

David Tapley, Woodstock, N. B., 4th August, 1888; 5 years

Claim.—The combination of the sheaves I, K, K, and the toothed

plate J, together with the suspended weight and wire, substantially as and for the purposes here' before set forth.

No. 29,637. Door Hanger. (Poutte de porte.)

George F. Grannis, Vernon Centro, Minn., U. S., 4th August, 1888; 5 years.

Claim.—1st. In a door hanger, the combination, with a track, of the carrier to operate on the track, the bracket secured to the door, and the crank rod mounted in bearings on the said carrier and bracket, substantially as specified. 2nd. In a door hanger, the combination of the carrier having the yoke at its upper end, and the bearings 6, 6' on its outer side, the sheave mounted in the said yoke and running on a suitable track, the bracket adapted to be secured to the door, and having bearings on its outer side, and the crank rod having an offset at its centre, the upper and lower arms thereof being mounted in the bearings on the carrier and the bracket, and provided at their ends with nuts, substantially as and for the purpose specified. 3rd. In a door hanger, the combination, with the track having an upper and lower edge, of the carrier having a sheave operating on the upper edge of the track, and the hook engaging the lower edge, the bracket secured to the door and the crank rod mounted in the bracket and carrier, substantially as and for the purpose hereinbefore specified.

No. 29,638. Interlocking Apparatus for Railway Point and Signal Levers. (Appareil de raccordement pour leviers d'aiguilles et de signaux de chemins de fer.)

Hugh Reid, Dorby, Eng., 4th August, 1888; 5 years.

Claim.—1st. In railway point and signal lever interlocking apparatus of the tappot and plunger kind, in combination with each lever and its spring catch, a notched plunger made in two relatively shifted thicknesses or layers, and sets of tappets fitting the notches of the two layers only when they are rendered coincident by the descent of the spring catch rod, substantially as and for the purposes herein set forth. 2nd. In railway point and signal lever interlocking apparatus of the tappot and plunger kind, in combination with three notched plungers having upper layers F, F, F, and lower layers G, G, G, respectively, the two side tappets K, K, each having its one end sloped, and the middle tappot K, having both its ends sloped, and fitted to slide horizontally in the vertically sliding block L, substantially as described. 3rd. In railway point and signal lever interlocking apparatus of the tappot and plunger kind, the combination of a line of separate abutting safety tappets K, K, K, with the set of plungers, each made with duplicate notches to receive the said tappets, the two notches in each plunger being at a distance apart equal to the stroke of the plunger, substantially as and for the purpose set forth.

No. 29,639. Hay Tedder. (Faneuse)

J. O. Wisner, Son & Co., Brantford, Ont. (assignees of Ralph G. U'ter, Friendship, N.Y., U.S.), 4th August, 1888; 5 years.

Claim.—In a hay tedder, the combination, with driving wheels, of axles upon which said wheels are mounted, the gear wheel C, shaft D, pinion D mounted on the shaft D, the sprocket wheel E, shaft D mounted on the shaft D, the shaft H to the rear of the shaft D, the sprocket wheel H mounted on the shaft H, the sprocket wheel H passing round the sprocket wheels E, H, the sprocket wheels H mounted on the shaft H, the bars J loosely hung upon the shaft H at their rear ends, the sprocket wheels I mounted on the bars J at the forward ends of the latter, the sprocket chains F extending about the sprocket wheels H and I, and mechanism, substantially such as described, for imparting vertical motion to the bars J, substantially as specified.

No. 29,640. Radiator. (Radiateur.)

Joseph Askins, Lima, Ohio, U.S., 4th August, 1888; 5 years.

Claim.—1st. In a radiator, the combination, with a hollow base steam pipes and air pipes set in the upper and lower walls respectively, of the base, the air pipes being inside of the steam pipes, of a return cap made to connect the two sets of pipes, said cap having a chamber in open relation with the steam pipes, and having tapering sockets for receiving the tapering ends of the steam pipes and holes through the top for the passage of the air pipes, the latter having nuts for engaging the cap to press the parts together, substantially as set forth. 2nd. In a radiator, the combination, with a base and steam pipes and air pipes set in the upper and lower walls respectively of the base, the steam pipes having their upper ends made tapering, of a cap connecting the pipes and provided with tapering sockets to receive the tapering ends of the steam pipes with openings for the passage of the air pipes, and with a steam chamber in open communication with the steam pipes, and nuts for securing the cap in position on the pipes, substantially as set forth.

No. 29,641. Steam Radiator.*(Radiateur de vapeur.)*

Joseph Askins, Lima, Ohio, U.S., 4th August, 1888; 5 years.

Claim.—1st. In a steam radiator, the combination, with the single piece casting A forming the steam chambers, of the wrought-iron open-ended tubes secured rigidly in the bottom of the casting, but passing through the casting at the top, and secured by the counter-sunk nut H at the top, as and for the purpose set forth. 2nd. The combination, with the casting A, having the inlet and outlet pipes L, and the wrought-iron pipes E secured rigidly in the bottom, but passing through the casting at the top of the nut H, and elastic asbestos washer I, that allows for the unequal expansion of the wrought and cast iron parts, as and for the purpose set forth.

No. 29,642. Incombustible Paint.*(Peinture incombustible.)*

Frank De Coninck, San Francisco, Cal., U. S., 7th August, 1888; 5 years.

Claim.—An incombustible paint, composed of pulverized asbestos, oxides of zinc, chloride of zinc, borate of ammonia and gelatine, in the proportions and for the purposes specified.**No. 29,643. Extraction of Metals from Refractory, Complex and other Ores.***(Extraction les metaux des mineraux refractaires, complexes et autres.)*

Henry L. Lewis, London, and Charles B. Phillips, Chester, Eng., 7th August, 1888; 5 years.

Claim.—1st. The extraction of the gold and silver, or other metal, from auriferous or argentiferous ores, with or without the simultaneous production of pig iron or alloys of iron, by reducing such ores in a blast furnace, together with manganese or manganoferous ores, and iron and lead or ores containing the same, or other of them, in the requisite proportions, with suitable fluxes, substantially as above described, having regard to the amount of manganese iron and lead already present in the ores to be treated. 2nd. In the above described process, the simultaneous production of pig-iron and auriferous or argentiferous lead by the employment of a blast furnace, constructed substantially as described. 3rd. The employment in the above described process of treating auriferous and auriferous ores, of a furnace constructed with a solid hearth crucible, and with several tap holes used at various levels, in the manner and for the purposes substantially as described.**No. 29,644. Washing, Bleaching and Dyeing Textile Materials and Machinery and Apparatus for use Therein.***(Lavage, blanchiment et teinture les matieres textiles et machinerie et appareil pour cet objet.)*

Ely Sutcliffe and George E. Sutcliffe, Halifax, Eng., 7th August, 1888; 5 years.

Claim.—1st. The general arrangement and combination of apparatus for washing, dyeing and drying textile materials, substantially as hereinbefore described and shown. 2nd. In preparing packages of sliver for dyeing or treating coloring, the sliver eccentrically and progressively around a central perforated tube *b*, as shown at Fig. 2 of the drawings. 3rd. Dyeing or washing a package *a* of sliver coiled in the indicated manner upon a perforated tube *b*, by mounting it upon a hollow perforated revolving shaft *h*, provided with collars *k*, spaced equally apart, the package *a* being surrounded by a porous envelope *l*, and the whole surrounded by an outer case *f*, within which the package of sliver and envelope are revolved in one direction, while dyeing or washing liquid is being forced through it, and in the other direction to partially remove moisture, all substantially as described and shown. 4th. Drying the dyed or washed package *a* of sliver, by mounting it on its hollow perforated core *b*, between hollow centres *m, n*, through which cold or heated air is forced, substantially as described and shown.**No. 29,645. Art or Process of Manufacturing Gas for Illuminating and Heating Purposes.***(Mode de production du gaz pour l'eclairage et le chauffage.)*

John B. Archer, Washington, D. C., U. S., 7th August, 1888; 5 years.

Claim.—1st. In a gas making apparatus, a heater consisting of two coils of pipe, the one within the other, and an annular jacket or body of iron or steel cast directly around the outer coil, as and for the purpose described. 2nd. The combination of the furnace, the two coils of pipe, the one within the other, the cylindrical casing of iron or steel surrounding the outer pipe, and an annular casing or furnace wall of refractory material, as and for the purpose described. 3rd. In a gas making apparatus, a vapor heater consisting of two coils of pipes, the one within the other, the open end of the inner pipe terminating at a short distance from the closed end of the outer pipe, as and for the purpose described. 4th. In a gas making apparatus, a vapor generating chamber and a heater consisting of two coils of pipe, the one within the other, the open end of the inner pipe terminating at a short distance from the closed end of the outer pipe, combined together as and for the purpose described. 5th. The combination of the casing *C*, having a dependant part *S*, the spherical shell *P*, provided with perforated shelves *h*, the oil induction and vapor eduction pipes, and the pipe *H* coiled within the dependant part, as and for the purpose described. 6th. The combination of the casing *C* having a dependant part *S*, the spherical shell *P* and the coil *H* coiled within the dependant part, as and for the purpose described. 7th. In a gas making apparatus, a vapor heater consisting of two coils of pipe the one within the other, in combination with a retort communicating with the outer pipe, as and for the purpose described. 8th. The combination of the furnace, the two coils of pipe, the one within the other, the cylindrical casing of iron or steel surrounding the outer pipe, and a furnace wall in which is placed an annular retort. 9th. In a gas making apparatus, the combination of the vaporizing retort, the oil induction pipe, the vapor eduction pipe, and branch pipe leading from the oil induction pipe to the vapor eduction pipe, as and for the purpose described. 10th. The combination of the furnace, the two coils of pipe, the one within the other, the cylindrical casing of iron or steel surrounding the outer pipe, and a furnace wall enclosing the steam superheating pipe, as and for the purpose described. 11th. In a gas making apparatus, a superheater consisting of a coil of pipes and annular jacket or body of iron or steel cast directly around said coils. 12th. The combination of the furnace, the steam superheating

coil of pipes enclosed in a cylindrical casing of iron or steel, the vapor coil of pipes enclosed in a cylindrical casing of iron or steel, inlet pipes for steam and oil, and outlet pipes. 13th. The combination of the superheating coil of pipe, the cylindrical casing of iron or steel surrounding such coil of pipe, and an annular casing or furnace wall of refractory material. 14th. The combination of a spherical chamber provided with steam and oil induction pipes and deflecting plates, a vapor eduction pipe projecting downward from the spherical chamber, and casing surrounding the spherical chamber and vapor eduction pipe. 15th. The process of manufacturing gas which consists in, first, superheating the steam, second, intermixing with the superheated steam about one half of the oil to be vaporized, third, intermixing the vaporized oil and steam in a mixing chamber, fourth, adding the remaining portion of the oil required to the mixture, and, fifth, heating the mixture to form a fixed gas by surfaces which are not in direct contact with the flame, as and for the purpose described.

No. 29,646. Nail Finishing Machine.*(Machine à finir les clous.)*

Erastus E. Pierce, New Brighton, Penn., U. S., 7th August, 1888; 5 years.

Claim.—1st. The combination, with finishing dies, of a transferring device provided with grasping jaws, and indenting dies adapted to indent the nail blank presented by the transferring device, substantially as described. 2nd. The combination, with finishing and indenting dies adapted to finish and indent the nail blank, and a shearing device, of a transferring device provided with grasping jaws for taking the nail after it has passed between the roller dies, and presenting it to the indenting dies, and from thence taking and presenting it to the shearing device, substantially as described. 3rd. The combination, with a nail indenting device, and a transferring device to feed successive nail blanks to said indenting device, of a second transfer device, jaws adapted to seize and remove the blank after it has been indented, substantially as described. 4th. The combination, with a nail indenting device, and a transferring device provided with jaws adapted to feed successive nail blanks to said indenting device, of a second set of jaws adapted to seize and remove the blank after it has been indented, substantially as described. 5th. The combination, with finishing dies and a shearing device, of intermediate indenting dies, and a transfer device arranged and operating to carry the blank from the finishing to the indenting dies, and then to the shearing device in a reversed position, substantially as described. 6th. The combination in a device for feeding successive blanks, of a rotating notched disk *q*, detent and two sets of jaws mounted adjacent to said disk, and means for rocking said jaws, one of said sets of jaws adapted to feed the blank part of the distance, and the other set adapted to take said blank and feed it the remainder of the distance, substantially as described. 7th. The combination, with finishing dies and a shearing device, of a nail blank feeding device, and an indenting device consisting of a pair of dies between which the blank is presented by the feeding device, substantially as described. 8th. The combination, with a nail blank feeding device, of an indenting device consisting of a stationary die, and a movable die or anvil, and means, substantially as described, for moving the latter against the stationary die. 9th. The combination, with a blank feeding device, of an arm carrying indenting dies and adjustably supported to bring said dies to operate on the end of the blank, after the latter is presented in position by the feeding device, substantially as described. 10th. The combination, with a nail blank feeding device, for feeding and holding the blanks to be indented, of a carrier movable to and from the end of the blank, and an indenting device carried by said carrier, substantially as described. 11th. The combination, with a nail blank feeding device for feeding blanks to be indented, of an indenting device carried by a vibrating carrier, whereby to first embrace the blank held by the feeding device, and then to indent it, substantially as described. 12th. The combination, with a movable carrier for a nail blank, of indenting dies and die operating mechanism, and a carrier for said dies reciprocating to and from the blank carrier to carry the dies into position to operate on the blank, and then out of the path of the blank prior to its further movement by the blank carrier, substantially as described. 13th. The combination of a carrier, a supporting shaft, indenting dies supported by said carrier, a toggle arm for operating one of the dies, and a rocking sleeve on said shaft having a socket for said toggle arm, substantially as described. 14th. The combination of a rock shaft, a carrier hung thereon and carrying a stationary and a movable indenting die, a support for the movable die, and a toggle arm connected therewith and seated in a socket in the shaft, and a connection having a limited play between the shaft and the carrier, substantially as described. 15th. The combination, with an arm provided with an indenting die, of a pivoted tongue carried by said arm, and having an anvil co-operating with said die, and a device bringing the said anvil and the indenting die together, substantially as described. 16th. The combination, with a rocking arm carrying an indenting die, as 9, of a tongue carried by said arm, and having an anvil co-operating with said die, and a device for rocking said arm, substantially as described. 17th. The combination, with an oscillating shaft and an arm mounted thereon, of a tongue carried by said arm and anvil, and die carried by the tongue and arm, and a toggle whereby to press the die and anvil towards each other, substantially as described. 18th. The combination, with an arm carrying an indenting die as 9, of a tongue carried by said arm, and having an anvil for co-operation with said die, and provided with a tapering mouth for centering the blank between the die and anvil, substantially as described. 19th. The combination, with a disk rotating in one direction of two pairs of jaws, the jaws of each pair mounted upon opposite sides of said disk, adapted to rotate both with and in an opposite direction to the disk, substantially as described. 20th. The combination, with an anvil of a revolving head carrying a guiding device, and cutters for centering and shearing the blank upon the anvil, of adjustable arms, as 7, for operating the guiding device, substantially as described. 21st. The combination, with a shearing device, of an anvil, a revolving head carrying cutter arranged to shear against the edges of the anvil, a guiding device for centering the blanks upon the anvil, and adjustable arms, as 7, for operating the guiding device, substantially as described. 22nd. The combina-

tion of the arms and anvil, of adjusting screws 2, substantially as described.

No. 29,647. Upright Piano. (*Piano droit*)

William H. Dutton, Philadelphia, Penn., U. S., 7th August, 1888; 5 years.

Claim—1st. An upright piano, the upper portion or head of the frame work of which is of skeleton or box-like structure, in order to render said upper portion of said frame-work a musically vibratory framing, substantially as set forth. 2nd. An upright piano, the upper portion or head of the frame work of which is a skeleton or box-like structure, the component members of which are so joined or framed together as to embody between them openings or tone conductors, which both render said head a musically vibratory framing, and afford top channels of egress for the tone which exists to the rear of the sounding board within the casing of the instrument, substantially as set forth. 3rd. An upright piano, the upper portion or head of the frame work of which is channeled or provided with openings or tone conductors, which render said head a musically vibratory framing, and afford top channels of egress for the tone which exists to the rear of the sounding board within the casing of the instrument, and which is as to its said head provided with a reverberator or other suitable tone-deflecting device, which serves to deflect the tone escaping from the openings or tone conductors forward or to the front of the instrument, substantially as and for the purposes set forth. 4th. An improved frame-work for an upright piano, consisting of a pin block, if desired, a back board and a series of vertically framing studs disposed between said pin block and back board at given intervals and without intermediate filling blocks, in such manner as to constitute the head of the frame-work a skeleton or vibratory framing, and to form in it a series of vertical passages or tone conductors, substantially as set forth. 5th. An upright piano having a sounding dome or sounding board in front of the action, substantially as and for the purposes set forth. 6th. In an upright piano, a sounding board in front of the action formed as a dome, and secured to the pin block at its upper portion and to the sides of the casing at its sides, substantially as set forth. 7th. An upright piano, the front of the casing of which contains or embodies a sounding board surface composed of slats for the purposes set forth. 8th. An upright piano, the front face of the casing of which contains a sounding board surface, consisting essentially of two series of alternating slats respectively disposed in parallel planes, substantially as set forth. 9th. An upright piano, the front face of the casing of which contains a sounding-board surface consisting essentially of two series of alternating slats respectively disposed in parallel planes, and which is provided with suitable means for occasioning the approach or recession of the respective series of slats, substantially as set forth. 10th. An upright piano, the front face of the casing of which contains a panel of slats, the said panel consisting of two series of semi-cylindric reverberating alternating slats lying in parallel planes, and, by series, reversely disposed in order that when the slats of one series are brought into contact with the slats of the other series, the said slats may register edge to edge and constitute a corrugated panel surface, substantially as set forth. 11th. The combination to form the front face of the casing of an upright piano, of a panel frame, a slat frame contained within said panel frame and having a series of separated slats, and a second slat frame containing a corresponding series of separated slats alternately disposed with respect to the slats of the first series, and which is movable with respect to the slat frame first referred to in order to occasion the meeting or lapping of the edges of the slats, and thereby to provide or to close openings between the slats of the respective series, substantially as set forth. 12th. The combination in an upright piano, of a panel frame for its front face, a slat frame contained within said panel frame and having a series of separated slats, a second slat frame containing a corresponding series of separated slats alternately disposed with respect to the slats of the first series, and which is movable with respect to the slat frame first referred to in order to occasion the meeting or lapping of the edges of the slats, and thereby to provide or to close openings between the slats of the respective series, and suitable means under the control of the player for occasioning the relative approach or separation of the slats of the aforesaid respective series, substantially as set forth.

No. 29,648. Machine for Making Casks and Barrels. (*Machine à faire les tonneaux et les barils.*)

Alexander Dunbar, Liverpool, Eng., 7th August, 1888; 5 years.

Claim—1st. In a machine for use in making casks and barrels, a central ring 2 attached to standards 5 by means of flanges 3 and steady pins 4, substantially as and for the purposes described. 2nd. In a machine for use in making casks and barrels, a centre ring 2 provided with a hinge door piece 6 and catches 7 and 8. 3rd. In a machine for use in making casks and barrels, a collapsible core consisting of a shaft 10, and discs 25 and 26, arms 27 passing through diagonal holes in the discs 25, 26, abutment discs 13, 15, hollow shaft 9 and stay and guide bolts, 14. 4th. In a machine for use in making casks and barrels, the combination, with a collapsible core, of spring bearers 29 and an outer retaining ring, for the purpose described. 5th. In a machine for use in making casks and barrels, a trussing head hinged to a standard, in combination with a trussing head rigidly secured to a standard, both standards being free to slide in guides. 6th. In a machine for use in making casks and barrels, the combination, with trussing heads, of rotating cutters and levers serving to adjust and lock such cutters in their operating position. 7th. In a machine for use in making casks and barrels, the combination, with a central screwed shaft, of a collapsible core and a central surrounding ring adapted to receive the loose staves between them, and sliding heads for embracing and trussing the ends, substantially in the manner specified. 8th. In a machine for use in making casks and barrels, the combination, with suitable framework, of a central screwed shaft, a collapsible core carried thereby, and a central surrounding ring (making up the forming appliance) trussing heads moved by screwed shafts geared to said central shaft and cutters for crozing and chuming, moved and held in position by suitable levers, all combined and arranged substantially in the manner described.

No. 29,649. Expansion Plug.

(*Tampon elastique.*)

William J. Mettaire and James Morrison, Toronto, Ont., 7th August, 1888; 5 years.

Claim—1st. A rubber plug, held between two metal faces, connected together by a bolt having a nut screwed on it, for the purpose of drawing the two faces together to compress the rubber plug, and cause it to expand and fit tightly the pipe or passage way in which it is inserted, substantially as and for the purpose specified. 2nd. A rubber plug, held between two metal faces, connected together by a bolt having a nut screwed on it, for the purpose of drawing the two faces together to compress the rubber plug, and cause it to expand and fit tightly the pipe or passage-way in which it is inserted, in combination with the said bolt having a passage way made through it, and a coupling arranged to connect the bolt to a water pipe, substantially as and for the purpose specified. 3rd. A rubber plug, fitted into one end of a pipe, and having its faces squeezed together to cause its circumference to expand and form a water-tight plug for the said end of the pipe, in combination with a rubber plug inserted in the opposite end of the said pipe, with means to squeeze or compress the sides of the said plug to cause its circumference to fit the pipe tightly, and means for connecting a water pipe with the said plug, which has a passage way made through it, substantially as and for the purpose specified.

No. 29,650. Hay Tedder. (*Faneuse.*)

J. O. Wisner, Son & Co., Brantford, Ont. (assignee of Ralph G. Utter, Friendship, N.Y., U.S.), 7th August, 1888; 5 years.

Claim—1st. The combination, with driving wheels, of an axle upon which said driving wheels are mounted, an endless carrier, sprocket-wheels for transmitting motion to said endless carrier, gearing for transmitting motion from said axle to the sprocket-wheels, sprocket-chains, comprised in said carrier, sprocket-wheels mounted upon stud axles at the rear of the driving sprocket-wheels, over which said chains pass, independently swinging bars, sprocket-wheels mounted in said swinging bars at or near the forward ends thereof, over which said chains also pass, and mechanism, substantially as described, for imparting vertical movement to the said swinging bars, substantially as specified. 2nd. The combination, with an endless carrier comprising chains, of wheels over which said chains pass, certain of said wheels being mounted in swinging bars which are independent of each other, and levers whereby either of said bars may be swung up or down independently of the other, substantially as specified.

No. 29,651. Lawn Mower.

(*Faucheuse de jardin.*)

The Rogers Fence Company (assignee of Timothy Rogers and Aaron J. Moyer), Springfield, Ohio, U.S., 7th August, 1888; 5 years.

Claim—1st. In a lawn mower, the combination, with the side plates provided with slots and journal boxes, one member of each of which is removable, and is provided with a plate adapted to fill said slots respectively, of a reel shaft arranged to fit said box, and be removable therefrom up through said slots. 2nd. In a lawn mower, the combination, with the side plates provided with slots and flanges, of the stationary cutter bar projected through said slots, and provided with securing and adjusting devices, which connect it with said flanges. 3rd. In a lawn mower, the combination with side plates provided with slots and flanges on the outer side thereof, of the stationary cutter bar projected through said slots, and provided with a rib near one edge, which engages with the recess in said flanges, and also with a bolt and nut and a set screw, whereby the bar is held and adjusted. 4th. In a lawn mower, the combination, with the side plates having arms which project forward and above the reel shaft, and a guard rod connected to said arms. 5th. In a lawn mower, the combination, with the reel shaft having a slot therein, of a pawl movably fitted in the slot and provided with projections arranged to engage the shaft, and prevent the accidental descent of the engaged end of the pawl into the slot, and a pinion mounted on the shaft and having shoulders or teeth, which engage with the ends of the pawl. 6th. In a lawn mower, the combination, with the ground wheels having gear teeth and pinions, which mesh with said teeth, and are constructed with two alternating series of shoulders or teeth, arranged in recesses in the ends of the pinions, of the reel shaft having a curved seat therein and carrying said pinions, and a curved double ended pawl loosely fitted in said seat, and adapted to move therein so as to have one of its ends and then the other projected radially beyond the shaft, and provided with studs or projections on the same side, and at or near each end, which are adapted to engage the periphery of the shaft.

No. 29,652. Clod Crusher and Harrow.

(*Brise-motte et herse.*)

John H. Wyatt and Charles W. Norwood, Viney Grove, Ark., U.S., 7th August, 1888; 5 years.

Claim—In a combined clod crusher and harrow, a frame provided with a central axle, with supporting wheels, as shown, in combination with a rotary harrow and a clod-crusher, which are geared to said axle, the clod-crusher and supporting wheels being geared to each other, so as to rotate in unison, and to rotate the harrow faster than the supporting wheels and clod-crusher, substantially as shown and for the purpose set forth.

No. 29,653. Placing Fishways at the Beds of Streams. (*Etablissement des passes migratoires dans les lits des rivières.*)

William H. Rogers, Amherst, N.S., 7th August, 1888; 5 years.

Claim—An auxiliary dam placed in the stream at a suitable interval below the main dam or chff, and having placed therein a fish

ladder or way, with its foot flush with the face of said auxiliary dam, and thence extending into the canal above or around the head of the main dam or cliff and into the upper stream, substantially as described.

No. 29,654. Jute and Hemp Softening Machine. (*Machine à adoucir le chanvre.*)

John Choyné, Paterson, N.J., U.S., 7th August, 1888; 5 years.

Claim.—The combination, with the oil receptacle *a*, rollers *c*, shaft *f* and apron *g*, of the box *B*, the pipe *C* provided with valve *D* and float *D*, the pipe *E*, the pipe *E*, having perforations *E*, the pipe *F*, enlargement *F*, valve *g* and wheel *g* thereon, pipe *H*, pipes *H*, having perforations *h*, exhaust *L* and valve *E*, all arranged to operate substantially as described and shown.

No. 29,655. Carding Machine.

(*Machine à carder.*)

John Choyné, Paterson, N.J., U.S., 7th August, 1888; 5 years.

Claim.—The combination, with rollers *c*, *e* and gears thereon, of the roller *B* and gears thereon, gear *d*, the roller *C* and gear on said roller, the roller *D*, roller *E*, the rolls *D*, spring *D*, the screw *D*, gear *C*, the bar *C*, having slots *C*, bolt *C*, the gears *g*, *e*, gears *g*, *p* and pinion *g*, all arranged and operating substantially as described.

No. 29,656. Joint for Extension Handles.

(*Joint pour manches à rallonge.*)

Charles A. Bartliff, Memphis, Tenn., U.S., 7th August, 1888; 5 years.

Claim.—1st. A joint or coupling for handles, comprising a socket provided with a longitudinal extension, and transverse adjustable bands or wires connected at their ends to the opposite side edges of the said extension, substantially as set forth. 2nd. The combination, with a socket formed or provided with a semi-circular extension having oppositely arranged lugs on its side edges, of the cable bands, each connected at one end to one lug on one side of the extension, and adjustably connected at its other end to the opposite lug, substantially as set forth. 3rd. The combination, with the tubular socket, having a longitudinal extension curved in cross section and provided on its opposite side edges with lugs of spring bands or wires, each secured at one end to one of said lugs, the opposite ends being screw-threaded and passed down through the opposite lugs, and adjusting nuts on the said threaded ends, substantially as set forth.

No. 29,657. Composition of Matter to be used in Vaporized Form for the Preservation and Restoratio. of anything in the Animal and Vegetable Kingdom. (*Composition de matières pour être employée à l'état de vapeur pour la conservation et la restauration d'une chose quelconque dans le règne animal et végétal.*)

Samuel H. Daniels, Pontiac, Mich., U.S., 8th August, 1888; 5 years.

Claim.—The composition, made up of the materials or ingredients named, and in the proportions named, or in relatively like proportions, as named, and mixed together, as described.

No. 29,658. Electrical Connector.

(*Connecteur électrique.*)

Frederick Stitzel, Charles Weinedel, Adolph Routlinger, Henry J. Engelhoff, Moses Schwartz and Otto E. Mueller, Louisville, Ky., U.S., 8th August, 1888; 5 years.

Claim.—1st. In an electrical connection, the combination, with two sections of railroad rail, each of which is provided with a perforation, of collars, each having a central opening for the reception of one end of a wire, and adapted to closely fit within the perforation in the track section, and a wire passing through both collars and secured thereto substantially as set forth. 2nd. In an electrical connector, the combination, with two sections of a railroad rail, each of which is provided with a tapering opening, of the collar-shaped externally to closely fit within said openings, and a wire, the ends of which are secured within openings formed in said collars, substantially as set forth.

No. 29,659. Telegraphic Relay.

(*Relai télégraphique.*)

Frederic Stitzel, Charles Weinedel, Adolph Routlinger, Henry J. Engelhoff, Moses Schwartz and Otto E. Mueller, Louisville, Ky., U.S., 8th August, 1888; 5 years.

Claim.—1st. In a relay, the combination, with an electro-magnet and a pivoted lever, of a series of yielding abutments arranged in the path of said lever, and adapted to be engaged in regular order, substantially as set forth. 2nd. In a relay, the combination, with an electro-magnet and a pivoted lever, of a series of yielding abutments in the path of said lever, and a spring contact with which said lever makes contact, substantially as set forth. 3rd. In a relay, the combination, with an electro-magnet, and a pivoted lever carrying an armature at one end, and a contact point near the other end, of a series of yielding abutments mounted therein, a curved spring secured to a suitable post and adapted to engage said lever, and an arm with which the lever makes contact, substantially as set forth.

No. 29,660. Improvements by means of which an Ordinary Wooden Pump may be Converted into a Force Pump, or used as an Ordinary Pump, and for Attaching Hose to Pump or other Spouts, and for Attaching other Tubes where a Water-Tight Attachment is Required. (*Perfectionnements au moyen desquels une pompe ordinaire de bois peut être convertie en pompe foulante ou utilisée comme pompe ordinaire, et par lesquels un boyau peut être assujéti aux datots de pompes ou autres et d'autres tuyaux exigeant un raccordement étanche peuvent être assujétis.*)

Henry Dennis, John Maunder and R. A. Brashaw, Lindsay, Ont., 8th August, 1888; 5 years.

Claim.—1st. The combination of the attachment 1, the body 2 and the arm 3, substantially as and for the purposes hereinbefore set forth. 2nd. The combination of the caps 4 and 5, with the body 2, substantially as and for the purposes hereinbefore set forth. 3rd. The combination of the attaching cap A, the lever C, the excentric D, the dog E and the coupling strap F, substantially as and for the purposes hereinbefore set forth.

No. 29,661. Pattern for Pickets and Balusters. (*Patron pour piquets et balustrés.*)

William Miller, (assignee of Samuel D. Reigel), Thomasville, Ga., U.S., 3th August, 1888; 5 years.

Claim.—1st. The pattern comprising the forms A, B arranged side by side, secured together, and having their edges formed by sinuous lines, the opposing curved edges of the forms being concentric and at a slight distance apart, and thereby forming sinuous kerfs or channels. 2nd. The pattern comprising the forms A, B arranged side by side, and having their edges formed by sinuous lines, the opposing edges of the forms being concentric and at a slight distance apart, and thereby forming kerfs or channels F between the said forms, and the cross bars connecting said forms together and bridging the kerfs or channels, substantially as described. 3rd. The method of sawing balusters or pickets consisting in marking on a board the curved outlines of pickets, which are adapted to the contour of each other, so that their curved edges will snugly fit together without intervening spaces when the pickets are arranged side by side, and sawing the said board on the said curved lines to separate the pickets from the board, substantially as described.

No. 29,662. Ventilating Apparatus.

(*Appareil de ventilation.*)

Mann's Bondoir Car Co., (assignee of Willom D. Mann), New York, N. Y., U.S., 8th August, 1888; 5 years.

Claim.—1st. In a device for purifying air, the combination of the air-tank, a mass of fibrous material placed therein for intercepting the current of air as it passes therethrough, means for keeping said material saturated, and a removable reticulated receptacle in which said material is contained, substantially as set forth. 2nd. In a device for purifying air, the combination of the air-trunk, the grating G placed across said trunk for the support of ice, rebulbering medium consisting of a mass of fibrous material placed across said air-trunk beneath the grating G, and a removable reticulated receptacle containing said fibrous material, substantially as and for the purposes set forth. 3rd. In an air-purifying device, the combination, with a mass of fibrous material and reticulated receptacle within which it is contained, an air-trunk within which said receptacle fits having an opening for the insertion and removal of said receptacle, a door closing said opening, and means for keeping the fibre saturated, substantially as set forth.

No. 29,663. Improvements for Attaching Ventilator Break-Syphon and Water Supplies to Earthenware Closets. (*Perfectionnements dans le mode d'ajustage des tuyaux de ventilation et d'eau aux cuvettes des latrines.*)

Booth and Son (assignees of John O. Parker), 3th August, 1888; 5 years.

Claim.—The metal clamp figure 4, and letter M in figure I, having the four lugs A, B, B, the taper rubber packing E and the metal follower F, and loose tail-piece G enlarged at one end, all in combination with the horn of earthen closet C, said horn having a projection O at its mouth, all as and for the purpose specified.

No. 29,664. Bolting Reel. (*Blutoir.*)

H Ezekiah Bridenthai, Vincennes, Ind., 13th August, 1888; 5 years.

Claim.—1st. The combination of the shaft D, the arms B, the collars C on said arms, some distance from their extremities, the longitudinal ribs A, perforated for the passage of said arms and bearing against the collars C, the impervious material G, supported by said ribs, the circular hoops K, supported at the extremities of said arms, and the bolting material L, stretched over said hoops, substantially as set forth. 2nd. The combination of the shaft D, the arms B, the collars or shoulders C on said arms, some distance from their extremities, the longitudinal ribs A, perforated for the passage of said arms and bearing against the collars C, the impervious material G

supported by said ribs, the longitudinal strips J secured to the arms B and bearing upon the ribs A, means for supporting the bolting material secured to the extremities of said arms, and said bolting material stretched over and secured to its means of support, substantially as set forth. 3rd. The combination of the shaft D, the arms B projecting therefrom, the impervious drum, supported by said arms some distance from their extremities, the longitudinal strips J secured to the arms B, outside of the drum, the brackets B₁ secured to the strips J between the arms B, the hoops secured to the extremities of the arms B and brackets B₁, and the bolting material stretched over said hoops, substantially in the manner and for the purpose set forth.

No. 29,665. Die for Swaging Sheet Metal Articles. (*Etampe pour les objets de métal en feuille*)

Frederick C. Cameron, New Haven, Conn., U.S., 13th August, 1888; 5 years.

Claim.—In dies for swaging sheet metal, the combination of the die or follower A, having its face of a shape corresponding to the reverse side of the article to be swaged, the other die B having a cavity corresponding to said follower, but a greater depth than the required entrance of the said follower into the said die, with an india-rubber cushion C in said cavity to yieldingly resist the entrance of the follower into the die, substantially as and for the purpose described.

No. 29,666. Anti-Friction Journal Bearing.

(*Coussinet de tourillon sans friction*)

John W. Hyatt, Newark, N.J., U.S., 13th August, 1888; 5 years.

Claim.—1st. The combination, in a roller bearing, of separate independently rotating series of disconnected rolls, held in lateral contact in a casing with closed ends, and guided in annular paths by the plane annular surfaces of the adjacent series of rolls, substantially as set forth. 2nd. The combination, in a roller bearing, of a casing containing separate independently rotating series of disconnected rolls, flanges to hold such rolls in the casing, and means for adjusting one of the flanges toward the other, substantially as set forth. 3rd. The combination, in a roller bearing, of a casing containing separate independently rotating series of disconnected rolls, flanges to hold such rolls in the casing, an annular recess in one or both of such flanges, and small granules of metal or other substance inserted in such recess to exclude the dust, substantially as set forth. 4th. The combination, with a dust guard, formed of an annular recess, containing small granules in or adjacent to a casing containing anti-friction rolls, of oil holes or passages extended from the interior of the recess, within the casing, to return the oil thereto, substantially as set forth. 5th. The combination, in a roller bearing, of a casing containing separate independently rotating series of disconnected rolls, flanges to hold such rolls in the casing, and loose washers, surrounding the bearing or journal and inserted at intervals between the separate series of rolls, as and for the purpose set forth.

No. 29,667. Pillow Sham Holder.

(*Porte-tête d'oreiller*)

Franklin E. Clark, Detroit, Mich., U.S., 13th August, 1888; 5 years.

Claim.—1st. In a pillow-sham holder, the bracket E, provided with jaw a and adjustable jaw a₁ and socket e, clamp-screw b and spring F, substantially as and for the purpose specified. 2nd. In a pillow-sham holder, the bracket E, provided with jaw a and adjustable jaw a₁ and socket e, clamp-screw b, provided with pad d and spring F, all substantially as and for the purposes specified. 3rd. In a pillow-sham holder, the combination of the bar A, provided with flat bearing faces, the bracket E having jaws a, a₁ and clamping screw b, the eye e, of the bracket having flat bearing faces for the head bar and the spring F secured at one end to said bracket and provided with a loop f, embracing the eye of the bracket, all arranged to operate substantially as described.

No. 29,668. Refrigerator Car.

(*Char frigorifique*)

Dennis W. Riordan, Chicago, Ill., U.S., 13th August, 1888; 5 years.

Claim.—1st. The combination, with the ice-tanks E, composed of the upper portion E₁ and pockets E₂, of the grating H, arranged within the tank at the bottom of the upper portion, and supported by means of rods h, attached to the car body, substantially as and for the purposes set forth. 2nd. In a refrigerator car, the combination, with the car body, of the shields K, extending across the same and having air passages above and below, and the tanks E arranged between the said shields and the ends of the car, and provided with pockets E₂, between which the air may circulate, substantially as and for the purposes specified. 3rd. In a refrigerator car, the combination, with the ice tanks E and the central filling openings I, of the partitions F₁ extending across the centre of the car and forming the side air passages F₂, substantially as and for the purposes set forth. 4th. The combination, with the car body A and partitions F, of the ice tanks E, mounted on bench supports G, and the additional supports G₁ secured to the shields and car body and passing between the pockets, which form the lower parts of the tanks, substantially as and for the purposes set forth. 5th. In a refrigerator car, the combination, with the doors K and L, provided with rabbetted frames, of the correspondingly rabbetted doorway-frame grooves, in the rabbets, and rubber tubing arranged within the said grooves, to form a packing, substantially as and for the purposes set forth. 6th. The combination with the hinge-stiles R, of the doors, provided with longitudinal ribs r, of the jambes G, having grooves g, provided with packings g₁ and rubber faces g₂, substantially as and for the purposes set forth. 7th. The combination, with the car-roof B and the top sills b, to which it is secured, of the V-shaped truss-rods C, having their ends secured to the top sills, and the central support resting upon the truss rods to support the roof, substantially as and for the purposes set forth. 8th. The combination, with the roof B

and top sills b, of the V-shaped truss-rods C, having their ends secured to the top sills and the central support, consisting of the longitudinal beams D and D₁, and blocks d, and the saddle blocks d, constructed to conform to the bend of the truss rods, substantially as and for the purposes set forth.

No. 29,669. Combined Sheathing Lath.

(*Latte de doublage combinée*)

Theodore H. Brown, Viroqua, Wis., U.S., 13th August, 1888; 5 years.

Claim.—1st. As an improved article of manufacture, a board, provided with a series of channels, each side cut to an equal depth, parallel with the grain and to each other, at various distances apart, substantially as set forth. 2nd. As an improved article of manufacture, a board, provided with a series of several channels, inclined to an angle of generally forty-five degrees, substantially as set forth.

No. 29,670. Electrical Appliance for a Mariner's Compass to give Alarm upon Deviation from the Ship's Course. (*Appareil électrique pour compas de marine afin d'avertir en cas de déviation de course*)

Augustus Gross, Newmarket, N.S.W., 13th August, 1888; 5 years.

Claim.—1st. The apparatus hereinbefore described, consisting of the mechanism, formed by the axle D passing through the compass glass, having fitted thereon the outer transmission fork or course setter C, the lower transmission fork G, regulated by the slide H, worked by the pinion gear I and rack J, with the adjustment to the compass card, of the platinum wire L, with the insulation of the compass point or pivot, with the insulation of the compass bowl, from the binacle, with the addition to the bezel or rim, of the platinum wire l and the connection of such appliances with a battery and alarm bell, substantially as shown and described, and for the purposes set forth. 2nd. The mechanism, formed by the axle D, passing through the compass glass, having fitted thereon the outer transmission fork or course setter C, the lower transmission fork G, regulated by the slide H, worked by the pinion gear I and rack J, substantially as shown and described, and for the purposes set forth. 3rd. The lower transmission fork G, substantially as shown and described and for the purposes set forth. 4th. The platinum wire l, adjusted to a compass card, substantially as shown and described and for the purposes set forth. 5th. The insulation of the point or pivot of a mariner's compass, substantially as shown and described and for the purposes set forth. 6th. The substitution for the ordinary agate cap of a compass card, of a cap, constructed of diamond tempered silver steel, substantially as hereinbefore described and for the purposes set forth.

No. 29,671. Chopping Knife and Slicer.

(*Hachoir-tranchelard*)

Harvey W. Bridgman, Lyons, Ks., U.S., 14th August, 1888; 5 years.

Claim.—1st. A chopping knife, consisting of a handle having a transverse opening and a shearing blade or blades, extending across one end of the opening, and a shank, with arms on which are mounted chopping blades, substantially as shown and described. 2nd. A chopping knife, consisting of a handle having a shank, with arms and chopping blades mounted thereon, the adjacent blades being nearer together at their central portion than at their outer ends, substantially as shown and described. 3rd. A chopping knife, consisting of a handle, having a shank with arms and chopping blades mounted thereon, the ends of the blades being formed with converging edges, substantially as shown and described. 4th. A chopping knife, consisting of a handle b, having secured thereto shank 3, with arms 2 and curved blades 1, secured to arms 2, with converging taper ends 7, the outer ends of the adjacent blades being farther apart than the central portions, substantially as shown and described.

No. 29,672. Hulling and Grinding Grain.

(*Vannage et broyage les grains*)

Frederick Wegmann, Zurich, Switzerland, 14th August, 1888; 5 years.

Claim.—1st. The method of cleaning, grinding, securing or decanting grain, or other materials, which consists in subjecting said material to pressure against a frictional surface by centrifugal force, and simultaneously discharging the particles relatively to said surface and to each other, by subjecting them to rotary motion in a direction opposite to the revolving motion imparted to them, while subjected to the action of centrifugal forces, substantially as set forth. 2nd. The combination, with a rotary main shaft, a drum or drums, mounted eccentrically to said shaft, so as to revolve around the same, and transmitting mechanism between the main shaft and the drum or drums, whereby the drum or drums are rotated on their own axes, in a direction opposite to their revolving motion around the main shaft, substantially as set forth. 3rd. The combination, with a rotary main shaft, a drum or drums, mounted eccentrically to said shaft so as to revolve around the same, and planetary gearing for rotating the drum or drums axially in opposite direction to their revolving motion around the main shaft, substantially as herein shown and described. 4th. The combination of a supporting frame, a rotary main shaft journaled in the same, a drum or drums mounted eccentrically to said shaft, so as to revolve around the same, a stationary gear wheel mounted on the frame, and planetary gear-wheels, meshing with said stationary gear wheel, for imparting rotary motion to the drum or drums axially in a direction opposite to their revolving motion around the main shaft, substantially as herein shown and described. 5th. The combination, with a supporting frame, of a rotary main shaft, journaled in the same, arms fixed on said shaft, drums journaled on the arms, a stationary gear wheel, mounted on the frame, a cog wheel on each drum shaft, and intermediate cog wheels, journaled in the arms and meshing with the

stationary gear wheel and the cog wheels on the drum shafts, substantially as herein shown and described.

No. 29,673. Car-Coupling. (*Attelage de chars.*)

William O. Rutledge, Galveston, Texas, U.S., 14th August, 1888; 5 years.

Claim.—1st. In a car-coupling, a vertical movable U-shaped frame, mounted in guides on a draw head and adapted to support a coupling-pin, a horizontal movable U-shaped piece, mounted in supports on the draw-head, and extending across the lower edge of link recess in draw-head and spring catches on the draw head adapted to engage the coupling-pin frame, and to be thrown out of engagement by the horizontal U-shaped piece, all combined substantially as shown and described. 2nd. In a car-coupling, a draw-head I, having casings 2, with guides 5 having notches 15a, and spring catches 13, U-shaped coupling-pin frame, sliding U-shaped piece 16, having slots 18, engaging pins 17 and the projections 20, all combined substantially as described.

No. 29,674. Sulky Plough. (*Charrue à siège.*)

Samuel W. Woodlan and Rolland C. Patterson, Smithville, Ont., 14th August, 1888; 5 years.

Claim.—1st. In a sulky plough, a cam, pivoted to the tongue, a lever attached to the cam for operating the said cam, a bar attached to the tongue, with a connecting chain from the bar to the beam of the plough, for elevating or depressing the plough, substantially as and for the purpose specified. 2nd. In a sulky plough, the combination of the cam E, lifting lever G, lifting bar F, connecting rod or chain H, and beam A, all arranged and combined substantially as and for the purpose specified. 3rd. In a sulky plough, the hinged curved bar I, attached to the beam A at front and rear, and pivoted to the tongue D or box attached to the same, substantially as and for the purpose specified. 4th. In a sulky plough, the combination of the adjustable wheel M at the heel of the plough, with the ratchet lever N, beam A, and plough, substantially as and for the purpose specified. 5th. In a sulky plough, the combination of the slotted ratchet casting P, sliding axle O, wheel N, operating lever Q, and connecting rod R, all arranged and combined to gauge the width of furrow, substantially as and for the purpose specified. 6th. In a sulky plough, the combination of the lever V with the ratchet block W bolted to the vertical position of the frame bar S, to shorten the frame and bring the said lever, close to the driver's seat, substantially as specified.

No. 29,675. Type Writing Machine.

(*Graphotype.*)

Alexander G. Donnelly, New York, N.Y., U.S., 14th August, 1888; 5 years.

Claim.—1st. The combination in a type writing machine, of a paper carrying roll, constructed and arranged to be intermittently moved about its axis and in the direction of its length, a series of radially arranged vibrating type bars or hammers, located above said paper carrying roll, with their pivotal axis in a plane inclined to a horizontal plane, and a series of keys, connected with said type bars and arranged in a circle with their pads in a plane, also inclined to a horizontal plane, substantially as shown and described. 2nd. The combination of a paper carrying roll, a carriage for supporting said roll, and a second carriage, constructed and arranged to support said roll carrying carriage, and to be reciprocated therewith upon a fixed bed, and means, as set forth, of connecting said carriages together, so that they may be moved together, or the upper carriage may be moved independently of the lower carriage, but in the same direction as said lower carriage is fed, to give the letter and word space, substantially as described. 3rd. The combination of the bed A, At, the carriage B, provided with the detent spring *u*, and the carriage C, provided with a notch to engage said spring, when said carriages are constructed and arranged to be moved only in the direction of their lengths, substantially as described. 4th. The reciprocating carriage B, provided with the headed pin B₁, in combination with the carriage C, fitted to slide upon the carriage B and provided with a hooked socket B₂, to engage with said headed pin on the carriage B, when the carriage C is drawn nearly off of the carriage B, substantially as and for the purposes described. 5th. A series of type bars, arranged radially to a common centre, each mounted and revolvable in a pivoted sleeve, a pinion secured to the outer end of each of said type bars, a ring gear arranged to be moved to and fro about said common centre and to engage with said pinions, when the type bars are raised, and a finger key connected to each of said sleeves, all arranged and constructed substantially as and for the purposes described. 6th. The combination of a type bar, having a plurality of letters upon different sides thereof, and mounted near its outer end in a bearing in a pivoted sleeve, a pinion secured to the outer end of said type bar, and having formed in its outer end as many diametrical grooves as there are characters on said type bar, a reciprocating gear, arranged to engage said pinion when the type bar is raised and to be disengaged therefrom when the type bar is depressed, a key connected with said sleeve to vibrate it and its type bar in a vertical plane, and a fixed vertical guide lip, constructed and arranged to engage with one of the grooves in the end of the hub of said pinion, when the type bar is depressed, to print a character, substantially as and for the purposes described. 7th. In combination with a vibrating type bar, a finger key and stem connected therewith, a bent lever, pivoted to said stem by its outer end, and provided with a slot to receive its fulcrum pin, a flanged spindle arranged above the inner end of said lever, in position to be acted upon thereby, and a lever connected with and operated by said spindle for imparting a step by step motion to the paper roll carrying carriage, substantially as described. 8th. In combination with a series of type bars, arranged radially to a common centre and each provided with a toothed pinion and a ring gear, arranged to engage with all of said pinions and to be moved to and fro about said common centre, and provided with a radially projecting arm, extending outside of the enclosing casing, a pin set in the under side of said radially project-

ing arm, two springs secured to the casing of the head of the machine and arranged to bear one upon each side of said pin, a three-armed lever pivoted to the front of the casing, and having its lower or vertical arm forked to embrace the projecting end of said radial arm, and its two upper or oblique arms provided with finger pads, by which it may be oscillated about its axis in either direction, substantially as described. 9th. The combination, with the three-armed lever, for operating the ring gear, and the springs for assisting the same, a pin set in said lever, a spring for pressing said pin, towards the casing of the head, and a detent notch to receive the inner end of said pin, when said lever is in its normal or central position. 10th. The cap F₁, provided on its under side with the downwardly projecting and radially slotted annular rib *j*, having formed in its under side a circular groove, having a semicircular cross-section, in combination with the wire ring J₁, secured in said groove by the screws *u*, and the series of levers fitted in said radial slots and fulcrumated upon said wire ring, as set forth. 11th. In combination with a paper roll carrying carriage provided with a toothed rack, a spring for moving said carriage endwise, an escapement wheel and a clutch disk firmly secured upon a common shaft, a toothed wheel mounted loosely upon said shaft, and engaging with said rack, a grip pawl connecting said wheel with the clutch disk, and a reciprocating bar provided with two dogs, one upon each side of the escapement wheel, and arranged to alternately engage therewith, for the purpose of imparting to the carriage and roll a step by step movement, as set forth. 12th. The combination of the keys lever L, the flanged spindle J, the lever K, provided with an open slot or fork at its lower end, the lever It, provided with the pin *s*, the escapement bar R, provided with the dogs *r* and *t*, the shaft P₂, the escapement wheel P₃, the pinion P₄, the clutch disk P₅, the grip pawl or dog *z*, the carriage B, provided with the rack Q, and a spring for moving the carriage endwise in one direction, substantially as described. 13th. In combination with the carriage B provided with the rack Q, the shaft P₂, the gear wheel P₆, the clutch disk P₇, the grip dog *z*, the cord *u*, the drum *u*, the shaft *v*, the toothed hub S, the pawl *w*, the fixed casing S₁, the spring *u*, the escapement wheel P₃, and the reciprocating escapement bar R, provided with the dogs *r* and *t*, all arranged and adapted to operate substantially as described. 14th. The combination of the escapement wheel P₃, provided with the radial grooves *a*, the reciprocating bar R, provided with the stand *b*, and the dog *t*, firmly secured thereto upon opposite sides of said wheel, the pivoted and vibrating dog *t*, arranged to engage with said wheel upon the side of its axis opposite to the dog *t*, the stop *o*, for limiting the upward movement of the dog *t* about its axis, and the stops *d* and *e*, constructed and arranged to interchangeably limit the downward movement of said dog *t* according as a short or long space feed is required. 15th. The combination of the escapement wheel P₃ provided with the radial grooves *a*, the reciprocating bar R provided with the stand *b*, and the dog *t* firmly secured thereto upon opposite sides of the axis of said wheel, the pivoted and vibrating dog *t* arranged to engage with said wheel upon the side of its axis opposite to the dog *t*, the stop *o* for limiting the upward movement of the dog *t*, and the stop *d* for limiting the downward movement of said dog *t*, substantially as described. 16th. The combination of the type key I, the lever J, the spindle J₂, the work-space key L, the levers K and It, the bar R, provided with the stand *b*, and the dog *t* firmly secured thereto, the escapement wheel P₃, the vibrating dog *t*, the stop pin *o*, the rod *d*, and the stops *d* and *e*, all arranged and adapted to operate substantially as described. 17th. In a type writing machine, the combination of a paper carrying roll, mounted upon a reciprocating carriage, a spring for moving said carriage in one direction, an escapement for stopping and releasing said carriage, a register dial and index, a ratchet and pawl for intermittently operating said register, a series of type bar operating keys, a word space key, a pivoted lever constructed and arranged substantially as set forth, to be vibrated a given distance when the type key is depressed and a greater distance when the word space key is depressed, and to act upon and impart motion to the register operating mechanism, only when said lever is moved its greatest distance. 18th. The combination of the shaft *r* mounted in suitable bearings, and provided with the longitudinal groove *r*, having detent notches *r*₂ formed in its bottom, the ribbon spool or drum N, the pin *n* set radially in the hub of said drum, and the spring *n*₁ arranged to press said pin inward, substantially as described. 19th. The combination of the ribbon drum N, its shaft *r*, the ratchet wheel *r*₃, the hook-pawl *r*₄, the spring *r*₇, the lever *u* and the ratchet wheel P₃, all arranged and adapted to operate, to intermittently move the inking ribbon in one direction, substantially as described. 20th. The combination of the two ribbon drums N, N, each provided with a ratchet wheel *r*₃, two hook pawls *r*₄, two springs *r*₇, the lever *u* having a hook upon its inner end, the lever *u* having a plain ratchet pawl shaped inner end and the intermittently revolving ratchet wheel P₃, and the two stands *b*, each provided with the two open slots *p*₂ and *p*₁, all arranged and adapted to operate substantially as described. 21st. In combination with the paper carrying roll and its carriage, the pivoted index finger W, constructed, arranged and adapted to operate, substantially as and for the purposes described. 22nd. In combination with the paper carrying roll, of a type writing machine, the pivoted and oscillating bar *l*, and the curved guide plate D₁, all arranged and operating substantially as described. 23rd. In combination with the paper carrying roll of a type writer, two ratchet wheels mounted upon its shaft, the thumb *a*₂ provided with the rods *a*₁, the springs *a*₃, the slotted arm D₁, each provided with the dog *a*₄, the bar D₂, the bent arm D₃ attached to an arm D₁, and the shoulders *c*₁ and *c*₂, for limiting the movement of the roll about its axis, substantially as and for the purpose described. 24th. In combination with the paper carrying roll of a type writer, two ratchet wheels mounted upon its shaft, the thumbs *a*₂, provided with the rods *a*₁, the springs *a*₃, the slotted arms D₁, each provided with the dog *a*₄, the bar D₂, the bent arm D₃ attached to the arms D₁, and provided with the pad *b*₇, the shoulder *c*₁ and the movable pendent stop *d*₁, all constructed, arranged and adapted to operate substantially as and for the purposes described. 25th. In combination with the paper carrying roll of a type writer, the two ratchet wheels *u*, the thumbs *a*₂ provided with the rods *a*₁, the springs *a*₃, the slotted arms D₁, each provided with the dog *a*₄, the bar D₂, the bent arm D₃ attached to the arms D₁ and each provided with the thumb pad *b*₇, a stop for limiting the movement of the arms

D, in an upward direction, the shoulder *e*, and the spring stop pawl *d*, all constructed, arranged and adapted to operate substantially as and for the purposes described. 20th. The combination of a series of pivoted and rotatable *l* *p* *o* arms, each carrying at its free end a plurality of type of different characters, a series of keys for vibrating said type arms, and means substantially as set forth, for imparting to all of said arms, a simultaneous movement about their axes.

No. 29,676. Whip. (*Fouet*.)

Henry S. Cushman, Milford, Mass., U.S., 14th August, 1888, 5 years.

Claim.—1st. A whip, having a core, composed of two pieces or strands of corrugated wire, laid side by side, one of said pieces or strands being extended beyond the other, to form a core for the tip portion of the whip, substantially as described. 2nd. A whip having a core composed of corrugated wires, laid side by side throughout the body of the whip, one strand extended into the tap of the whip, a wrapping to enclose said wires and single strand, a tapering portion *d* outside the wrapping and a cover *f*, applied to the body, substantially as described.

No. 29,677. Elevator in Connection with Fanning Mills and Thrashing Machines. (*Elevateur pour les tarares-cribleurs et machines à battre*.)

George Millen, Londesborough, Ont., 14th August, 1888, 5 years.

Claim.—1st. For a fanning mill elevator, the cup *J*, *J*, *K* and *L*, formed as described and shown, for the purpose herebefore set forth. 2nd. The bag fasteners *E*, *E*, *F* and *H*, in combination with the elevator, substantially as and for the purpose herebefore set forth.

No. 29,678. Finger Pull. (*Indicateur de la force*.)

William S. Reed, Leominster, (assignee of Frederick R. White, Boston), Mass., U.S., 17th August, 1888, 5 years.

Claim.—1st. A finger pull consisting of a frame or casing, a rod having bearings and longitudinally movable in said casing, said rod being provided with a finger hook or similar device extending beyond the casing, whereby said rod may be drawn outward, a spring to resist the drawing outward of said rod, a bar provided with ratchet teeth connected with said rod, a pawl to engage the ratchet teeth of said bar, a coin chute to guide a coin into position on said pawl to disengage it from said ratchet teeth, and a friction clip having a limited movement on said ratchet bar between said pawl and the teeth on said bar, as set forth. 2nd. The combination in a finger pull, of the longitudinally movable rod and its rack bar, with the friction clip *k* having a limited movement on said bar, a pawl to engage and be disengaged from said rack bar, and a coin chute to guide a coin into position on said pawl, substantially as herebefore set forth. 3rd. The combination in a finger pull of a longitudinally movable rod, an indicating or registering mechanism arranged at the end of said rod, said registering mechanism being provided with an operating lever arranged to be operated upon by said rod as the latter is moved, as set forth.

No. 29,679. Car-Coupling. (*Attelage de chars*.)

James Barry and Asher F. Nicholas, Kansas, Mo., U.S., 17th August, 1888, 5 years.

Claim.—1st. In a car-coupler, a draw-head pivoted at its rear end, and provided with a chain and levers, by means of which it is operated from either side of car, substantially as shown and described. 2nd. In a car-coupler, a draw-head provided with a reduced shank at its rear end, in combination with a draft timber having a vertical slot through which said shank is passed, substantially as described. 3rd. In a car-coupler, a draw-head supported by a yielding frame which is located beneath it, substantially as described. 4th. In a car-coupler, the spring-frame *D*, arranged to operate substantially as set forth. 5th. In a car-coupler, the pivoted draw-head *A*, in combination with chains which extend to either side of the car, substantially as shown and described. 6th. In a car-coupler, the combination of a draw-head pivoted at its rear end, chains which are attached to said draw-head and extend to either side of the car, and operating levers attached to said chains, all arranged substantially as shown and described. 7th. In a car-coupler, the combination of the operating lever *7*, the slotted bracket *9*, and pawl or catch *8*, for the purpose substantially as set forth. 8th. In a car-coupler, the combination of a pivoted draw-head, chains attached to said draw-head, pulleys which support said chains, and suitable operating levers located at either side of the car, all arranged substantially as set forth. 9th. In a car-coupler, a draw-head pivoted at its rear end, and normally held in coupled position by means of springs which press against one of its sides, substantially as and for the purpose set forth. 10th. In a car-coupler, the bumper mounted on pins or studs, which pass therethrough and through the car timbers, and springs which are mounted on said pins intermediately of the bumper and end of car, arranged substantially as set forth. 11th. In a car-coupler, the draw-head provided with a reduced shank *e*, in combination with draft timber *C* having slot *d* through which said shank passes, and springs located on said shank on either side of said draft timber, arranged substantially as set forth.

No. 29,680. Fabric Boot. (*Botte de irap*.)

Mishawaka Woollen Manufacturing Co., (assignee of Martin V. Beiger), Mishawaka, Ind., U.S., 17th August, 1888, 5 years.

Claim.—1st. The process of forming and increasing the solidity and imperviousness of fabric boots, which consists essentially in first forming the boot of a size considerably larger than that finally desired, applying flock to the formed boot, and then working the flock into the fabric of the boot and reducing the latter to the required size, substantially as described. 2nd. A fabric boot whereof the natural interstices in the fibrous fabric are stuffed with flock, sub-

stantially as set forth. 3rd. A fabric boot having its inner surface porous and absorbent, and its outer surface stuffed with flock, and thereby rendered practically impervious, as set forth.

No. 29,681. Spring Tooth Cultivator.

(*Scarificateur à dents élastiques*.)

J. O. Wisner, Son & Co., (assignees of Warham S. Wisner), Brantford, Ont., 17th August, 1888, 5 years.

Claim.—1st. In a spring-tooth cultivator in which the doubletree is connected to the frame of the cultivator at a point behind the front of frame, the combination of a plate connected to the doubletree and extending below the front end of frame of the cultivator, substantially as and for the purpose specified. 2nd. In a spring tooth cultivator in which the doubletree is connected to the frame of the cultivator at a point behind the front of frame, the combination of a plate connected to the doubletree and extending below the frame of the cultivator where its end is curved upwardly between the sides of frame, substantially as and for the purpose specified.

No. 29,682. Fire-Escape. (*Sauveteur d'incendie*.)

Asa B. Dowell, Vinton, Iowa, (assignee of John A. Fallgatter, Huron, Dak.), 17th August, 1888, 5 years.

Claim.—1st. The combination of the brackets *6* provided with the steps *12*, the braces *10* pivoted midway in the said brackets and adapted to engage the steps *12*, and the slide bar *8* secured to the upper ends of the said braces, substantially as shown and described. 2nd. The combination of the brackets *6* adapted to be secured to a house and provided with the steps *12*, the braces *10* pivoted in the brackets and adapted to engage the steps *12*, the slide-bar *8* secured to the upper ends of the said braces, the ladder *7* provided with hooks *9* adapted to engage the slide-bar *8*, the ladder *13* secured to the ladder *7* with a sliding fit, and the ledge *18* fixed to the house in position to support the ladders, substantially as shown and described. 3rd. The combination of the brackets *6* secured to a house, the braces *10* pivoted and stepped in the brackets, the slide-bar *8* secured upon the said braces, the two ladders *7* and *13* fitted to slide together, and provided with hooks *9* adapted to slide upon the bar *8*, the staples *16* secured to the house beside windows thereof, and the short hook *15* and the long hook *17*, both adapted to engage any one of the staples *16* at the proper time, substantially as shown and described. 4th. The combination of the brackets *6*, secured to a house, the braces *10* pivoted and stepped in the brackets, the slide-bar *8* secured upon the said braces, the pulleys *20* secured on the slide-bar near its ends, a ladder hung upon the slide-bar by means of hooks, pins *21* projecting from the face of the house, and a wire rope *19* secured midway to the said ladder, thence passing over the said pulleys *20*, and hanging in position to be done up on the pins *21*, substantially as shown and described. 5th. The combination of the brackets *6*, having steps *12*, the braces *10* pivoted in said brackets, and the bar *8* supported on said braces, as and for the purpose described.

No. 29,683. Veneered Tongued and Grooved Lumber. (*Bois plaqué embouveté*.)

William E. Brock, Plainfield, N.J., U.S., 2th August, 1888, 5 years.

Claim.—The combination of tongued and grooved boards, each having one surface veneered, and each board having its groove of sufficient width to receive the tongue of the contiguous board and two thicknesses of veneers, so that when said boards are joined together the edges of the veneers are concealed within the groove, and protected from moisture or other atmospheric influences, and prevented from warping or separating from the boards, substantially as herein described.

No. 29,684. Napkin Supporter. (*Porte-serviette*.)

Fmma J. Gooch, Washington, D.C., U.S., 20th August, 1888, 5 years.

Claim.—1st. An improved napkin supporter consisting of the curved strip or plate *A* having the clasps *B* secured thereto, said clasps being formed in two parts or sections, one fixed and the other movable, and connected to each other by means of pins *b* at their upper ends, and having stop *c* at their lower ends against which the lower end of the movable section of clasp *B*, contacts or snaps, substantially as described. 2nd. The combination, with the plate or strip *A*, and depending curved bars *D*, of the class *B*, constructed substantially as described, whereby the napkin inclosed between the clasp *B* is held or released therefrom, as and for the purpose specified.

No. 29,685. Power Mechanism for Reciprocating Plungers. (*Mécanisme de plongeur alternatif*.)

George McCarn, Goodland, Ind., U.S., 20th August, 1888, 5 years.

Claim.—1st. The combination, with a plunger, of a pitman connected thereto, a disk or drum carrying stops that are arranged to bear against the pitman-head, guides that are concentric with the axis of the drum or disk, a pin or stop carried by the pitman and arranged to bear against the guides, a means for revolving the drum or disk, a spring and a link connecting the spring and the pitman, substantially as described. 2nd. The combination, with a plunger *14* carrying a knife *2*, of a plunger-case *20* provided with a knife *3*, a pitman *13* connected to the plunger, a disk or drum *10* provided with bars *11*, guides *15* through which the pitman-head passes, a pin *16* carried by the plunger and arranged to bear against the guides, a sweep *12* connected to the drum or disk *10*, a spring *17*, and a link *18* connecting the spring and the pitman, substantially as described.

No. 29,686. Curling Iron. (*Fer à friser*.)

Charles H. Bissell, Chicago, Ill., U.S., 20th August, 1888, 5 years.

Claim.—1st. In a curling-iron or hair-crimper, the combination of

jaws C, A, pivoted together, as at *r*, and having handles provided with shoulders containing sockets *m* on their opposing faces away from and behind the pivot, and a spiral spring inserted at its opposite ends into the sockets *m*, and thereby removed from the pivot *r*, substantially as and for the purpose set forth. 2nd. In a curling-iron, the combination of a hollow rod A provided with a handle, and a heating core permanently secured within the hollow rod and resistingly confined against movement therein, and movable in the said hollow rod, to project it beyond the end thereof and retract it into the same, substantially as described. 3rd. In a curling-iron, the combination of a hollow curling-rod having a handle portion provided with a longitudinal slot *t*, and a heating core provided with a finger knob *k* extending through the slot and permanently secured within the hollow curling bar, and resistingly confined against movement therein, and movable in the said hollow curling-rod to project it beyond the end thereof, and retract it into the same, substantially as described. 4th. In a curling-iron, the combination of a hollow curling-rod having a handle provided with a longitudinal slot *t*, and a reciprocating heating core permanently secured within the hollow curling rod, and provided with a spring *e*, and carrying a finger-knob *k* extending through the slot *t*, substantially as and for the purpose set forth. 5th. In a curling-iron, the combination of a hollow curling-rod and a heating core permanently secured in the hollow rod, and movable therein to project it beyond the hollow rod and retract it into the same, substantially as and for the purpose set forth 6th. In a curling-iron, the combination, of the hollow rod A having a handle portion provided with a longitudinal slot *t*, a core D permanently secured and adapted to reciprocate within the rod A, and provided with a spring *e*, a finger-knob *k*, and a notch *u*, and a spring clamping bar C having a lip *p*, the whole being constructed and arranged to operate substantially as and for the purpose set forth. 7th. A curling-iron comprising in combination, a hollow rod A having a slotted handle portion and a socket *m*, a core D permanently secured within the hollow rod, and adapted to be reciprocated therein, and comprising a notched portion D1, and a reduced portion D2, a helical spring surrounding the said reduced portion and confined in the said hollow rod, a finger-knob *k* on the core D extending through the slot *m* in the handle portion, a clamping bar C having a lip *p*, and thumb-piece *o*, and pivotally secured upon the hollow rod A, a socket *m* on the thumb-piece *o*, and a helical spring *n* inserted at opposite ends into the sockets *m*, substantially as described.

No. 29,687. Improvements in Stone Boats. (*Perfectionnements aux bateaux de pierre.*)

Alden A. Morden, Wellington, Ont., 20th August, 1888; 5 years.
Claim.—The combination of cast iron front A, planks D and rails E, substantially as and for the purpose hereinbefore set forth.

No. 29,688. Drinking Fountain. (*Fontaine.*)

Charles H. Gatchell, Fredericton, N. B., 20th August, 1888; 5 years.
Claim.—The construction of a drinking fountain or tank containing one or more taps, in combination with frames or spaces for advertising purposes, substantially as and for the purpose hereinbefore set forth.

No. 29,689. Wire Drawing Machine. (*Machinè à tirer le fil de fer.*)

Frederic Smith, Halifax, Eng., 20th August, 1888; 5 years.
Claim.—1st. In a machine for drawing two or more wires and reducing them simultaneously any required number of sizes, the combination of the swifts *b*, the series of revolving drawing through pulleys *c*, each pulley being broad enough to accommodate on its periphery all the wires to be drawn, all the pulleys being driven by bevel gearing at gradually increasing surface speeds from the swifts to the winding on drums *h* which are driven at a still quicker speed by pulleys and belts, the several series of dies or draw holes *o*, each series of holes being smaller than the preceding one, the lubrication of the wires being effected by immersing the revolving drawing through pulleys in lubricant contained in a reservoir, and also by immersing the series of dies *o* in lubricant supplied to a series of troughs *n*, all substantially as herein set forth for the purposes specified. 2nd. The combination, with the series of flanged drawing through pulleys *c* driven at varying surface speeds by bevel gearing, as described, and immersed in a reservoir containing lubricant, of the tubes or channels *U* and the series of trough *n*, substantially as and for the purposes herein described and as shown. 3rd. The combination, with the series of lubricating troughs *n* and the series of dies *o*, of the series of guides or forks *p*, and the drawing through pulley *c*, substantially as herein set forth for the purposes specified.

No. 29,690. Hay Binder. (*Lieuse à foin.*)

Charles W. Baker, Waverly, Mich., U. S., 20th August, 1888; 5 years.
Claim.—The rack having the eyes, the ropes provided with the eyes at the ends, the pulleys, one having a flanged head, and the binding rope attached to one pulley at one end, and the other end detachably fastened to the said flanged head, substantially as set forth.

No. 29,691. Flag Staff. (*Gaule de pavillon.*)

Joseph Poiré, St. Joseph de Lévis, Que., 20th August, 1888; 5 years.
Claim.—1st. A flag staff A having a tube B centered upon it held in place by a collar *a*, carrying an arm B1 having stirrup *b*, bearing in which is a roller C having a pulley C1 and carrying a flag or banner B2, held steady by means of a weighted rod D, connected to the said staff by means of the sliding bracket *d*, and operated by the cord G G and weight G2, substantially as set forth. 2nd. The combination of the staff A and tube B, cap A2, arm

B, roller C, pulley C1, cord G and G1, flag D and rod D1, substantially as set forth. 3rd. The combination of the flag staff A, tube B, arm B1, hollow cap A2, roller C, pulley C1, cord G G1, flag D, rod D1, sliding bracket *d* and cord E, pulley E1, counter balance G2, tube *g*, pulley *g*1, clamp *g*2 and projection *g*3, substantially as set forth. 4th. The combination of the mast A1, the discs H, H1 and H2, sockets *az*, collars *at*, *az*, staffs A, tube B, arms B1, rollers C, pulley C1, flags D, rod D1, bracket *d*, cord G G1, weights G2, substantially as set forth.

No. 29,692. Anti-Rattler for Vehicle. (*Armon de limonière.*)

Andrew Ross, Hamilton, Ont., 20th August, 1888; 5 years.
Claim.—1st. An anti-rattler for vehicles, consisting of the combination of two plates, and a rubber block placed between them, and tightened by a screw bolt, substantially as and for the purpose specified. 2nd. The plate *f* constructed with a projecting pin *g*, and the rubber pad *h* constructed with an opening *i* through it for the pin *g* to pass through, and an opening *k* in the plate *l* for the said pin *g* also to pass through, and a bevel end screw-bolt *n* to adjust the plate *l* to the end of the thill, substantially as and for the purpose specified. 3rd. The combination of the plates *f* and *l*, the rubber block *h* between them, and adjusted to the thill C by the screw-bolt *n*, substantially as and for the purpose specified. 4th. In combination with the clip A and thill C of the plate *f* and pin *g*, perforated rubber block *h*, curved plate *l* also provided with opening *k* for the pin *g*, and threaded hole *m* for the screw bolt *n*, substantially as and for the purpose specified.

No. 29,693. Hand Cart. (*Camion à bras.*)

Daniel E. Teal, Oneida Castle, N. Y., U. S., 20th August, 1888; 5 years.
Claim.—1st. A body for carts having a metal frame rectangular in cross section, and a sheet metal body having its edges folded around said frame, and the main body of the metal overlapping its folded edge, as shown and described. 2nd. In a garden-cart, the combination, with the body and the axle, of an interposed sheet-spring formed with transverse corrugations, substantially as shown and described. 3rd. The combination, with the body *b* having its top frame extended rearward to form the arms *b2*, of the handle *c* secured in these arms by the bolts *e1*, *e2*, substantially as and for the purpose set forth. 4th. The combination, with the body *b*, of the hinged standard *d*, extended beyond its hinged and folding beneath the body, and the button *d2* for securing the standard in both positions, substantially as shown and described. 5th. The combination, with the body and its axle having springs interposed between them, of rigid arms pivoted on the axle for turning up under the body to take the weight of the springs, substantially as and for the purpose set forth.

No. 29,694. Folding Table. (*Table pliante.*)

John T. Bon, Syracuse, N. Y., U. S., 20th August, 1888; 5 years.
Claim.—1st. The combination, with a table-top A, of the bed pieces *a*, *a*1, provided on their inner sides with longitudinal grooves *b*, *b*1 extending part way the thicknesses of the bed-pieces, and completely through one and the same end of the same, the legs *l*, *l*1 pivoted to the opposite ends of said bed-pieces at the inner sides thereof, the legs *l*, *l*1 pivoted intermediate their lengths to the inner sides of the legs *l*, *l*1 by the cross-rail *d*, the tie-rail *d*1 rigidly attached to the upper ends of the legs *l*, *l*1, and projecting at the outer sides of said legs and adapted to enter the grooves *b*, *b*1 through the open ends thereof, the ratchet-bar *h* secured stationary to the under side of the table-top, the hook *e* pivoted on the rail *d*1 and adapted to engage the ratchet-bar and the spring *f* connected to said rail and passing the pivoted hook toward the ratchet-bar, all constructed and combined substantially in the manner specified and shown. 2nd. In combination with the top plate A, catch-plate *h*, legs *l*, *l*1 and rail *d*1 rigidly attached to said legs, the catch *e* hinged to said rail, the collars *a*, *a*1 rigidly secured to the rail *d*1, and each provided with the shoulders *n*, *n*1, and the spring-bail *f* placed astride the latch and coiled at its ends around the rail *d*1, and terminating with offsets *h* adapted to engage the shoulders *n*, substantially as described and shown.

No. 29,695. Folding Table. (*Table pliante.*)

John T. Bon, Syracuse, N. Y., U. S., 20th August, 1888; 5 years.
Claim.—1st. The improved folding table composed of the two sets of cross-bars *e*, *e*1 and *e*2, *e*2 pivoted to one and the same vertical pivot bar *o*, formed at opposite ends with trunnions passing through the aforesaid cross-bars, the legs *l*, *l*1, *l*1 rigidly secured to the ends of the cross-bars and extending above the same, and the solid top T mounted removably on the upper ends of the legs, all constructed and combined substantially in the manner specified and shown. 2nd. In a folding table, the combination of the legs *l* pivoted in pairs and in common to a central support, the top mounted removably on said legs and free from the central support, sockets secured stationary to the under side of the top and adapted to receive the upper ends of the legs, and caps clamped removably on the sides of said ends of the legs, substantially as and for the purpose set forth. 3rd. In combination, with the top leaf, of frame legs secured to the ends of diagonal horizontal cross-bars, connected together at their centers by a vertical pivot vertically divided sockets secured to said leaf or frame and adapted to receive the upper ends of the legs, and clamps for tightening the socket-sections on the legs, substantially as described and shown. 4th. The combination, with the top frame, of the legs *l*, *l*1, *l*1, connected together by the horizontal cross-bars *e*, *e*1 and *e*2, the vertical pivot-bar *o* connected with the cross bars at the center, and metallic sockets composed of the sections *a*, *a*1 adapted to receive between them the upper ends of the legs and clamps for tightening the sockets on the legs, substantially as described and shown. 5th. The within described clamping socket composed of the stationary section *a* and removable section *a*1, provided respectively with overlapping legs *b*, *b*1 and the clamping-bolt *p* passing transversely through the socket-sections, substantially as described and shown.

No. 29,696. Explosive Compound.*(Composition explosive.)*

Carl W. Volney, Tom's River, N.J., U.S., 20th August, 1888; 5 years.

Claim—1st. The explosive compound consisting of the solution of nitro-starch in nitro-glycerine and oxidizing agents, such as chlorates or nitrates. 2nd. As a new article of manufacture, the solution of nitro-starch in nitro-glycerine.

No. 29,697. Band Pulley. *Poulie à courroie.*

Wallace H. Dodge, Mishawaka, Ind., U.S., 20th August, 1888; 5 years.

Claim—1st. A pulley-rim A provided in its inner periphery with dove-tailed notches *b* at opposite sides of said rim as to the center, and a spoke arm C having a dove-tailed tenon *d* on each end adapted to enter said notches *b*, said arm being provided with a shoulder *e* at the base of each tenon to rest against the inner surface of the rim, combined with means for forcing one side of said tenon hard against one side of said notch while being glued thereto, and a solidifying plastic filling *g* to fill all the parts of said notch not occupied by said tenon, as set forth. 2nd. The pulley-rim A provided with the notch *b*, and the pulley-arm C provided with the tenon *d* corresponding in shape with the notch *b*, the surfaces on one side brought into close contact and caused to adhere by cement combined with a wedge also cemented in place, and the solidifying plastic filling *g*, substantially as set forth. 3rd. The pulley-rim A divided as set forth, and provided with the grooves *k*, *m* cut transversely in the divided ends, and the inserted tongue *p* and the covering-rings *q*, substantially as set forth.

No. 29,698. Bleaching Apparatus.*(Appareil de blanchiment.)*

Enoch J. Rogers, Newmarket, Ont., 20th August, 1888; 5 years.

Claim—1st. A bleaching apparatus consisting of an apartment 1 having internal doors 5, 5 and horizontal screen frames 8, 9, and provided with a removable top or cover 11, substantially as set forth. 2nd. The apartment 1 having a hinged section 10, screen frame 9 hinged to the screen frame 8, whereby each frame may be successively cauted doors 5, 5 dividing the apartment horizontally and provided with segment arms 6, 6 to hold the doors closed, as set forth.

No. 29,699. Machine for Eliminating Iron from Ores, etc. *Machme à extraire le fer les minerais, etc*

Gurdon Conkling, Glens Falls, N.Y., U.S., 20th August, 1888; 5 years.

Claim—1st. The combination, with a primary apron, of a secondary apron made to operate transversely to the primary, a magnetized plate secured in proximity to said secondary apron, so as to draw the iron particles to said secondary apron, and suitable driving mechanism for actuating the aprons, substantially as set forth. 2nd. The combination, with a primary apron and a secondary apron made to operate transversely to the primary apron, of a magnetized plate secured in proximity to said secondary apron, so as to draw the iron particles to said secondary apron, suitable driving mechanism for actuating the aprons, and a scraper or brush made to act on said secondary apron, substantially as set forth. 3rd. The combination, with a primary apron, of a secondary apron made to operate transversely to the primary apron, a magnetized plate secured in proximity to said secondary apron, so as to draw the iron particles to said secondary apron, and means for adjusting the magnetized plate in relation to the secondary apron, substantially as set forth.

No. 29,700. Removable and Reversible Support for Shelves and Printer's Galleys. *(Support mobile et reversible pour rayons et galles d'imprimerie.)*

Charles C. Blakeley, Albion, Mich., U.U., 20th August, 1888; 5 years.

Claim—1st. The herein described removable and reversible rest or support for printers galley, shelves, etc. 2nd. The removable and reversible galley support, comprising a metallic piece or body having an upturned toe at its lower end, a downwardly extending hook or jaw at its upper end, and a second jaw extending from the body upon the same side as the end jaw, the jaws being arranged to rest upon or engage the opposite surfaces of their support, substantially as described. 3rd. The removable and reversible galley support comprising a metallic piece or body having an upturned toe at its lower end, a downwardly extending hook or jaw at its upper end, and a second jaw extending from the body upon the same side as the end jaw, the jaws being substantially parallel and extending at an oblique angle from the body, substantially as described. 4th. The herein described galley rack comprising a supporting frame, and series of pairs of hooks or catches secured to the frame, and arranged one above the other in pairs, and supports A engaging the hooks and forming a rack, as set forth.

No. 29,701. Apparatus for Drying Waste Animal Matter. *(Appareil de dessiccation des déchets animaux.)*

James S. Edwards and James Edwards, Eastbourne, Eng., 20th August, 1888; 5 years.

Claim—1st. Drying apparatus with a cover or top which is coned or raised in the centre, and is provided with a gutter to receive and convey away liquid condensed upon the cover or top, substantially as described. 2nd. Drying apparatus having a steam heated bottom with stirring shaft and stirrers as described, and doors for the introduction and removal of the material and an outlet passage for the steam or vapour, and a pipe *f* by which liquid may be removed from the apparatus, substantially as described. 3rd. Drying apparatus, heated by steam introduced between two bottom plates A and B, and provided

with a casing enclosing the said bottom plates, together with the sides or body of the apparatus, thereby forming an air chamber by which heat can be conveyed from the bottom to the sides, substantially as described.

No. 29,702. Treatment of Auriferous Minerals. *(Traitement des minerais aurifères)*

Jules Weirich, Béziers Hérault, France, 20th August, 1888; 5 years.

Claim—The treatment above described of concentrated ores, or auriferous pigures, by heat regulated between 330 and 450 degrees centigrade, according to the directions above set forth, by which I sensibly reduce the consumption of mercury in the course of the amalgamation.

No. 29,703. Cider Press. *(Pressoir à cidre.)*

Eckhardt Wettlanfor, Tavistock, Ont., 20th August, 1888; 5 years.

Claim—The combination of the cog-wheels D and E, and the screw F, substantially as and for the purpose hereinbefore set forth.

No. 29,704. Hot Water Heating Apparatus. *(Calorifère à eau)*

Earnest C. Mount, Montreal, Que., 21st August, 1888; 5 years.

Claim—A hot-water heating apparatus, constructed of sheets of metal, in which channels or sections of pipes have been so shaped and arranged as to form, when the sheets are joined and fastened together face to face, sheet metal pipes, separated from each other by intervening contact parts, substantially as and for the purposes hereinbefore set forth.

No. 29,705. Hot Water Boiler.*(Chaudière de calorifère à eau.)*

Charles E. Gate, Winnipeg, Man., 21st August, 1888; 5 years.

Claim—1st. A combination hot water boiler having the peculiar form of the vertical sections 5, 6, 7, 8, 9 and 10, the front 4, back 11, the water way connections 21, 21, with stoppers 23, 23 and bolts 37, 37, combined with the frame 1 forming ash pit bars 2, 2, lips 3, 3, door 30, the furnace 36, door 29, apertures 12, 12 and 14, 14, twin flues 31, 31, twin flue doors 28, 28, return pipe 26, one or more in number, placed either at back or sides or both, substantially as and for the purpose above set forth. 2nd. A combination hot water boiler having the peculiar form of the horizontal section 15, 16 and 17, having their under sides corrugated as shown or plain, the apertures 18 and 19 the smoke-chambers 32, 33, 34, exit 29, doors 27, 27, service flow pipes 25, one or more in number, movable back 35, the vertical water way connections 22, 22, the stoppers 23, 23 and bolts 24, 24, substantially as and for the purpose above set forth. 3rd. A hot water boiler composed of a combination of vertical and horizontal sections, substantially as and for the purpose above set forth.

No. 29,706. Weather Strip. *(Bourrelet de porte.)*

Thomas Hibbert, Cochran, Ind., U.S., 21st August, 1888; 5 years.

Claim—The improved weather strip herein described and shown, comprising the overhang ledge A permanently attached to a door and provided with opening F, the curved metal strip B having its upper edge doubled on itself provided with the notches G, the rod D passing through said upper doubled edge of the strip B and the loop C fitted on the rod D, and passed through the notches G and openings F, and having their upper ends bent over on the ledge A, substantially as specified.

No. 29,707. Dry Plate Holder.*(Châssis porte-plaque sèche.)*

Philip Williams, Huntville, Ont., 21st August, 1888; 5 years.

Claim—The combination of holder A, receiving the plate from the broadside, with its stationary partition B, of wood or vulcanite, the slides C of wood or vulcanite, the light breaker D in three sections, the plate springs F, the springs G, G, the jacks H, H, the arch I, and the springs J, J, as and for the purpose hereinbefore set forth.

No. 29,708. Mode of Dressing Mill Stones for the Manufacturing of Rolled Oats and Granulated Oat Meal.*(Mode de rabotage des meules pour la fabrication des gruaux d'avoine roulés et granulés.)*

Robert J. Fleming, Bothwell, Ont., 2nd August, 1888; 5 years.

Claim—Cutting down square of the front or grinding edge of the furrow D, as hereinbefore set forth.

No. 29,709. Machinery for Cutting Wood for Matches, Splints and Match Boxes. *(Machine à tailler le bois pour les allumettes, félisses et boîtes d'allumettes.)*

William Ellis, Peckham, Eng., 22nd August, 1888; 5 years.

Claim—1st. In machinery for the purposes stated, the combination, with a long knife, a longitudinal in-ciser, and a circumferential in-ciser, of the curved guides D and E, and the compensating arrangements for screw D₁ and E₂, hereinbefore described and illustrated in the accompanying drawings, to enable straight screws to work sliding blocks in a curve. 2nd. In machinery for the purposes stated, the combination, with longitudinal and circumferential in-cisers, of the long knife C, knife carrier G, blocks D, curved guides D₁, straight screws D₂, suitably turned slides D₃ and pivoted blocks D₄, as and for the purposes described. 3rd. In machinery for the purposes

stated, the combination, with the shaft B₂, of the bracket bearing H₂, held by rings I₁ and I₂, shaft I₃, bevel wheels H₄, H₅, worm H₆, change worm wheels H₇, sleeve H₈, screw H₉, sectorial bearing H₁₀, frame H₁₁, screw H₁₂, and shaft I, all substantially as and for the purposes described. 4th. In machinery for the purposes stated, a circumferential inciser consisting of a loose running shaft G, finely screw-threaded throughout its length, (journal ends excepted) circular knives G₄, and screw nuts G₅, as and for the purposes described.

No. 29,710. Manufacture of Wooden Pulleys. (*Fabrication des poulies de bois*)

Wallace H. Dodge, (assignee of George Pillion), Mishawaka, Ind., U.S., 22nd August, 1888; 5 years.

Claim.—The herein described improvement in the process of constructing wooden pulleys, which consists essentially, first, in uniting a proper number of segments at their abutting ends to constitute individual rings capable of being handled as unitaries, and, second, in assembling a proper number of said rings with glue between, and subjecting the whole to heavy pressure until the adhesive has solidified, substantially as and for the purpose set forth.

No. 29,711. Weather Strip. (*Bourrelet de porte*.)

Jefferson A. Davis, George W. Syphert and Edward N. Girard, (assignees of Robert C. Redman), Salem, Mass., U.S., 22nd August, 1888; 5 years.

Claim.—1st. A weather strip consisting of an angular strip loosely pivoted in a recess in the bottom of a door, and having a slot in the upper edge of one of its angular portions, loosely engaging a depending spring in said recess, and its other angular portions projecting outward through a recess in the door, and having a pin adapted to engage an inclined slot in a plate on the threshold, substantially as described. 2nd. A weather strip comprising the following parts: an angular strip loosely pivoted on a support in the bottom of a door with one of its angular portions projecting upward into a recess in the lower edge of the door, and the other angular portion projecting outward through a recess in the lower edge of the door, a depending spring loosely engaging a slot in the first-named angular portion, and a plate on the threshold having an inclined slot with which a pin in the weather strip engages, substantially as described. 3rd. In a weather strip, the combination, with threshold 15 having plate 14 with inclined slot 16, of door 4 having recess 3, strip 1 located in said recess, with portion 2 having slot 12 engaging spring 10 secured to block 11, and portion 5 projecting through recess 6, and having depending pin 13, and the recesses 9 engaging supporting lugs 7 secured in recesses 8, substantially as described.

No. 29,712. Mat. (*Paillasson*.)

William C. Price and Mark H. Irish, Toronto, Ont., 22nd August, 1888; 5 years.

Claim.—1st. A mat consisting of a bar, or bars, set on edge and bent zig-zag, so as to form a series of substantially diamond-shaped openings, substantially as and for the purpose specified. 2nd. A mat consisting of a bar, or bars, set on edge and bent zig-zag, so as to form a series of substantially diamond-shaped openings, in combination with a frame secured to and surrounding the said mat, substantially as and for the purpose specified. 3rd. A mat consisting of a bar, or bars, set on edge and bent zig-zag, so as to form a series of substantially diamond-shaped openings, the said bar, or bars, being rivetted or tied together at the angles of the diamond-shaped openings, substantially as and for the purpose specified. 4th. A mat consisting of a bar, or bars, set on edge and bent zig-zag so as to form a series of substantially diamond-shaped openings, the said bar, or bars, being rivetted or tied together at the angles of the diamond-shaped openings in combination with a frame secured to and surrounding the said mat, substantially as and for the purpose specified.

No. 29,713. Mattress Stuffing Machine.

(*Machin à rembourrer les matelas*.)

Edwin N. Stephenson, Waco, Texas, and Thomas E. O'Brien, Chicago, Ill., U.S., 22nd August, 1888; 5 years.

Claim.—1st. In a mattress stuffing machine, the combination, with the box, the removable cover, the plunger and the discharge spout, of vertical guides, a vertically sliding gate guided by the latter intermediate the box and spout, and between which and the follower the stuffing material is compressed, and means for moving the follower and holding the mattress-tick on the spout, substantially as described. 2nd. In a mattress stuffing machine, the combination, with the box, the hinged swinging cover, the plunger and the discharge spout, of vertical guides, a vertically sliding gate guided by the latter intermediate the spout and box, and between which and the plunger the stuffing material is compressed, and a lever connected with the gate for elevating it, substantially as described. 3rd. In a mattress stuffing machine, the combination of the box, the spout, the hinged swinging cover, the plunger, the rack connected with the plunger, the shaft carrying a pinion and a spur-wheel, the shaft carrying the spool and spur-wheel, a cord or chain connecting the spool with the cover, the vertically sliding gate moving intermediate the box and the spout, and between which and the plunger the stuffing material is compressed, and means for holding the mattress-tick on the spout, substantially as described. 4th. In a mattress stuffing machine, the combination, with the box, the plunger and the spout, of two cross-bars arranged respectively above and below the spout, and springs connecting the said bars and drawing towards each other to clamp the tick on the spout, substantially as described. 5th. In a mattress stuffing machine, the combination, with the box, the plunger and the spout, of two swinging cross-bars arranged respectively above and below the spout, and pivotally connected with the machine-frame, and springs connecting the said bars and drawing them each toward the other for clamping the tick on the spout, substantially as

described. 6th. In a mattress stuffing machine, the combination of the box, the pressor-head, the rack bar, the spur-wheel and pinion shaft, the driving-shaft, the spool rope and movable cover, substantially as described. 7th. In a mattress stuffing machine, the combination of the box having the movable side provided with rack-bars, and the shaft with pinions gearing into said racks, with the follower or pressor-head and the spout and the cover, substantially as described. 8th. In a mattress stuffing machine, the combination of the transverse rods and eye-bolts with the box, the pressor-head, the movable cover and the lever capable of having its point made to engage with either of the transverse rods, substantially as described.

No. 29,714. Middlings Purifier.

(*Epurateur des gruaux*.)

Edward P. Allis and Company, Milwaukee, Wis., (assignees of William J. Fonder, Jackson, Mich.), U.S., 22nd August, 1888; 15 years.

Claim.—1st. The combination in a middlings purifier of a shaking sieve or screen, a brush movable in the direction of the length of its bristles towards and from the sieve, and means substantially such as shown and described for thus moving the brush. 2nd. The combination, with a sieve or screen, of a brush, a guide for said brush, a cup port bearing against said guide and movable towards and from the sieve, and actuating mechanism substantially such as shown and described adapted to advance and receive the support and guide, and thereby to advance and recede the brush toward and from the sieve. 3rd. The combination, with a sieve or screen, of a brush or brushes, an endless carrier therefor, a rotary shaft supporting the carrier, guides or ways to support the brush stock, a lifting device beneath the guides or ways, a dog or pawl connected with said lifting device, and a ratchet wheel secured upon the carrier shaft and in the path of movement of the dog, said parts being combined and arranged to operate substantially as set forth, whereby the brush is caused to advance toward the sieve, then to move away therefrom and while out of contact therewith to shift laterally. 4th. In combination with the screen of a middlings purifier, a brush or brushes, mechanism for moving the brushes, guides or ways for said brushes, supports for said guides and eccentrics connected with a moving part of the purifier, and serving to raise and lower the supports and guides. 5th. In combination with the screen of a middlings purifier, a brush or brushes, chains connected therewith, shafts and sprockets for operating said chains, a ratchet wheel carried by one of said shafts, and a pawl connected with a moving part of the machine, and serving to impart a step by step motion to the chains, and brush or brushes always in the same direction, substantially as set forth, whereby the brush is caused to move from one boundary of the sieve to another by a series of steps with intermediate periods of rest. 6th. In combination with a screen, a brush or brushes, chains for operating the same, sprockets and shafts therefor, toggle joints supporting said shafts, cross-bars connecting opposite toggle joints, tappets on said bars, eccentrics for operating said tappets, and a ratchet and pawl mechanism for turning said shafts, substantially as set forth.

No. 29,715. Picker Motion for Looms.

(*Chasse-navette de métier à tisser*.)

Henry Sawyer, Boston, and Roswell S. Douglass, Plymouth, (assignees of Silvanus Hamblin and Stephen M. Hamblin, Plymouth, Mass.), U.S., 22nd August, 1888; 5 years.

Claim.—The combination, with the cam shafts and the cam disks on the said shaft, provided with laterally projecting V-shaped cams, of picker levers pivoted at the rear of said cam shaft, and bent or curved at the rear of said shaft to permit unobstructed passage of the cam projections, the cam projections engaging with said levers at points in front of the cam shaft, and between the said shaft and the forward ends of the said levers as described, the picker shafts and straps connecting the said shafts with the front ends of the said levers, as and for the purpose set forth.

No. 29,716. Seal Lock. (*Serrure scellée*.)

Hans H. Hansen, Chicago, Ill., and Ozias W. Shipman, Detroit, Mich., U.S., 22nd August, 1888; 5 years.

Claim.—1st. In a seal lock, the combination, with a frangible seal, of a frangible seal holder, a rotatable sliding locking bolt mounted on said holder, said locking bolt having a portion adapted to impinge against and break the frangible seal when said bolt is rotated, and means for preventing the sliding movement of said bolt except when it is rotated into a certain position and the frangible seal thus broken, substantially as specified. 2nd. The combination, with a frangible seal holder, of a rotatable sliding locking bolt adapted to break the seal by its rotation, and a catch engaging a notch or projection on said bolt to prevent the sliding movement of said bolt except when rotated into a certain position, substantially as specified. 3rd. The combination, with a frangible seal holder, of a rotatable sliding locking bolt mounted thereon, and provided with a frangible seal breaking portion or projection, and a catch to prevent the sliding movement of the bolt except when rotated, said bolt having a bent end or arm to serve as a lever to turn the same and break the seal, substantially as specified. 4th. The combination of frangible seal holder B, frangible seal C supported thereon sliding axially, moving locking bolt D having seal breaking projection d, and notch or projection d₂, catch F, said seal being broken and said catch being withdrawn by the rotation of the bolt D, substantially as specified. 5th. The combination of frangible seal holder B, with frangible seal C, sliding rotatable locking bolt D having seal breaking portion d, and notch d₂, catch F, and spring f, substantially as specified. 6th. The combination, of frangible seal holder B, with frangible seal C, sliding rotatable locking bolt D having seal breaking portion d and notch d₂, catch F and spring f, said bolt D having a hook or curved end d₁ and said holder B having a lip or socket b₁ to receive the hook end of said bolt and prevent the same rotating in the wrong direction, substantially as specified.

No. 20,717. Process for Dyeing Hair or Fur on Skins. (*Procédé pour teindre le poil sur les peaux*)

Hermann Brothers, (assignees of Eugon Hermann and Moritz Hermann), Berlin, Germany, 22d August, 1888; 5 years.

Claim.—1st. The process of dyeing hair or fur on skins, which consists in cleansing the same with a soda solution and drying, then staining with a solution of acetic acid and drying, then dyeing the hair or fur with a solution of green vitriol and a pyro-gallic acid and water, and afterwards with a solution of pyroligneous iron and washing and drying as described, to produce a grey color, as set forth. 2nd. The process of dyeing and coloring hair or fur on skins, by cleansing, staining and dyeing the hair or fur, as herein set forth, and then coloring the same with an aniline solution, with or without admixture with a solution of pyroligneous iron, as set forth. 3rd. The process of whitening the ends of hair or fur on skins dyed as herein set forth, by brushing the surface to be whitened with a solution of permanganate of potash and water, and removing the same by a solution of sulphurous acid and water, as described. 4th. The process of whitening the ends of hair or fur on skins after being dyed and colored with an aniline solution, as herein set forth, by brushing the surface to be whitened with a solution of concentrated sulphurous acid and water, as described.

No. 29,718. Check Book and Analogous Collection of Papers representing Values and Method of Copying therein. (*Livret de chèques et collection analogue de papiers représentant des valeurs et manière d'y faire des écritures.*)

Alexander Carmichael, Samuel D. Townsend and Eugène B. Pendleton, Westerley, R.I., U.S., 22d August, 1888; 5 years.

Claim.—1st. The method herein described of preserving proof of checks and analogous papers, by press-copying in books and allowing for the diminution of the thickness, so as to produce complete copies throughout, substantially as herein specified. 2nd. The herein described check-book having the checks printed, and comprising a number of leaves weakened at *a*, and forming stubs A and checks A', and a number of sheets of press copying paper B alternated between said leaves and of equal size therewith, as and for the purpose specified.

No. 29,719. Sewer Gas Excluder. (*Soupepe pour gaz d'égoût.*)

William Wallace and Frederick G. Thomas, San Francisco, Cal., U.S., 22d August, 1888; 5 years.

Claim.—The new article of manufacture described composed of the case A, with attaching lugs K, and openings J, the screw sleeve B, the stem L, the bed flange C, the valve D, and valve attaching nut E, constructed and operated substantially as and for the purposes set forth.

No. 28,720. Gas Burner. (*Bec de gaz.*)

Charles S. Upton, New York, N.Y., (assignee of Frank Rhind, Morristown, Conn.), U.S., 22d August, 1888; 5 years.

Claim.—1st. In a gas burner, the combination of an annular gas chamber or tube, a central air tube provided with means for screening and sifting the air and directing it horizontally against the flame, and an outside draft tube or chamber also provided with screens, as and for the purposes set forth. 2nd. In a gas burner, the combination, of an annular gas chamber, a surrounding air chamber provided with an outer and inner screen, and an inclosed or central air chamber also provided with an outer and inner screen, substantially as shown and described. 3rd. In a gas burner, the combination of an annular gas chamber, a central air tube terminating in a thimble having perforated sides, the said sides being set inwardly from the line of the flame, and an annular air chamber surrounding the gas chamber. 4th. In combination with an annular gas chamber 4, an annular perforated shells 9, 10 surrounding the same and adapted to supply air to the outside of the flame, and perforated thimbles 12, 14 within such annular chamber 4, and adapted to supply air to the outside of the flame, and perforated thimble 12, 14 within such annular chamber 4, and adapted to supply air to the inside of the flame, substantially as set forth. 5th. In combination with the walls 6, 7 forming the annular gas chamber 4, the double perforated thimble 12, 14 fitting the inner cylindrical wall 7, and the perforated shells 9, 10 surrounding the outer wall 6, the whole arranged and adapted to supply air evenly to all parts of the flame, substantially as set forth. 6th. In combination with the cylindrical walls 6, 7 forming the annular gas chamber 4, the perforated thimble 12 fitting the inner wall 7, and the ring 13 which said thimble 12 is fixed, and by which it is steadied, substantially as set forth. 7th. In combination with a gas burner having the chamber 4, the perforated shells 9, 10, a double perforated thimble 12, 14, the screen 15 spanning the space under the chimney, substantially as set forth. 8th. In a gas burner, the combination, of the separable annular gas tube or chamber provided with the screen 15, and jet apertures 5 with the inner and outer air tubes or chambers provided with means for sifting and directing the air currents. 9th. The combination, of a central air tube in a gas burner, a double perforated thimble, and a bead or stop for supporting said thimble from said tube, substantially as set forth.

No. 29,721. Piano Forte Action. (*Action de piano*)

Charles Bunce and Edwin H. Benedict, New York, (assignees of Mary H. McDonald, New York, Administratrix of the estate of James McDonald, Brooklyn), N.Y., U.S., 22d August, 1888; 5 years.

Claim.—1st. In a piano forte action, the combination of a key, a

simple transmitter rigidly fixed with relation to the part to which it is attached, and a pivoted hammer having a hammer butt made substantially circular or arc like in outline. 2nd. In an upright piano forte action, a pivoted hammer having a hammer butt with its lower edge substantially circular in outline, in combination with a key having a transmitting part in substantially a horizontal plane on its rear end, the curved edge of the hammer butt resting directly upon said transmitting part in whichever position the key may be held at rest, substantially as set forth. 3rd. In a piano forte action, the strings, the damper rail, the damper levers pivoted in said damper rail and having damper pads adapted to said strings, in combination with the keys at the piano, the hammer butt rail behind the rear ends of the keys, the hammers pivoted in said hammer rail having hammer butts and hammer heads, and being also provided with regulating screws carrying pads which co-operate with said damper levers, and said hammer butts having one edge substantially circular in outline, said curved edge being acted upon by a horizontal transmitting surface rigidly attached to the key, substantially as set forth. 4th. The method of making the rails for the hammers and dampers of a piano forte action of the whole length of the action in two pieces, which consists in grooving the top edge of each rail along its whole length to receive a wire, then gluing a strip of wood on the top of the rail above said wire, and when the glue is dry drawing out the wire, whereby a hole is formed in the entire length of the rail, and then forming notches in said rail, substantially as set forth. 5th. A rail for the hammers and dampers of a piano forte action having a strip of wood glued along one end or side thereof, said end or side being first grooved, and said rail with the glued strip attached thereto being formed with notches for the reception of the hammers or damper levers, substantially as set forth. 6th. The method of making the hammers of a piano forte action, which consists in first securing together the sheets of wood from which the hammer heads, shanks, and butts are formed, and then cutting out from such united sheets the hammers in a completed condition, substantially as set forth.

No. 29,722. Spherical Black Board. (*Tableau noir sphérique.*)

Edwin S. Havens, (assignee of William R. Story), Cincinnati, Ohio, U.S., 22d August, 1888; 5 years.

Claim.—1st. A spherical blackboard having its outer surface covered with a coat of slating or other suitable marking surface, in combination with divider G having the holes H corresponding to the degrees of latitude north and south, and suitable means for attaching said divider to the sphere. 2nd. A spherical blackboard having its outer surface covered with a coat of slating or other suitable marking surface, divider G having holes H, rod B, and dial F having the degrees and hours marked thereon, and suitable support for said sphere, as and for the purposes set forth. 3rd. In combination, with a spherical blackboard, the divider G having holes H, rod B, arc C, bearing block E, nut c and stand E, substantially as set forth.

No. 29,723. Attachment for Spherical Black Boards. (*Disposition aux tableaux noirs sphériques.*)

Edwin S. Havens, (assignee of William R. Story), Cincinnati, Ohio, U.S., 22d August, 1888; 5 years.

Claim.—1st. In combination with a spherical blackboard, constructed substantially as described, a stencil slightly concave on its inner face to fit the configuration of the blackboard, and suitable means for connecting said stencil to the blackboard. 2nd. In combination with a spherical blackboard, a stencil having outlines of countries perforated therein, and having the proper degrees marked thereon, and suitable means for connecting said stencil to the blackboard, as and for the purposes specified.

No. 29,724. Machinery for Making Barrel Staves. (*Machinerie pour faire les douilles des barils.*)

George Rehfsuss, John G. Rehfsuss and Martin O. Rehfsuss, Philadelphia, Penn., U.S., 23d August, 1888; 5 years.

Claim.—1st. The combination of a series of stave cutters, feeders for the staves, and reversible stave holders located between successive cutters, by which the staves are reversed side for side between the successive cutters. 2nd. The combination of a series of cutters, a series of transverse reciprocating stave-holding carriages, feeding devices for directing the staves from one carriage to another, and clamps on each carriage for automatically locking and releasing the staves. 3rd. The combination in a stave-cutting machine of the travelling carriage having a fixed jaw at one end, and a movable jaw at the opposite end, a link and lever forming a toggle connected to said movable jaw, with a cam moving said lever to lock the blank to or release it from the carriage. 4th. The combination in a stave-cutting machine of the travelling carriage having a fixed and a movable jaw, a link and lever forming a toggle, and a sliding bar and cam for operating said toggle. 5th. The combination in a stave-cutting machine of two cutters, and platforms therefor, with a pair of stave reversing jaws situated between the platforms and adapted to grasp only the ends of the staves, with devices for feeding the staves into and out of the jaws. 6th. The combination of a pair of jaws geared together, with devices for turning the jaws, and friction pins for retaining a stave blank when fed into the jaws. 7th. The combination in a stave-cutting machine, of concave and convex cutters, and reciprocated carriages therefor, stave feeders, stave turning jaws between said concave and convex cutters, and devices for simultaneously operating said carriages, stave feeders and turning jaws. 8th. The combination in a stave-cutting machine of chamfering and crozing cutters, with a platform movable to or from said cutters, with automatic locks for the stave blanks, with a reciprocating feeder to carry a stave onto the platform prior to cutting, and remove it, after cutting the whole being turned to work automatically. 9th. The combination of the chamfering and crozing cutters, with a sliding platform, a driving shaft, an eccentric thereon

having a slotted rod, and a toggle joint connection between the eccentric rod and the platform, a block carrying the pivot of the toggle being adapted to the slot in said rod. 10th. The combination of chamfering and crozing cutters, a sliding stove carrying platform and adjustable bar, toggle levers connecting the platform to the bar, and devices for operating said toggle levers to move the platform towards and from the cutters. 11th. The combination in a stove-cutting machine, of stove cutters and stove holding carriages on which the staves rest, a frame adapted to guides on the machines, and having fingers adapted to push the stove blanks from one carriage to another, and devices for reciprocating the frame. 12th. The combination of the cutters, travelling carriages each provided with a rack, a shaft having pinions gearing into the racks of the carriages, a segmental rack geared to a pinion on said shaft with devices for intermittently rotating said segmental rack.

No. 29,725. Vehicle Seat. (*Siege de voiture.*)

Charles M. Blydenburgh, Riverhead, N. Y., U. S., 23rd August, 1888; 5 years.

Claim—1st. The combination, with a chambered body portion, of a front seat portion hinged to the front of said body, and a rear seat portion hinged to the rear of the body, and provided with a lazy back adapted to enter the chambered body beneath the front seat, whereby the rear seat serves as a back for the front seat, substantially as described. 2nd. The chambered body A having front, rear, and side walls, in combination with a rear seat hinged or jointed to the rear walls at points between its sides, whereby said seat may be folded forward, and a lazy back connected to and movable with said rear seat, substantially as described. 3rd. The body A having front, rear, and side walls, in combination with a rear seat hinged or jointed to said rear wall at points within or between the side walls, whereby said rear seat may be folded forward, and a front seat hinged or jointed to the front wall of the body, substantially as described. 4th. The chambered body A, having the inner portions of its sides provided with shoulders or cleats, and a hinged front seat supported thereon, in combination with a rear seat hinged or jointed to the body within or between its sides, and a lazy-back movable with the rear seat, and adapted to enter the chambered body beneath the front seat, whereby said rear seat is sustained when serving as a back for the front seat, substantially as described. 5th. The body A, and a rear seat hinged between its side walls, in combination with a folding or hinged support for said seat, substantially as described.

No. 29,726. Iron Chair. (*Fauteuil de fer.*)

Alexander M. Gjestvang, Christians, Norway, 23rd August, 1888; 5 years.

Claim—1st. Legs for chairs and other furniture made from wire whose lower part consists of a wire which is laid double and twisted, one branch of the same diverging to the side and forming a horizontal brace to another leg of the chair, and the other branch continuing upward and uniting with a wire coming from a third leg, and twisted together with this one, forming a support part of the leg, substantially as herein described. 2nd. The mode of forming a foot on the legs, which consists in forming a loop on the lower end of the leg, which loop is bent at right angles with the leg, substantially as herein described.

No. 29,727. Furniture Spring. (*Ressort de meuble*)

Alexander M. Gjestvang, Christians, Norway, 23rd August, 1888; 5 years.

Claim—A furniture spring composed of sections of wire springs diverging from a common centre or central line, being substantially the centre or central line of the furniture seat to which the spring is applied, and being gradually bent upward, receiving thereby a substantially semi-elliptic or parabolic form in the vertical plane, each section terminating at a point right above or substantially right above the issue, or being at such point united to each other, two and two sections or more being thereby made from one wire, said springs being provided with or not provided with a lesser or greater number of convolutions, and said springs being held at their lower ends in a common centre piece adapted to be secured to the furniture by a single bolt or a small number of bolts, substantially as herein described.

No. 29,728. Crutch. (*Béquille.*)

James F. Pluche, Watertown, N. Y., U. S., 23rd August, 1888; 5 years.

Claim—As an improvement in crutches, a trussed standard composed of four pieces arranged in pairs on opposite sides, the upper ends of said four pieces being inserted into the under side of the saddle in line with one another, and the lower ends clustered together into a single column, substantially as and for the purpose shown and set forth.

No. 29,729. Feed Water Heater. (*Réchauffeur d'eau d'alimentation.*)

James Miller, Joliet, Ill., U. S., 23rd August, 1888; 5 years.

Claim—1st. In the feed water heating and purifying apparatus described, the heater A, having arranged thereon at or near its lower part a pipe connecting the exhaust of a steam engine, and a series of short vertical exhaust pipes arranged in the upper part of said pipe, a plate arranged longitudinally above said vertical exhausts and perforated as set forth, and a perforated cold water supply pipe arranged longitudinally above said plate in such manner as to discharge a water spray upon said plate, whereby the steam exhausts against said plate, mingles with and heats the water, and condenses in the manner substantially as and for the purpose specified. 2nd. The feed water heater and purifier described, consisting of a horizontal body A having arranged thereon the steam exhausts S, P, perforated plate D above said exhausts, and perforated feed pipe B above said plate, in

combination with a filter arranged below said body, and connected therewith by means of a pipe, and having a deposit of wood shavings through which the water filters, a receiving reservoir, and a discharge pipe substantially as and for the purpose specified. 3rd. In combination with the heater A, the inlet steam pipe S having the vertically arranged exhaust pipes P, the perforated plate D, having the sides D', the perforated cold water inlet pipe B, the filter H connected with and below said heater by means of a pipe F, and having a receptacle for filtering material and for holding filtered water and the means shown and described for automatically regulating the cold water supply, substantially as and for the purpose set forth. 4th. The combination, with the heater A, of the pipe S having the exhausts P, plate D, feed pipe B, pipe E and filter H having the perforated partition P' and filtering deposit F, a water reservoir and a discharge pipe W, arranged to operate in the manner substantially as and for the purpose specified. 5th. In the feed water heater and purifier described, in combination, with the receiving reservoir thereof and valve V of the supply pipe, the stand pipe O connecting said reservoir by means of a pipe, a float arranged in said stand pipe, a lever connecting said valve at one end and said float at its opposite end through the medium of a rod, and adapted to operate in the manner substantially as and for the purpose specified. 6th. In the feed water heating and purifying apparatus described, the filtering purifier thereof consisting of a body H having a perforated partition for supporting a deposit of filtering material, composed of a quantity of wood shavings through which the heated water passes to a receiving reservoir, substantially as and for the purpose specified. 7th. In a feed water heating and purifying apparatus described, in combination with the receiving reservoir, the stand pipe O having arranged therein, a float connected with a valve of the water supply pipe by means of mechanism substantially as set forth, whereby the water supply to the apparatus is regulated automatically by the rising and lowering of water in the reservoir, in the manner specified.

No. 29,730. Valve Nut Lock.

(*Arrête écrou de soupape.*)

William H. Van Wart, Stonington, Conn., U. S., 23rd August, 1888; 5 years.

Claim—1st. A valve nut lock, consisting essentially of a divided ring or band adapted to contract and expand circumferentially, and an arm extending from said ring or band, substantially as specified. 2nd. A valve nut lock comprising a divided ring formed with ears or lugs at its divided portion, a screw engaging said lugs and acting to contract or enlarge the bore of said ring, and an arm extending from said ring approximately in the plane of the bore thereof, substantially as described.

No. 29,731. Oil Can Holder. (*Porte-bidon à huile*)

Elisha A. Durfee, Mitchell, Dak., U. S., 23rd August, 1888; 5 years.

Claim—1st. An improved holder or bracket for oil cans having the spring held arm provided with fingers, substantially as shown and described. 2nd. The circular ring or bracket having the groove or recess, and the spring-held arm provided with fingers, substantially as shown and described. 3rd. The ring or bracket, the arm or extension, the posts or gudgeons and the spring-held arm, substantially as shown and described. 4th. The combination, with the ring or bracket and the arm or extension, of the pivotally secured arm having the curved fingers, and the spring secured to a post or stud and bearing against said pivoted arm, substantially as shown and described. 5th. The herein described improved oil can holder, comprising the circular ring or bracket, the stationary arm or extension having the posts or gudgeons, the pivoted arm having the curved fingers projecting therefrom, and the spring, substantially as shown and described.

No. 29,732. Thill Coupling. (*Arçon de limonière*)

Denis M. Denchy, Acampo, Cal., U. S., 23rd August, 1888; 5 years.

Claim—In a thill coupling, the combination, with the shackle, of the thill-iron having the angular branch tapped as shown, the screw passing through the said tapped branch, the bearing for the shackle-bolt and the nut on the screw outside of the said angular arm, substantially as specified.

No. 29,733. Mowing and Reaping Machine. (*Faucheuse-moissonneuse.*)

William Brenton, St. Germans, Eng., 23rd August, 1888; 5 years.

Claim—1st. A finger bar for mowing or reaping machines formed with grooves d, d' adapted to receive corresponding ribs e, e' on the fingers, or vice versa with ribs adapted to enter corresponding grooves in the fingers, substantially as and for the purpose described. 2nd. A finger bar for mowing or reaping machines having grooves d, d' as described, in combination with fingers b, b' having lugs e, e' adapted to fit into the said grooves, substantially as described.

No. 29,734. Car Unloader. (*Chasse-charge de char.*)

Henry M. Barnhart, Marion, Ohio, U. S., 23rd August, 1888; 5 years.

Claim—1st. In a car unloader, the combination, with a plough and fender, the said parts having a vertical sliding connection with each other, of a lever fulcrumed on the fender and loosely connected to the plough, whereby the relative height of the plough to the fender may be regulated, substantially as set forth. 2nd. The combination, with a plough, a fender, and arch bars connected with the fender, and made to embrace the forward end of the plough, a pin made to pass through the cutter of the plough, and into the slots of the bracket, substantially as set forth. 3rd. The combination, with a plough and a fender, of a lever pivoted to the fender, a link connecting the lever with the plough, whereby the front portion of the plough may be

olevated, substantially as set forth. 4th. The combination, with a connected plough and fender, the former having vertical play, substantially as indicated, of a lever pivoted on the fender and connected by a link with the cutter of the plough, substantially as set forth. 5th. The combination, with a plough, a fender and a lever, of a poise or counterbalance mounted on the lever, substantially as set forth. 6th. The combination, with a plough, a fender and a lever, of a poise mounted on the lever, said poise being adjustable lengthwise of the lever, substantially as set forth. 7th. The combination of a plough, a fender, a lever and a poise, substantially as indicated, said lever having a return bend, whereby the poise may be moved on either side of the fulcrum of the lever, substantially as set forth.

No. 29,735. Railway Spike.

(*Chevillette de chemin de fer*)

Howard Greer, Lakewood, Ill., U.S., 23rd August, 1888, 15 years.

Claim.—1st. In a railway spike, a lug 4 on the rear of the spike head, the lower face of which when the spike is driven stands a little above the upper face of the tie, substantially as set forth. 2nd. In a railway spike, a back lug 4, the lower face of which is in a plane higher than, and parallel or approximately so, to the plane of the lower face of the hook 3, substantially as set forth. 3rd. A railway spike having in combination a hook 3, a lug 4 and inclines 5, 7, substantially as set forth.

No. 29,736. Process for Obtaining Motion from Heat Produced by the Combustion of Liquid or Gaseous Fuel and Air

(*Mode de production du mouvement par la chaleur cr e par la combustion de combustibles liquides et gazeux et de l'air.*)

James Hargreaves, Farnworth, Eng., 23rd August, 1888, 5 years.

Claim.—Obtaining motion by causing liquid or gaseous fuel and air, in combination with water, to react on each other, in manner following: air is mixed with water under pressure and heated until saturated with water vapour, the saturated air is mixed with steam and superheated, the saturated and superheated mixture is raised to a red heat and brought into contact with liquid or gaseous fuel, the products are allowed to expand, and the greater portion of the heat remaining is used to heat the water and air by means of saturators, superheaters, and regenerator.

No. 29,737. Car Mover.

(*Lever de mise en marche des chars*)

John Bird, Warren, Ill., U.S., 23rd August, 1888, 5 years.

Claim.—1st. The combination of a shoe having a shoulder or bearing formed upon its top, with the lever having a fulcrum which catches against the shoulder or bearing, the connecting links and the steel pieces which are inserted in the bottom of the shoes, substantially as shown. 2nd. The combination of the shoe provided with sharp edges to bite into the rail, and a shoulder or bearing upon its top, with the lever which is loosely connected by means of links with the shoe, and which is provided with a fulcrum to catch against the shoulder on the shoe, substantially as set forth.

No. 29,738. Earth Auger or Well Borer.

(*Tr pan ou sonde de puits*)

Joseph Garand, C teau, Que., 23rd August, 1888, 5 years.

Claim.—1st. In a well borer, or earth auger, hollow tube A with separate piece at the end, provided with spiral edges B to receive and hold blade B, substantially as and for the purpose hereinbefore set forth. 2nd. In a well borer, or earth auger, square conical seat H, in connection with square cone A, and collar I, substantially as and for the purpose hereinbefore set forth. 3rd. In a well borer, or earth auger, spindle C, spiral spring D, swivel E, central tube E, conical seat H, and square cone A, and pin L, substantially as and for the purpose hereinbefore set forth. 4th. In a well borer, or earth auger, the body or tube A and A', blade B, seat H, and square cone H', with bit J, the whole arranged and shown as described substantially as and for the purpose hereinbefore set forth.

No. 29,739. Stovepipe for Churches.

(*Tuyau de po le pour  glises*)

Octavo Dozjardins, Montr al, Que., 23rd August, 1888, 5 years.

R sum .—Un tuyau de po le pour  glises et autres lieux analogues, compos  du tuyau principal A de diam tre uniforme, et des troncons B, C, en combinaison avec la balustrade H, la calotte P, les chaines L, L', et les crochets E, E', E'', I, I', et le ventilateur K, le tout tel que ci-dessus d crit et pour les fins sus-mentionn es.

No. 29,740. Convertible Drain Cleaner.

(*Nettoyeur d'egout convertible.*)

Eston J. Robinson, Toledo, Ohio, U.S., 23rd August, 1888, 5 years.

Claim.—1st. In a drain cleaner, a scoop, in combination with a detachable end portion, as and for the purpose set forth. 2nd. In a drain cleaner, a scoop, a bail connected therewith, and a removable end portion provided with a bar adjustably connected with the bail, as and for the purpose set forth. 3rd. In a drain cleaner, in combination with a scoop, a removable and reversible end portion, as and for the purpose set forth. 4th. In a drain cleaner, a scoop, a removable end portion, in combination with a bail secured to the scoop, and having an under arched portion, provided with a dove tailed groove in which the end portion is secured, and an upper segmental cogged portion having a handle pivoted thereto and held to any adjustment relative to the scoop by means of a locking lever, as and for the purpose set forth.

No. 29,741. Potato-Digger. (*Arrache-patates.*)

John Sundergan, Watervliet, N.Y., U.S., 23rd August, 1888; 5 years.

Claim.—1st. In a potato digger, a ground-bar having mounted thereon and in combination therewith a soil-loosening share pivoted about a horizontal axis, and a heel consisting of a metallic blade projecting downward from the lower side of the bar and tapering toward the share, substantially as described. 2nd. In a potato-digger, the combination, with the ground-bar F having a projecting point C, and cutting wings e, sharpened on their force edge extending obliquely from the ground bar in a horizontal plane, of a heel D consisting of a narrow blade of metal curved or inclined to a point at its front end, and leveling-arm E curved backward from the point of their attachment to the ground-bar, and arranged in a horizontal plane slightly above that of the cutting-wings, substantially as described.

No. 29,742. Automatic Car Brake.

(*Frein automatique de char.*)

Thomas De Coar and William Keast, Russell Gulch, Col., U.S., 23rd August, 1888; 5 years.

Claim.—1st. In a car-brake, the combination, with a friction clutch, of longitudinal bars, a central lever to which the bars are connected, connections between the bars and the friction clutch, a spring to which the central lever is connected, chain wheels, connections between the chain wheels and a lever 27, a spring arranged in connection with the lever 27, and connections between the lever 27 and the brake bars, substantially as described. 2nd. In a car brake, the combination, with a friction clutch, of longitudinal bars, connections between said bars and one of the clutch sections, a central lever to which the longitudinal bars are connected, a spring arranged in connection therewith, chain wheels carried by one of the clutch sections, connections between said wheels and the lever 27, a spring arranged in connection with said lever, brake bars 34 carrying eccentrics 36 having side flanges 37, brake blocks, links by which said blocks are suspended, and springs arranged in connection with said links, substantially as described. 3rd. In a car brake, the combination, with an inclined faced wheel rigidly connected to one of the car axles, and formed with a sleeve 11, a chain wheel formed with shoe sockets and mounted to slide on the sleeve 11, longitudinal bars, connections between said bars and the wheel 12, a lever 21 to which the longitudinal bars are connected, a spring 22 arranged in connection therewith, a lever 27, chains leading from the chain wheels to said lever, a spring 30 to which the lever 27 is connected, brake bars and connections between the brake bars and the lever 27, all substantially as described. 4th. In a car brake, the combination, with longitudinal bars formed with hooks 20, of bars 44 engaging with said hooks, a rod or chain 50, levers 52 to which said rod or chain is connected, and fingers carried by said lever and arranged to bear against the under faces of the bars 44, substantially as described.

No. 29,743. Apparatus for the Administration of Liquid Medicine. (*Appareil pour administrer les m dicines liquides.*)

Edwin S. Randall, Dayton, Ohio, U.S., 27th August, 1888; 5 years.

Claim.—The combination of the arm A curved in cross-section, and pointed flat end B, provided with guide C and groove B', all as and for the purposes set forth.

No. 29,744. Tool for Boring and Turning.

(*Outil pour percer et tourner.*)

Wallace H. Dodge, (assignee of George Philion), Mishawaka, Ind., 27th August, 1888, 5 years.

Claim.—1st. The combination, with a tool stock having a face and a seat adjacent thereto, of a leading cutter secured to the face, in such a position as to bring the cutting edge in substantially a curved line, and a following cutter secured to the seat, in such position as to bring its cutting edge within the curve of the leading cutter, and in a plane inclined to such curve, as and for the purpose described. 2nd. The combination with a tool stock A having two seats f, e in plane substantially transverse, and with the seat e inclined edgewise or laterally toward the plane of the seat f, combined with the cutting bits E, F adjustably secured in said seats respectively, whereby the end of the cutting edge of the bit F may be caused to touch the side of the bit C to prevent the passage of chips between them. 3rd. Combined with a reciprocating tool holder G, a tool stock A having a Shank d adapted to pass obliquely through said tool holder, and provided with a seat f to receive a cutting bit C, with its cutting edge substantially parallel with the plane of advance of said holder G, and a seat e to receive a cutting bit F with its cutting edge substantially transverse to said plane of advance, whereby the cutter C will cut across the fibers in a line exterior to the holder G, and the cutter F will remove the severed material in advance of said holder, substantially as set forth.

No. 29,745. Can-Crimper and Capper.

(*Embouteilleur et coiffeur de bo te m tallique*)

Mathias Jensen and The Jensen Can Filling Machine Company, Astoria, Oregon, U.S., 27th August, 1888; 5 years.

Claim.—1st. An endless traveling wing-belt, a stop E extending across it to change the direction of the cans, and arms swinging over the belt, whereby the delivery of the cans from the belt to the feeder is rendered exact, substantially as herein described. 2nd. The endless carrying belt upon which the cans are placed, the transverse stop extending over the belt at a point where the cans are received by the feeder, the feeder and the arms swinging across the belt so as to stop the cans, and determine their time of delivery to the feeder, in combination with connecting links or devices extending from these arms to the feeder, so that they may be moved backward by the

movement of the feeder to allow the cans to advance upon the belt, substantially as herein described. 3rd. In combination with a transverse belt, the feeder having the projecting arms between which the cans are received from the belt, and the actuating devices by which the motions of the feeder are produced, substantially as herein described. 4th. In combination, with a transverse belt, the capping-table and crimper, the feeder having the projecting arms to receive the cans, and transfer them from the belt to the capping-table, and from the capping table to the crimper successively, together with the mechanism by which its movements are produced, substantially as herein described. 5th. The inclined chute into which the caps are placed, and a stop extending across said chute, so as to prevent the caps from moving downward, in combination with a trigger extending across the path of the cans as they are moved toward the capping-table, said trigger being connected with the stop, so that as it is moved backward by the passage of the can it withdraws the stop to allow a cap to move down the chute, substantially as herein described. 6th. The inclined cap-carrying chute with the stop and releasing-trigger actuated by the movement of a can toward the capping-table, in combination with the spring-holder R, substantially as herein described. 7th. The inclined cap-carrying chute with its stop actuated by the passage of a can toward the capping-table, the cap-holding spring extending below the stop, and the oscillating forked arm by which the caps are removed from the spring and delivered into position to be placed upon the can, substantially as herein described. 8th. The inclined cap-carrying chute with its stop spring and the feeding arms, in combination with the transversely-moving slides having the countersunk to receive the caps and hold them while the can is being advanced toward the cap, substantially as herein described. 9th. The vertically-moving plunger upon which the cans are delivered by the feeder, in combination with the conical guide standard above the cans, and the transversely-moving slides upon which the caps are received and held with a mechanism by which the slides are withdrawn as the can enters the cap, substantially as herein described. 10th. The vertically-moving plunger by which the can is raised to receive the cap, and the guide into which the upper end of the can enters, the transversely-moving cap-holding slides, in combination with the second plunger moving vertically above the cap, and following it down by a ratchet or otherwise, so as to steady the can in its descent after the cap has been applied, substantially as herein described. 11th. The vertically-moving plunger upon which the can is received, a carrier for placing the can upon the plunger, and a mechanism by which this plunger is reappointed vertically, in combination with a second plunger which rests upon the top of the cap and steadies it while descending, and a mechanism for raising the second plunger before the arrival of the next cap, substantially as herein described. 12th. The receiving-table and means for removing the cans therefrom, in combination with the vertically-revolving shaft with its driving-gear, the chambered rotating heads for receiving the caps and upper ends of the capped cans, gearing by which motion is imparted to said heads, and the vertically-moving disk by which the can is raised and the cap held within the rotating head, substantially as described. 13th. The rotating heads, the shaft *l* and means for rotating said heads, a table supported on said shaft, and vertically-moving disks carried by said table, in combination with the cams *Q* and the lever arms *T* carried by said shaft traveling over the cans and raising the disks to force the caps into the rotating heads, substantially as and for the purpose described. 14th. The rotating heads, the vertical shaft *l*, means for rotating said shaft and heads, the receiving-table on said shaft and vertically-moving disks mounted in the table, in combination with the hangers *s* carried by the vertical shaft, crimping-wheels mounted in said hangers, and the cams for operating the crimping-wheels, substantially as herein described. 15th. The vertical shaft *l*, the receiving-table thereon and guiding-plates onto which the cans are received, in combination with rotating heads carried by said shaft, vertically-moving disks mounted in said table and receiving the bottoms of the cans, in combination with the hangers *s* carried by said shaft, crimping-wheels mounted in the hangers having arms traveling in contact with a cam, an adjusting mechanism for the same, and means for actuating the vertical shaft, rotating heads and vertically-moving disks, substantially as described. 16th. The intermittently-operating can-feeder, the traveling bolt from which the cans are removed by the carrier, a mechanism for feeding the caps and placing them upon the cans, and a crimping mechanism, in combination with a driving-shaft gearing, and intermediate mechanisms by which the whole are driven in unison with relation to each other, substantially as herein described.

No. 29,746. Fire Ladder Truck.

(*Charriot d'échelle à incendie*)

The Fire Extinguisher Manufacturing Company, New York, N. Y., (Assignee of Ernest F. Steck, Chicago, Ill.), U. S., 27th August, 1888; 5 years.

Claim.—1st. A fire-ladder truck having a ladder fulcrumed at its forward end and provided with a driver's seat, which said seat when the ladder is in a recumbent position stands supported from and over said fulcrumed end of the ladder, for the purpose set forth. 2nd. A fire-ladder truck having a ladder fulcrumed at its forward end, and provided with a removable driver's seat, which, when the ladder is in a recumbent position stands detachably supported upon said fulcrumed end of the ladder, for the purpose set forth. 3rd. The combination, substantially as set forth, of the ladder fulcrumed at one end, and the driver's seat with short seat supports for supporting the rear portion of the seat from the ladder when the latter is in a recumbent position, front seat legs arranged to stand in front of the forward end of the recumbent ladder, and attaching devices for connecting the front seat legs with the ladder, for the purpose set forth. 4th. The combination, with the ladder fulcrumed at one end, of the driver's seat having front legs with a foot-board and attaching devices, substantially as set forth, for connecting the front legs with the ladder. 5th. In a ladder truck, the removable foot brake lever *D* extending up in front of the foot-board, substantially as described. 6th. The combination, with an extension ladder truck provided with a ladder which is fulcrumed at the end portion of the truck, of the steerer's

seat arranged in rear of the steering wheel, and at one end pivotally hung upon a support rising from one side of the ladder truck, a support for the opposite free end of seat rising from the opposite side of the ladder truck, and a locking device for temporarily locking the free end of the seat to its allotted support, said two supports being arranged in height to support the seat across the ladder when the latter is in a recumbent position, for the purpose set forth. 7th. In a ladder truck, the steerer's seat pivotally supported at one side of the truck, and provided with a bearing for the hand steering-wheel rod, said wheel being supported from the seat when the latter is swung over to one side, substantially as described. 8th. The combination, with a spring ladder truck carrying a ladder fulcrumed thereon, of a clamping or spring-holding device for temporarily holding down the spring or springs in a depressed condition, substantially as and for the purpose described. 9th. The combination, with a spring ladder truck carrying a ladder fulcrumed thereon, of a spring holding device *P* for temporarily holding down the spring or springs, substantially as and for the purpose described. 10th. The combination, with a spring ladder-truck carrying a ladder fulcrumed thereon, of the spring holding device *P* suspended upon the truck, substantially as described. 11th. The combination in a ladder truck, of a spring holding device for the purpose described, and a locking device *K*, for the purpose set forth. 12th. In a ladder-truck, the keeper *U* arranged for holding in place the pom-pom-ladders, substantially as set forth. 13th. In a ladder-truck, the combination with the steerer's seat hinged at one of its ends upon the truck, of the rest *L* for supporting such seat when the same has been thrown to one side of the truck, substantially as described. 14th. In a ladder-truck, the combination with the screws *V* for raising and lowering the ladder, of the swiveled nuts or bearings serving as connections between the screws and the ladder and rigid with the outer ends of pivot-rods *V* that are mounted to turn in bearings upon the ladder, substantially as described. 15th. In a ladder-truck, the combination with the screws, of the nuts constituting swiveled connections between the screws and the ladder and rigid upon pivot-rods *V*, which are mounted upon bearings on the ladder, and at their inner ends fitted to turn on a nut or screw *V*, substantially as described. 16th. The herein described ladder having a metal extension, substantially as and for the purpose described. 17th. The combination with the pivoted ladder, of the extension ladder, having at one end a metal extension, for the purpose described.

No. 29,747. Machine for Rabbeting, etc.

(*Machine à assembler à mi-bois, etc.*)

The Dodge Manufacturing Company, (assignee of Charles McNeal), Mishawaka, Ind., U. S., 27th August, 1888; 5 years.

Claim.—1st. The table C provided with the guide groove *g*, shaft D and cutter-head E, combined with the inclined carriage H adapted to slide on the table C conducted by the groove *g*, and to overhang the side of said table, said carriage being provided with a longitudinal rest-bar *k*, to support the end of the spoke arm blank near the cutter, and with the adjustable gauge board *m* to support the opposite end of said blank in the desired position as to the horizon, and the gauge *S* adapted to engage some shoulder of said blank, and thereby definitely locate the place to be cut by said cutter, substantially as set forth. 2nd. The table C provided with the shaft D and cutter-head E, combined with the inclined carriage H, adapted to slide and be wholly supported in guides upon the table C, and to overhang the same, provided with a longitudinal rest bar *k* near to the plane of the cutter, and the gauge-board *m* laterally exterior to the base of the machine, said gauge-board being adjustable laterally to vary the angle at which the spoke arm blank is presented to the cutter, and the adjustable gauge *S*, substantially as set forth. 3rd. The table C provided with the shaft D, and the grooving cutter-head E, and the inclined overhanging carriage H adapted to slide and be wholly supported on said table, combined with the rest bar *k*, the supporting bars *n*, the gauge board *m* adjustable longitudinally thereon, and the hinged bar *Q* provided with the adjustable gauge *S*, substantially as set forth. 4th. The table C provided with the shaft D, and grooving cutter head E, combined with the carriage H overhanging the side of said table, and adapted to slide and be supported wholly thereon, provided with the gauge board *m*, and a rest near to the cutter adapted to hold the spoke arm with one edge higher than the other, for the purpose of cutting the rabbit *f* deeper at one edge of the arm than at the other. 5th. In a rabbeting machine having a table C, shaft D and cutter head E, a carriage to receive and carry the blank spoke arm to the cutter, a rest bar *k* provided with a series of holes *v* progressively increasing in depth, combined with a rest pin *u* for an adjustable support to hold one edge of said blank higher than the other, to cause the rabbit *f* to be cut deeper at one edge of said arm. 6th. In a rabbeting machine, a carriage to receive and hold the blank spoke arm and carry it to the cutter, a rest bar *k* near to said cutter to support one end of said blank, and a flange board *m* to support the other end, combined with the supplemental supporter *W* attached to said gauge board, to raise the supporting surface to the level of the rest bar *k*, substantially as described.

No. 29,748. Stretcher for Felt or Fabric Boots, etc. (*Forme-brisée pour chaussures de feutre ou de drap, &c.*)

The Mashawaka Woollen Manufacturing Company, (assignee of Adolphus Eberhart, Mishawaka, Ind., U. S., 27th August, 1888; 5 years.

Claim.—1st. In combination, the stretching blades A, A having the handles *b*, *b* and lever *g*, substantially as and for the purpose hereinbefore set forth. 2nd. The stretching blade A, having long handles *b*, *b*, with pivotal connections at their extremities. 3rd. The stretching blades A, A, having long handles *b*, *b*, the fulcrum plate *P* provided with series of holes *d*, *d* for the pivotal fulcrum pin and the lever, substantially as and for the purpose hereinbefore set forth. 4th. The opening levers or blades A, *b*, pivoted to the fulcrum plate C.

No. 29,749. Expanding Apparatus.*(Appareil à expansion.)*

George Edwards, Thornton Heath, Eng., 28th August, 1888; 5 years.

Claim.—1st. An apparatus for the purposes above specified, consisting of expanding and contracting lattices, formed of slats or bars connected by more than three joints, substantially as set forth. 2nd. An apparatus for the purposes above specified, consisting of expanding and contracting lattices or lazy-tongs, so coupled or connected at the edges or corners of the structure that whilst free to expand and contract they are firmly held at the required angle to each other, as above specified. 3rd. In apparatus for the purposes above specified, consisting of expanding and contracting lattices or lazy-tongs, coupled or connected at the edges or corners of the structure by corner-plates or angle pieces, substantially as and for the purpose set forth. 4th. An apparatus for the purposes above specified, consisting of expanding and contracting lattices or lazy-tongs, so coupled or connected at the edges or corners of the structure, that whilst free to expand and contract, they are firmly held at the required angle to each other, part of the apparatus being composed of ordinary lazy-tongs, and the remaining part of lattices, the slats or bars of which are connected by more than three joints, substantially as and for the purposes set forth. 5th. In an apparatus consisting of expanding and contracting lattices or lazy-tongs connected as above described, trough-shaped or channelled slats or lattice bars, substantially as described and as shown in Fig. 18, for the purpose above specified. 6th. In an apparatus consisting of expanding and contracting lattices or lazy-tongs connected as above described, an eye-bolt connector substantially as described, and as shown in Fig. 15, for the purpose specified. 7th. The combination, with a structure formed of lattices or lazy-tongs connected at the edges or corners as above described, of means substantially as described for expanding and contracting the said structure, for the purposes specified. 8th. An apparatus for the purpose above specified, consisting of expanding and contracting lattices or lazy-tongs connected at the edges or corners as above described, and made in lengths or sections united by means of webbed corner plates or terminal connectors, substantially as set forth. 9th. An apparatus for the purposes above specified, consisting of expanding and contracting lattices or lazy-tongs connected at the edges or corners as above described, said lattices having man holes formed therein and surrounded by slats or bars of increased strength, substantially as set forth. 10th. In an apparatus consisting of expanding and contracting lattices or lazy-tongs connected at the edges or corners, as above described, a clip or hinged nut and bearing for securing the expanding or stiffening screws to the apparatus whilst permitting their ready detachment or removal therefrom, as and for the purpose above specified. 11th. The combination, with an expanding and contracting structure formed of lattices or lazy-tongs connected at the edges or corners, as above described, of means substantially as described for stiffening or preventing the contraction of said structure. 12th. The combination, with an expanding and contracting structure formed of lazy-tongs connected at the edges or corners, as above described, of rope or chain trusses and struts, substantially as and for the purpose set forth. 13th. The combination, with an expanding and contracting structure formed of lattices or lazy-tongs connected at the edges or corners, as above described, of a hydraulic ram for expanding said structure, said ram being so constructed and arranged that it may be worked by pressure from the ordinary water mains or pumps and will serve for conducting water from said mains or pumps to delivery hose, substantially as and for the purpose set forth. 14th. In combination with an expanding and contracting structure formed of lattices or lazy-tongs connected at the edges or corners, as above described, a skeleton carriage with tubular or other side bars or axles, and with levelling and tilting legs and feet, all substantially as described, and as shown in Figs. 21 to 26, for the purposes specified. 15th. In combination with an expanding and contracting structure formed of lattices or lazy-tongs connected at the edges or corners, as above described, of a skeleton carriage provided with a frame, and means substantially as described for raising said carriage and holding it up, so as to leave a clear passage through said carriage for the purpose above specified. 16th. The combination of two or more expanding and contracting structures formed of lattices or lazy-tongs connected at the edges or corners, substantially as and for the purposes set forth. 17th. The combination, with an expanding and contracting structure formed of lattices or lazy-tongs connected at the edges or corners, as above described, of a cage, basket, or box arranged to be raised and lowered therein, substantially as and for the purposes set forth. 18th. The combination, with an expanding and contracting structure formed of lattices or lazy-tongs connected at the edges or corners, as above described, of a cage, basket, or box provided with a detachable or removable bottom, and arranged to be raised and lowered within said structure, substantially as and for the purposes set forth. 19th. The combination, with the expanding and contracting structure of the safety hook, substantially as and for the purposes set forth. 20th. The combination, with an expanding and contracting structure formed of lattices or lazy-tongs connected at the edges or corners, as above described, and designed to serve as a pontoon or bridge, of a box wagon adapted to be used for buoying up or supporting said structure, substantially as and for the purpose set forth. 21st. The combination, with an expanding and contracting structure formed of lattices or lazy-tongs connected at the edges or corners, as above described, of planking and flooring consisting of strips, plates, or other pieces of wood, metal, or other suitable material, hinged or pivoted to said structure, substantially as and for the purposes set forth. 22nd. The combination, with an expanding and contracting structure formed of lattices or lazy-tongs connected at the edges or corners as above described, of piers or supports similarly constructed, and so connected with said structure that the latter and said piers or supports can be expanded and contracted, substantially as and for the purpose set forth. 23rd. The combination, with an expanding and contracting structure formed of lattices or lazy-tongs connected at the edges or corners, as above described, of means substantially as described, for expanding said structure more rapidly at one side than at the opposite side, substantially as set forth.

No. 29,750. Machine for Rolling and Creasing Horse Shoe Blanks. *(Machine à laminer et canneler les ébauches des fers à cheval.)*

Jacob Russell, Brooklyn, N.Y., U.S., 28th August, 1888, 5 years.

Claim.—1st. A pair of rolls for rolling horse shoe blanks having the creaser on the lower roll, and one collar-flange on the upper roll, and the other collar-flange on the lower roll, as set forth. 2nd. A pair of rolls for rolling horse shoe blanks having the creaser on the lower roll, and one collar-flange on the upper roll, and the other collar-flange on the lower roll, the axis of the rolls being parallel, as set forth. 3rd. A pair of rolls for rolling horse shoe blanks having the creaser on the lower roll, and one collar-flange on the upper roll, and the other collar-flange on the lower roll, the axis of the rolls being parallel, and the faces of the overlapping flanges being planes at right angles to the said axis of the rolls, as set forth. 4th. A pair of rolls for rolling horse shoe blanks having the creaser and one collar on the lower roll, the elevation on the creaser for producing the nail-creaser being arranged next to said collar, and having the other collar-flange on the upper roll, as set forth. 5th. In a pair of rolls for rolling horse shoe blanks, the combination of the collar on the upper roll provided with a flange *d*, with its face arranged perpendicular to the axis of the roll, and a cone *d*, the collar-flange *E* on the lower roll provided with an inclined face 3, and a creaser *F* on the lower roll provided with the necessary elevations to form the nail-creaser, arranged adjacent to said face 3, as set forth. 6th. The combination, with the collar-flanges on the rolls, of the cone *d*, and the creaser *F*, both provided with recesses *e*, *e*, as and for the purposes set forth. 7th. The combination, with the collar *E* provided with an inclined face 3, and a recess *e* to receive a reduced part *f* of the creaser ring, of the said creaser ring provided with recesses in its edge to form the calks, said face 3 extending down to a point as low as the bottom of the deepest recess in the edge of said creaser, for the purpose set forth.

No. 29,751. Heating by Electricity.*(Chauffage par l'électricité.)*

Elias F. Ries, Baltimore, Md., U.S., 28th August, 1888; 5 years.

Claim.—1st. In a system of heating by electricity, the combination, with suitable low resistance supply conductors, of one or more exposed heat developing conductors arranged in multiple arc between the supply conductors, substantially as described. 2nd. In a system of heating by electricity, the combination, with suitable low resistance supply conductors, of one or more exposed heat developing metallic conductors arranged in multiple arc between the supply conductors, substantially as described. 3rd. In a system of heating by electricity, the combination, with the heating circuit, of an inductual transformer, the primary coils of which are in circuit with the supply conductors, secondary conductors extending therefrom, and carrying electric currents of low electro-motive force but large volume, and heat developing translating devices connected in multiple arc between said secondary conductors, and consisting of thin strips of conducting metal of small cross section and large surface area, substantially as described. 4th. The combination of conductor of very low resistance, a suitable source of alternating currents of electricity, and metallic heat developing radiators of large surface but inferior conductivity, having greater superficial area than said low resistance conductors, but of lesser conductivity in circuit therewith, substantially as described. 5th. A system of heating by electricity, consisting essentially of a source of alternating current, an inductual transformer having its primary in circuit with said source, and the secondary circuit of which is of very low resistance, and conductors consisting of exposed heat radiating metallic bodies of comparatively low resistance connected between the secondary circuit conductors in multiple arc, substantially as described. 6th. An inductual transformer comprising one or more primary coils, and a plurality of secondary coils, the primary coils being connected with a source of alternating or intermittent electric currents, and the secondary coils supplying their currents direct to separate work in circuits including respectively electric lamps and exposed heat developing conductors, substantially as described. 7th. The combination, with an electric circuit of varying intensity, heat radiating devices included therein, of an automatic cut-out consisting of a bent or folded metallic strip arranged to be operated by an abnormal increase of current in the heating devices, to open the circuits thereof, substantially as described. 8th. In a system of heating by electricity, the combination, with the heating conductors, of heat radiating devices consisting of a pair of strips of metal folded to form expansible radiators, the inner extremity of each being provided with a terminal, which terminals are normally held in contact by the resilience of the metal, but adapted to be separated and the radiator circuit opened by the expansion of the metal under excessive heat, substantially as described. 9th. In a system of heating by electricity, the herein described radiating devices consisting substantially of the combination with the supply conductors, of one or more thin strips of corrugated or fluted metal adapted to be heated by the passage therethrough of an electric current, as set forth. 10th. In a system of heating by electricity, the herein described heating and ventilating device consisting substantially of an enclosing case having one or more adjustable air inlets, supply conductors, and heat radiating conducting strips connected between said supply conductors in multiple arc, and arranged to heat and deflect the passing current of air, substantially as described. 11th. In a system of heating by electricity, the combination, with the supply conductors including the primary coils, of an inductual transformer, and the secondary conductors carrying electric currents of large heating capacity, of a radiating frame between said secondary conductors consisting of a number of thin strips or bands of corrugated or fluted metal arranged to be heated by the passage therethrough of said currents, substantially as described. 12th. In a system of heating by electricity, the combination of a source of alternating or interrupted current, an inductual transformer in circuit with said source of current, a heating circuit of low resistance supplied with current

from the secondary coil or coils of said transformer, exposed heat radiating conducting bodies connecting in parallel order between the conductors of the heating or secondary circuit, and a thermostatic cut-out for opening the circuit whenever the heat developed thereon exceeds a predetermined temperature, substantially as described.

No. 29,752. Electric Heating Apparatus for Railway Cars. (*Appareil de chauffage électrique pour les voitures de chemin de fer*)

Elias E. Ries, Baltimore, Md., U.S., 28th August, 1888. 5 years.

Claim.—1st. In a system of heating cars by electricity, the combination, with a car or cars, of a source of alternating electric currents of low electro motive force and large volume, and heating devices on the car or cars in circuit with said source of alternating currents, substantially as described. 2nd. In a system of heating cars by electricity, the combination of the main heating conductors extending along the said car or cars, and heat developing devices in circuit therewith, consisting of one or more metallic conducting sheets or strips of large superficial area or radiating surface, but of relatively small cross-section or conducting capacity, substantially as set forth. 3rd. The combination, with conductors leading from a source of alternating electric currents, of translating devices formed of heat absorbing material in circuit therewith, and arranged to rapidly absorb the heat imparted by said currents, and to gradually omit the same into the surrounding media, substantially as described. 4th. In a system of heating cars by electricity, the combination of the moving vehicle, a generator of electricity arranged to be driven by the momentum thereof, one or more inductual transformers for converting the current from said generator into one of much greater intensity, heating devices in the secondary circuit of the transformer, and means substantially such as described for completing the generator circuit, and bringing the transformer into action under predetermined conditions. 5th. In a system of heating cars by electricity, the combination of the moving vehicle, an electric generator arranged to be driven when the vehicle is in motion, an inductual transformer or transformers in the generator circuit, heat radiating devices in the transformer circuit, and means substantially as described for automatically closing the generator circuit when the vehicle is moving on a descending grade, and for opening said circuit on an ascending grade. 6th. In a system of heating cars by electricity, the combination, with a car, a generator of high tension currents, and transforming apparatus for converting said current, or a portion thereof into one of lower tension, but larger volume of automatic switching devices arranged to close the generator circuit when the car is descending a grade, substantially as described. 7th. In a system of heating cars by electricity, the combination of a car, a generating and transforming apparatus, automatic switching devices said switching devices being mounted on said car, and operated by the force of gravity and controlling the operative condition of the generator to cause the generator to produce more or less current according to the pitch of the grade being traversed by the car, as described. 8th. In a system of heating cars by electricity, the combination, with a car or cars, of a generator on each car arranged to be driven by one of the axles thereof, one or more inductual transformers in the circuit of said generator, heating devices in said car located in the secondary or working circuit of the transformer, and means for automatically closing the generating circuit under predetermined conditions. 9th. In a system of heating cars by electricity, the combination, with a car or cars, of a dynamo electric machine upon each car, a generating circuit, inductual transformers in said generating circuit, heating devices located on said car, and connected in parallel in the secondary circuit, and arranged to receive the secondary currents from the transformer or transformers, and means as described whereby the dynamo electric machine is arranged to generate the main supply current, and when energized to act as a braking generator when on descending grades. 10th. In a system of heating cars by electricity, the combination, with a separate generator for each car, said generator being operated by connection with one of the axles thereof, of one or more inductual transformers included in said generator circuit, and a series of exposed conductors of relatively large area, and arranged as translating devices in the secondary circuits of the aforesaid transformers, as described. 11th. In a system of heating cars by electricity, the combination, with the axle of one of the supporting wheels, a counter shaft in continuous mechanical connection with said axle, an alternating current generator, the armature of which is mounted on said counter shaft, suitable inductual transformers arranged to receive the current from the generator and to convert it into one of lower potential and increased intensity, and heat radiating devices upon the car adapted to receive said low tension current, substantially as described. 12th. In a system of heating cars by electricity, the combination, with one of the axles of a car, a main generator of alternating electric currents and an exciter therefor, separate field magnet coils for the exciter, the terminals of all of which are brought to a suitable switch box, a gravity switch arranged to operate only when the car is descending a grade, and to cut in more or fewer of the coils of the field magnet of the said exciter according to the pitch of the grade upon which the car is traveling, as described. 13th. In a system of heating cars by electricity, the combination, with a car and one of the axles thereof, of a counter shaft in continuous mechanical connection with said axle, an alternating current generator and a separate continuous current exciter therefor, the armatures of both machines being mounted upon said counter shaft, inductual transformers arranged to receive the current from the generator and to transform the same into one of lower potential but increased intensity, heating devices upon the car arranged to develop heat from said current, and a pendulum or gravity switch arranged to operate when the car is traversing a grade, and to cut in more or fewer of the coils of the field magnet of the exciting generator as the grade is of greater or lesser steepness, as set forth. 14th. In a system of heating cars by electricity, the combination of the alternating current generator and continuous exciter, means substantially as described for continuously rotating the armatures thereof, the gravity switch *O* having duplicate sets of points, and a movable stop whereby the action of said switch is limited to one or other of the set of points according to the direction in which the car is moving, as shown and described. 15th.

In a system of heating cars by electricity, the combination, with an electric conductor of large area, of a tube of corrugated metal with which said conductor is arranged, substantially as described. 16th. In a system of heating cars by electricity, the combination, with the main supply conductors, of a heating device consisting in whole or in part of a corrugated metallic tube, supported between fixed standards and adapted to absorb the expansions and contractions due to its changes of temperature produced by the passage therethrough of the electric current, substantially as described. 17th. In a system of heating cars by electricity, a combined heat developing device and thermostatic cut-out, consisting of a corrugated plate of metal, provided with a movable contact, and included in the heating circuit in such manner that undue heating and excessive expansion of said plate will move the contact and open the heater circuit, substantially as set forth. 18th. In a system of heating by electricity, a combined heat-developing device and thermostatic cut-out consisting of a strip of metal adapted to expand beyond a pre-determined point under the influence of heat due to the passage therethrough of an abnormal electric current, and an adjustable stop or contact against which the strip normally rests and through which its circuit is normally completed, substantially as described. 19th. The method herein described of converting the surplus energy or momentum of a moving car or train into heat, which consists in causing said surplus energy of the car or train to generate a current of electricity, transforming said current into one of lower electro motive force and larger volume, and sending said transformed currents through heat developing radiating or translating devices of low electrical resistance and large surface, substantially as described. 20th. The herein described method of heating railway cars or trains by electricity, which consists in generating an electric current or currents through the agency of the surplus mechanical energy of the car or train, when said car or train is descending a grade or coming to a stop, transforming the current so generated into one of larger volume but lower electro motive force, and in then sending the said transformed current or a portion thereof into one or more heat developing and absorbing devices on said car or train, substantially as described.

No. 29,753. Wire Nail Machine.

(*Machine à clou de fil de fer*.)

Edward B. Parkhurst, Woburn, Mass., U.S., 28th August, 1888; 5 years.

Claim.—1st. In a wire nail machine, the combination of an oscillating die-head having nail-dies, *a*, at each end thereof, mechanism for oscillating said head with periods of rest between the movements, suitable wire feeding and cutting mechanism and nail-dies, *as*, *at*, operating at right angles or substantially so to the axis of the die-head, whereby when the die-head is at rest one set of dies at each end thereof may receive the wire while another set is in operative position to form the nail, substantially as set forth. 2nd. A wire-nail machine provided with an oscillating head, *as*, *D*, actuating mechanism for imparting to said head a reciprocating movement, and sliding heads, *as*, *S*, mounted on both sides of said oscillating head, and in operation simultaneously approaching and receding from the same for the purposes and substantially as set forth. 3rd. In a wire nail machine, an oscillating head, *as*, *D*, provided with nail-dies, *as*, *a*, at each end thereof, actuating mechanism for imparting to said head a reciprocating movement, sliding heads, *as*, *S*, mounted in line with each other on opposite sides of said oscillating head, and provided with nail-dies, *as*, *at*, and actuating mechanism for operating the sliding heads *S*, whereby said dies *at* are caused to approach the oscillating head simultaneously twice during one oscillation thereof, substantially as shown and described. 4th. In a wire-nail for imparting to said head a reciprocating movement, and feeding mechanism having an oscillating head, *as*, *D*, actuating mechanism which acts alternately on opposite sides of the machine to fill the dies with wire, the combination, with said devices, of stationary and movable cutters *as*, *at*, the stationary cutters being in line with the dies in the head when said dies are in position to receive the wire and the movable cutters being mounted on arms, *as*, *N*, *R*, which operate to move the cutters *at* across the cutters *as*, and to simultaneously sever the wire which is fed into the dies from one side of the machine substantially as set forth. 5th. The combination, with the oscillating head and its spindle or shaft, of the cutter-arms, *N*, *R* provided with toothed segments, the toothed segment *b* journaled on the spindle or shaft of the die head shaft *f*, and its operating lever and cam and the arm *at* and connecting link *g*, substantially as shown and described. 6th. The combination, with the nail-die *at* mounted in the moving die-head, of the gripper-lever *ci* pivoted to said head, and having one end projecting over the face of the die in position to bear on the section of wire thereon, and the other projecting rearwardly and actuated in one direction by contact with a fixed point, *as*, the bolt *h*, and in the other by the spring-impelled bolt *ci*, whereby during the movement of the head the nail wire is held securely in position on the die, substantially as set forth. 7th. In a wire-nail machine having an oscillating die-head provided with nail-dies, *as*, *a*, and actuating mechanism for reciprocating said head, the combination therewith of the spring actuated clearers *cc*, two of said clearers being pivoted to the stationary frame at each end of the oscillating die-head, and their free ends being received in slots *cc* in the face of the die-head and dies, whereby a wire blank passes under the clearer in being carried from the point where the die receives the wire blank to the point where the nail is formed, and is engaged by the clearer and removed from the die during its return movement, substantially as shown and described. 8th. In a wire nail machine, the combination, with suitable feed mechanism, of the oscillating die-head *D* and its actuating mechanism, the dies *a* provided with projections *b* between which the wire is received, and the gripping levers *ci* pivoted to the head *D* and actuated in one direction by a spring, and in the other by contact with a stationary point on the frame and the clearers *cc*, substantially as shown and described.

10th. In a wire-nail machine, the combination of an oscillating die-head provided with dies, as *a*, and suitable feed mechanism, with the gripping devices *c* mounted on and moving with the said die-head, substantially as described. 11th. The combination, with the die-head *D*₂ of the die *a* mounted in a slot or recess in said head, said recess having an inclined bottom, an inclined or beveled block *a*₅ of less width than the recess and on which the die *a* rests, and means for shifting the block *a*₅ in the recess, whereby the die may be adjusted, substantially as shown and described. 12th. In a wire-nail machine having an oscillating die-head carrying at both ends duplicate members, as *a*, of the nail forming mechanism which receive the wire at one point and transfer it to another where it is formed into nails by the action of the other member, as *a*₁, of said nail forming mechanism, a locking crank *H*₂ mounted on a rocker-shaft and provided at its outer end with a slot which receives an arm fast on the shaft of said oscillating head, whereby the head is locked and maintained in a fixed position while the nails are being formed, substantially as shown and described. 13th. In a wire-nail machine having an oscillating die-head, the combination, with said head and its shaft or spindle, of a fixed arm as *K*₂ on said shaft, a locking eccentric crank, as *H*₂, having a slot which engages with said arm, a rocker shaft on which said crank is mounted, the arms *H*₂ fast to said rocker shaft and their operating cams, whereby the said shaft its crank are positively actuated to lock the oscillating head, for the purpose and substantially as set forth. 14th. In a wire-nail machine, the combination, with the die-head and its supporting shaft, said head having dies on opposite sides of said shaft, of the sliding heads, as *S*, located on opposite sides of said die-head and provided with co-operating dies, and actuating mechanism, substantially as described, for moving said sliding head simultaneously toward the die-head between them, whereby the shaft of the die-head is relieved from strain, substantially as set forth. 15th. In a wire nail machine, the hammers *h* actuated simultaneously to head the nails, the levers *L*₂ and arm *p*₂ secured to said levers, whereby the hammers are retracted after being driven, substantially as shown and described. 16th. In a wire-nail machine having alternate feed mechanism, the shafts *H*, *K* which actuate the feed rolls, each provided with a ratchet-wheel operated intermittently and alternately by a ratchet and pawl mechanism connected with a cam-actuated lever, as *h*, by pivoted link, as *m*, *n*, said lever being fulcrumed between said shafts *H*, *K*, whereby the movement of the lever in one direction actuates one shaft and its reverse movement actuates the other shaft, for the purposes and substantially as set forth. 17th. The cam-actuated lever *h*, the block *k* and its adjusting screw, the connecting-arms *m*, *n* and the duplicate pawl and ratchet mechanism, whereby by the adjustment of the block *k* the throw of the pawl-cranks may be varied, substantially as shown and described. 18th. The combination, with the lever *h* and its actuating-cam, of the adjusting block *k* and its adjusting screw, the arms *m*, *n* having their proximate ends pivoted to said block, and their opposite ends to the pawl-cranks *o*, *p* on either sides of said lever *h*, the shafts *H*, *K* and their pawl and ratchet mechanism, and the feed rolls and their actuating shafts geared to said shafts *H*, *K*, substantially as shown and described. 19th. In a wire-nail machine having an oscillating die-head and suitable mechanism for imparting thereto a reciprocating movement, the shaft or spindle of said die-head mounted in bearings on top of the main frame, combined with a detachable upper frame which carries all the mechanism above said die-head whereby the removal of said die-head may be effected without removing any other operative part of the machine from its frame-work, substantially as set forth. 20th. The combination, with the main shaft having fast and loose wheels, as *C*, *D*, and a sliding collar, as *f*, of a shifter lever *c*₃ pivoted to a threaded sleeve *b*₃, an actuating-rod *a*₃ provided at one end with a right-hand screw, and at the other with a left-hand screw, and a rack and pinion, said rack being attached to a slide rod, as *P*₂, provided with an operating handle, as *R*₂, whereby by a slight movement of the handle *R*₂ the machine may be stopped or started, substantially as set forth.

No. 29,754. Machine for Making Coil Springs. (*Machine à faire les ressorts spiraux.*)

William C. Farnum, Arlington, Vt., U.S., 28th August, 1888; 5 years.

Claim.—1st. In a machine for forming coil springs from metallic bars, the combination of a revolving mandrel about which the bar is coiled, a series of two or more driving rollers successively arranged about the mandrel between which and the mandrel the metal bar is grasped and confined, and a crimping or bending lever adapted by a series of intermittent strokes to gradually bend the bar over the mandrel preparatory to the bar passing under the action of the rollers, substantially in the manner described and for the purposes set forth. 2nd. The combination of the forming mandrel, the crimping lever pivoted on the axis of the foremost of a pair of forming rollers, a pair of forming rollers arranged in rear of the crimping lever jaw, and a collar upon said mandrel having provisions, as described, for imparting a spiral lead under the influence of an endwise movement imparted to said collar to the bar in the process of winding the same on to the mandrel, substantially in the manner described and for the purposes set forth. 3rd. The combination of a revolving forming mandrel, with a pair of rollers mounted in bearings capable of simultaneous and co-equal adjustment towards or from said mandrel by any appropriate means, substantially as specified. 4th. The combination of the hollow mandrel spindle having a tapering socket at one end to receive and hold the tapering shank of the mandrel, with a taper shanked mandrel and a retaining rod within the centre of the hollow spindle adapted to connect with the end of the mandrel shank, and be securely fastened by means of a key or otherwise, substantially as shown and for the purpose set forth. 5th. The combination of a rotating mandrel, a loose collar upon said mandrel having a portion of one end thereof of spiral shape and capable of both longitudinal movement upon and of rotation with said mandrel, in combination with the provisions shown for moving said collar along the mandrel against the bar and rotating the same therewith a portion of a revolution, as a means of imparting a spiral lead to the bar, substantially as specified. 6th. The combination of shaft 34 carrying

trip lever 29, counterpoise 33, and dog 32, with shaft or spindle 5 carrying plate 10, and stopping roll *a*, *b*, substantially as described and for the purpose set forth. 7th. The combination of spindle 5, clutch cam 49, and loose sleeve 75 carrying plate 10, and wedge cam 11, and friction roll 43, as a provision for moving collar 18 into position to impart a spiral lead to the bar, substantially as specified. 8th. The combination, with the lever 19 pivoted as shown, and carrying the clutch block 35, of the cam clutch 49, and longitudinally movable sleeve 7) against which said block impinges to force the finished spring off the mandrel, substantially as specified. 9th. The combination of the oscillating bending lever, provided with crimping jaw having the supporting and grinding notch 65, as shown, with the forming mandrel and driving rollers, substantially as described and set forth. 10th. The provisions shown for cooling the bending levers and the forming mandrel, consisting of a water receptacle in the upper part of the lever, and ducts leading therefrom through the body of the lever to one or more convenient points of discharge, substantially as described and set forth.

No. 29,755. Device for the Evaporation of Brine in the Manufacture of Salt. (*Appareil pour l'évaporation des eaux salées pour la fabrication du sel.*)

George E. Jackson, Edmondville, Ont., 28th August, 1888; 5 years.

Claim.—A tank or vessel for the manufacture of salt, built chiefly of wood and provided with tubes of iron, bronze, or copper, and a furnace for heating the same and boiling the brine thereby, constructed substantially as specified and described.

No. 29,756. Water Cock. (*Robinet à eau.*)

William B. Malcolm, Toronto, Ont., 28th August, 1888; 5 years.

Claim. The combination, with a valve, of non-metallic valve-seat inserted in a recess formed in the base of the cage, and projecting through a hole in the said base, substantially as and for the purpose specified.

No. 29,757. Machine for Crimping the Uppers of Footwear. (*Machine à cambrer les empeignes des chaussures.*)

John F. K. O'Connor, Yonkers, N. Y., U. S., 28th August, 1888; 5 years.

Claim.—1st. In a machine for crimping uppers of footwear, a mould constructed with an entrance described on an arc of a circle, substantially concentric with the path of travel of the plunger, and an outlet substantially the shape of the profile of the bottom of the crimped upper for receiving the blank for the upper, and open throughout its length next to the plunger, combined with the plunger adapted to be forced through the mould in an arc of a circle, and carrying with it the blank to crimp it, substantially as described. 2d. In a machine for crimping uppers of footwear, a rotary mould block having a series of vertical wings containing the moulds *a*, the removable plates *p* arranged in said moulds, and adjustably secured in place as by screws, and the springs interposed between the plates, and the rigid wings combined with a plunger, and means to rotate it and carry it through the mould from end to end in an arc of a circle, substantially as described. 3rd. In a machine for crimping uppers of footwear, a mould having a channel, the outlet through which is substantially the shape of the profile of the bottom of the crimped upper, combined with a plunger forced through such mould, in an arc of a circle, and carrying with it and crimping the upper, substantially as described. 4th. In a machine for crimping uppers of footwear a mould having a table, the surface of which is composed of a plane incline abruptly ending in an upturned curved portion extending outward and above the plane to give initially to the blank of the upper the profile of the crimped upper, combined with the rotary plunger whose leading end has substantially the same conformation so as to strike the initially formed blank and force it at once throughout its length into the mould without injury to the leather, and continuing to move in an arc of a circle, carry the said blank through and out of the mould, substantially as described. 5th. In a machine for crimping uppers of footwear, a rotary plunger moving in an arc of a circle, and having its leading end formed in substantially the shape desired for the profile of the top of the finished crimped upper, combined with a channel mould, the shape of whose mouth is the counterpart of the leading end of the plunger, having a table the surface of which is an inclined plane ending abruptly in an upturned receding portion elevated above the plane, and also of substantially the conformation of the leading end of the plunger, and a press-plate whose shape is the counterpart of the table, substantially as described. 6th. In a machine for crimping uppers of footwear, a rotary master-wheel, a drum thereon, and a series of plungers projecting from the periphery of such drum, combined with a mould separated from the master-wheel and arranged in the arc of travel of the plungers, substantially as described. 7th. In a machine for crimping uppers of footwear, a master-wheel provided with a series of plungers, and a series of cams, combined with the mould press-plates co-operating with the mould and plungers, and the levers connecting the press-plates and cams, substantially as described. 8th. In a machine for crimping uppers of footwear, the revolving mould-block, the channel moulds made lengthwise in said block, the corrugated plates arranged in the moulds, and relieving springs for said plates, combined with a plunger, substantially as described. 9th. In a machine for crimping uppers of footwear, the revolving mould-block, and its moulds, and the shaft for said block, combined with a plate on the mould-block shaft, and spring-pawls in said plate, the reciprocating cross-head, and a ratchet tooth, and regulating stop co-operating with said pawls, substantially as described. 10th. In a machine for crimping uppers of footwear, the plungers, and a rotary carrier therefor, combined with the moulds, and a carrier for them revolving at right angles with the axis of the carrier for the plungers, substantially as described. 11th. In a machine for crimping uppers of footwear, the revolving mould-block, and a plunger, combined

with press-plates, and the bar *h* attached to the press-plates, substantially as described. 12th. In a machine for crimping uppers of footwear, the press-plates normally elevated by a spring, combined with a rotating cam, and a lever interposed between the cam and press-plates to bring and hold the press-plates in position for securing the work or blank of the upper, substantially as described. 13th. In a machine for crimping uppers of footwear, the combination of the mould-block and shaft, pawl-plate and spring-pawls reciprocating cross-head, with catch-tail, and regulating stop crank connecting rod and mould, moving geared wheel with a suitable source of power, substantially as described. 14th. In a machine for crimping uppers of footwear, the combination of the press-plates, shaft, coiled spring lever, and lever spring, cam and master wheel, with operating mechanism, substantially as described. 15th. In a machine for crimping uppers of footwear, the combination of the fitting delivery fingers, their shaft, shaft spring, crank, connecting rod and bell crank, with the crank of the mould-moving geared wheel, and suitable driving mechanism, substantially as described. 16th. In a machine for crimping uppers of footwear, the combination of the mould-block, plunger drum, press-plates, and fitting delivery fingers, with the driving mechanism, substantially as described.

No. 29,758. Furnace for Recovering, in an Inodorous Manner, the Salts contained in the Lyes used in the Manufacture of Wood Fibre. (*Fourneau de récupération inodore des sels des lessives employées dans la fabrication des fibres de bois.*)

Coal F. Dahl, Dantzic, Prussia, 28th August, 1888; 5 years.

Claim—1st. The construction of a furnace in which, in an inodorous manner, the greatest quantity of water is first abstracted from the weak lye in steam kettles, boilers and pans, so that in the succeeding evaporation of the inspissated lye by means of open fires, the smouldering gases which are produced by the reduction into gas of the increasing substances have attained such a degree of dryness that after addition of previously heated air they are completely burnt by an auxiliary fire, and in this way not only completely destroyed but also utilized in the furnace for heating purposes. 2nd. In the aforesaid furnace for dephlegmating the raw lye in an inodorous manner, the arrangement of two steam kettles which are divided by partitions extending into the vapour chamber into several compartments owing to the inclined position of the kettles, the weak lye introduced into the highest compartment moves through pipes arranged in the partitions by its increasing specific weight continuously forward, and is forced after a further abstraction of about one-third of the amount of water contained in the lye from the kettles into an open wrought iron boiler, in which a further considerable abstraction of the water contained in the lye is effected by the vapour in tension produced by the proper evaporation of the lye, this vapour being led from the boilers into the heating worm of the boiler. 3rd. For further concentration of the lye, the application of several flat wrought iron insulating vats which in their two extremities are bent up like shelves, and arranged in the furnace underneath the boiling apparatus one above the other in an alternating manner, so that the lye discharged from the boiler flows into the upper pan and from thence into the lower one, and so on while the fire gases which have already been cooled on the kettles come in direct contact with the lye, in such a way that arising from the kettles they pass over the first pan and flow then on their further way from above downwards between the surface of a lower pan, and the bottom of the upper pan, for the purpose of utilizing the fuel as completely as possible. 4th. To inspissate the weak lye, the arrangement of a fireproof vat having on each end a fire place, one of which serves to inspissate the strongly concentrated lye, and the other to burn the nitrogen, and the smouldering gas produce, and by the inspissation, so that the fire gases of the inspissating fire and the gases of the vat meet the flame of the auxiliary fire at right angle, while heated air is introduced through the vault of the fire bridge and the side wall. 5th. A reservoir for recovering the lye, consisting of a receiver which can be closed by means of a detachable cover, and into which the lye inspissated to the consistency of mud is discharged from the vat by means of rakes, the said receiver being provided with a lateral tube for leading the smouldering gases underneath the grate of the inspissating fire place. 6th. An aperture putting the receiver in communication with the inspissating vat by means of a slide, and closing the vat on the outside by a flap which may be turned upwards and hung down in a slope direction, the flap being provided with a hole or passage for the handle of the rake, so that in withdrawing the striking mud of the lye neither cold air can enter into the vat, nor gases escape into the atmosphere. 7th. For recovering salts from the mud of the lye, the arrangement of a fireproof retort (melting furnace), the sole of which inclines from all points towards the exit of the recovered salts, and in which the melting of the mud is effected by means of a fire place arranged beside the said exit, and the flame of which is directed downwards from the vaults upon the lye, so that the latter will completely be melted, and consequently the increasing substances which are freed by the melting process will entirely be reduced into gas, the produced smouldering gases are then utilized, and for that purpose the retort is set in the furnace in such a manner that the gases escaping from the retort meet the air heated in the hollow walls of the furnace, and are then led into the inspissating fire of the vat to be burnt and utilized in the inspissating of the concentrated lye.

No. 29,759. Motor. (Moteur.)

Charles Taverdon and August L. Taverdon, Paris, France, 28th August, 1888; 5 years.

Claim—1st. A rotary engine chiefly comprising two revolving systems, or groups of mechanism, having different centres and different centres and different radii, said systems being united only by piston blades, and revolving both in the same direction in the interior of a circular cylinder, substantially as described. 2nd. For the purpose of preventing leakage between the different organs, the metallic or

other packing pieces secured to the extremity or front of the piston wings, as well as those arranged between the said piston wings and the wing carrying disc, all these packings being so arranged as to press against the moving parts under the simultaneous influence of their elasticity, the centrifugal force and the pressure of the motive fluid, the whole substantially as described. 3rd. For the purpose of balancing the bending strain transmitted to the driving shaft by the wing carrying disc, the multiple arrangement which consists in placing several cylinders on the same shaft, the various discs being fixed on the common shaft at such angles that the pressures on the shaft balance each other, substantially as described. 4th. For the purpose of diminishing the bending strain on the shaft without the use of several cylinders, a wing-carrying disc of H section, and the admission of fluid between the inner faces of the rings or flanges due to the H form, and the faces of the cylinder-covers, the said admission taking place through narrow orifice-formed radially on the said rings or flanges, the whole substantially as described. 5th. For the purpose of varying the admission with the resistance to be overcome, the modification which consists in forming the hollow driving shaft of two lengths, united by a dynamometric bar or coil adapted to expand and contract according to the driving effort, and thereby to increase or diminish the inlet ports formed in a sleeve concentric with the shaft, substantially as described.

No. 29,760. Plant for Laying Permanent Way or Railway Track. (Outillage pour poser les voies de chemins de fer.)

George Anderson, Madras, India, 28th August, 1888; 5 years.

Claim—1st. In a track-laying plant, the combination of a construction train adapted for the transit therealong of load of track sections, an overhead carrier supported above and along the construction train, a siding-track for the return of the empty track section bogies, traversers adapted to effect the traverse of the track-section, bogies between the main track and the said siding-track, engines adapted to move the construction-train forwards and to operate the the overhead carrier on their respective tracks, and suitable winding or other gear for operating the various members of the construction-train and overhead carrier. 2nd. The combination, with the track of a construction train of a wing or lateral continuation of the track-platform on each side thereof, one or both of said wings or lateral extensions adapted to receive a siding-track, substantially as and for the purpose set forth. 3rd. The combination, with the track of a construction train, of a wing or lateral continuation of the track-platform on each side thereof, one or both of said wings or lateral extensions adapted to receive a siding-track, and the other to be fitted as a workshop store or cabin, substantially as described. 4th. The combination, with the track of a construction train, of traversers adapted to run upon rails laid transversely upon the platform of said track, and upon a wing or lateral extension of said platform upon which traversers are laid, sections of the main track of the construction-train, and which sections are adapted to make continuations with either a siding-track of the same gauge as the main track laid upon the wing or lateral extension, or with the main track upon the platform, according to the position of the traverser. 5th. The combination, with the tracks of a construction-train having a track secured to the platform thereof, and a siding-track to the siding platform thereof, of bridge-pieces also provided with tracks pivotally connected to the said platforms respectively, and thereby adapted to make continuous the respective tracks on one track of the construction-train with those on the adjacent tracks, substantially as and for the purpose set forth. 6th. The combination, with the trucks of a construction-train having a siding-track laid upon wings or lateral extensions of the platform of said trucks, of bridge-pieces uniting the siding tracks of two or more adjoining trucks, substantially as and for the purpose set forth. 7th. The combination, with the trucks of a construction-train having a siding-track laid upon wings or lateral extensions of the platforms of said trucks, of bridge-pieces pivotally connected to the truck and siding-platforms respectively, and adapted to make continuous the main track from one truck of the construction-train to the adjoining ones, and the siding-track from one wing to the adjoining wings. 8th. The combination, with the platform of the truck of a construction-train, of vertical posts at the corners of said platform, longitudinal and transverse beams connecting the tops of said vertical posts, and braces connected to said longitudinal and transverse beams, and to a wing or lateral extension of said platform. 9th. The combination, with a construction-train of one or more trucks, of a superstructure supported over the platform of the said truck or trucks, and an overhead carrier suspended from said superstructure, and adapted to transport a load from said construction-train to the front thereof, substantially as and for the purpose described. 10th. The combination, with a construction-train, of a superstructure supported over the platform of all the trucks of said construction-train, and an overhead carrier suspended from said superstructure extending the whole length of the train, and adapted to transport the load of said construction-train to the front thereof. 11th. The combination of a construction-train having a main track laid on the platform thereof, wings or lateral extensions of said platforms on one or both sides thereof, a siding-track upon said wings, and traversers adapted to move between the main track and siding track and make connection between the two, the said combination being adapted for the transfer of loaded trucks along the main track to the front of the construction train, and for the return of the empty trucks along the siding-track. 12th. The combination of a construction-train having a main track laid on the platform thereof, wings or lateral extensions of said platforms on one or both sides thereof, siding tracks upon said wings and duplex traversers adapted to move between the main track and the said siding-track and make connection between them respectively, the said combination adapted for the transport of loaded trucks along the main track to the front of the construction train, and for the return of the empty trucks along the siding-track. 13th. The combination, with longitudinal and transverse beams supported by vertical posts over the platforms of the trucks of a construction-train, of an overhead carrier connected thereto and adapted to allow loaded bogies to be moved under said carrier along the construction-train, and to be used for the purposes of raising the loads off said bogies and to transport them towards the

front of the construction-train. 14th. In a construction-train, the combination, with a suitable superstructure, of a carrier track supported longitudinally over a main track secured to the platforms below, and one or more bogies adapted to traverse said carrier track, substantially as and for the purpose set forth. 15th. In a construction-train, the combination, with a suitable superstructure, of a track supported longitudinally over a main track below, uniting with a like track on a cantilever or cantilevers, and carriers adapted to traverse said track from one end to the other, substantially as described. 16th. In an overhead carrier supported over the track or tracks of a construction train, holes formed in the foot and web of the rails of the track of the said carrier, adapted to receive one end of the bolt by which the rail is connected to its support, and to allow the rail to slide upon the said support as the construction-train is moving on a curve. 17th. In a construction-train, the combination, with a bogie adapted to travel upon an overhead track, supported longitudinally over the main track secured to the trucks of said train, of a pair of wheels pivotally connected to each end of the frame of said bogie, constructed, arranged and operating substantially as and for the purpose described. 18th. The combination, with a bogie adapted to travel upon the rails of an overhead track supported longitudinally over the main track and along the tracks of a construction train, of a pair of wheels pivotally connected to the frame of said bogie at each end of it, and adapted to lead the wheels of said bogie over the joints and round the bends in the rails of said overhead track. 19th. The combination, with the trucks of a construction-train, of an overhead carrier support, longitudinally over the main track and along said trucks, and bridge-pieces pivotally connected to the opposite ends of the rails of the overhead carrier, and adapted to make the several sections of the overhead carrier over the several trucks of the construction-train continuous for the length of the construction train. 20th. In a construction-train, the combination, with a bogie adapted to traverse an overhead track supported longitudinally over the main track of said construction-train, of a loop pendant therefrom, a grooved pulley pivoted in said loop, and a suitable connection guided by the latter terminating in a gripper operated by a winding drum, substantially as and for the purpose set forth. 21st. The combination, with a bogie adapted to travel upon an overhead carrier supported longitudinally over the main line of the construction-train, of a loop pendant therefrom, a chain pulley pivoted in said loop, and a chain terminating in a gripper and led away over said pulley to a winding drum. 22nd. The combination, with the construction-train of a track-laying plant, of a cantilever supported upon track and pivoted thereon, and an overhead track extending along the arm thereof, substantially as set forth. 23rd. The combination, with the construction-train of a track-laying plant, of a cantilever adapted to turn upon a pivot, and an overhead track fixed to the projecting or front part of said cantilever, substantially as above described. 24th. The combination, with the construction-train of a track-laying plant, of two cantilevers adapted to turn upon their respective trucks, and overhead tracks fixed to the projecting parts of said cantilevers, substantially as above described. 25th. The combination, with the construction-train of a track-laying plant, of a traction engine adapted to travel on the road bed, a cable or chain being fixed upon it, an overhead track provided with bogies adapted to operate between the engine and the construction-train, substantially as and for the purpose described. 26th. The combination, with a construction-train of a track-laying plant, of a traction engine provided with and carrying thereon a cantilever, said engine being adapted to operate the train and the track-laying apparatus, substantially as and for the purpose described. 27th. In a track-laying plant, the combination, with one or more trucks provided with means for fitting, carrying and laying sections of track, of an engine or motor adapted to advance the train as required, said engines or motor being provided with a track thereupon, by means of which track sections may be advanced along and above the said engine or motor from supply as the rear to the construction-train, substantially as set forth. 28th. A locomotive adapted for the propulsion of the construction-train, of a track-laying plant, and having a continuation of the main track of said train of the same gauge as said main track laid upon it at the same level, whereby it is adapted to admit of the bogies being moved from the transport train along it on to the main track of the construction-train, substantially as described. 29th. The combination in a construction-train consisting of one or more trucks provided with tracks upon their platforms, and tracers above an engine-power adapted to operate them, substantially as set forth. 30th. The combination of overhead carrier extending the whole length of the construction-train having a main track thereupon, tracers, sidings and engine-power adapted to operate them, substantially as described. 31st. The system substantially as herein described for laying railway track by a plant consisting of one or more trucks cantilever and engine-power, whereby track sections are lifted and advanced along from the track section bogies to the cantilever and lowered into position on the road bed, substantially as set forth.

No. 29,761. Harness. (*Harnois*)

John T. Barlow, Jacksonville, Fla., U.S., 28th August, 1888. 5 years.

Claim.—1st. The combination with the breast collar A, adjustably connected to the neck collar A2, of the strap C attached to the lower portion thereof having a trace or traces mounted in connection therewith, and adapted to pass between the fore and rear legs of the animal, substantially as specified. 2nd. In a harness, substantially as described, the combination, with the breast collar A, of the neck collar A2 adjustably secured in connection therewith, substantially as described. 3rd. In a harness, substantially as described, the combination, with the strap C passing down between the fore legs of the double traces D, substantially as described. 4th. The breast collar A1 provided with the round as having its ends secured to the breast collar, and the central portion of the round free, in combination with the pole-strap as set forth.

No. 29,762. Machinery or Apparatus for Drying Wool. (*Appareil pour sécher la laine.*)

William Nelson and Eugène Bowen, Tomoana, New Zealand, 28th August, 1888. 5 years.

Claim.—Mounting on pivots in the slit of a longitudinal air-trunk of the kind herebefore described, "feathers" jointed to a connecting rod, essentially as and for the purpose described.

No. 29,763. Stove. (*Poêle.*)

Joseph N. Massicotte, Chambly Canton, Que., 28th August, 1888. 5 years.

Résumé.—Un nouvel article de manufacture, un poêle de cuisine composé d'un corps principal de fournaise A, B, C, D, E, F, sur lequel est greffé un fourneau M, une plateforme N, un réservoir à eau chaude I et un plateau à ronds G, le tout tel que ci-dessus décrit et pour les fins sus-mentionnées.

No. 29,764. Wire Fencing. (*Clôture en fil de fer.*)

John B. Evans, Mabus, Cape of Good Hope, 29th August, 1888. 5 years.

Claim.—1st. A staple adapted for iron or steel standards or suspenders for supporting horizontal fence wires, and composed of material capable of being compressed through a hole, and the wings after passing through opening out against a shoulder. 2nd. A staple adapted for iron or steel standards or suspenders for supporting horizontal fence wires, and capable of being inserted in a hole and secured by a locking pin or wire at the back. 3rd. The standard U section, as shown and described. 4th. The bridge, as shown and described. 5th. The gib wedge for locking standards and suspenders, as shown and described. 6th. The double eccentric clip with curved bed and lips, as shown and described. 7th. A fence rendered burrow-proof by wires strained underneath through a trench. 8th. The burrow-proof fence, as shown and described.

No. 29,765. Hoop Making Machine.

(*Machine à faire les cercles.*)

George W. Packer, Rock Falls, Ill., U.S., 29th August, 1888. 5 years.

Claim.—1st. In a hoop-making machine, the combination of transverse bolts 40, inter-connected blocks 41 and 42, and the two shaving knives 36 pivotally seated laterally on the transverse bolts 40 as their centre of oscillation, and in such relation to said pivot that a line drawn longitudinally through said bolts 41 will be between and equidistant from the cutting edges of said knives in every position of the latter, substantially as shown and for the purpose described. 2nd. In a hoop-making machine, shaving-knives 36 seated respectively in blocks 41 and 42, mutually hinged and supported laterally on pivot bolts 40, the cutting-edge of said knives being equidistant from substantially parallel with, the longitudinal centre line of bolts 40, and adapted, substantially as shown, to oscillate about said centre line, for the purpose specified. 3rd. In a hoop-making machine, the combination of a rotating drum 11 and notching-knife 33, fitting-knife 25 and lap-knife 33, said knives being carried on said drum and adapted, substantially in the mode shown, to be rocked for the purpose herein specified. 4th. In a hoop-making machine, the rotating drum 11 adapted to cut hoops of various pre-determined lengths by being constructed of two parts adjustable upon each other, each part carrying knives to notch and finish the opposite ends of the hoop, substantially as shown. 5th. In a hoop-making machine, the combination of the rotating drum 11 constructed of two halves adjustable upon each other, notching-knives 33, fitting-knives 25 and lap-knives 33 seated upon and operating respectively, substantially as shown, with each of said halves, and mechanism substantially as shown, for actuating said knives, for the purpose herein mentioned. 6th. In a hoop-making machine, the combination of a rotating drum 11 and notching-knives 33, fitting-knives 25, and lap-knives 33, and clamp 12 adapted respectively to rock over the periphery of said drum, mechanism, substantially as shown, for actuating said knives and clamp, and the shaving knives 36 seated, substantially as shown, in line with the rim of said drum, for the purpose described. 7th. In a hoop-making machine, the combination of a rotating drum 11 carrying clamps 12 and notching and finishing knives, the gripper 29 and shaving knives 36, substantially as shown and for the purpose described. 8th. In a hoop-making machine, the combination of a rotating drum 11, clamps 12 seated in said drum, lap-knives 33, notching-knives 33, fitting-knives 25 carried on said drum, shaving-knives 36 and gripper 29, substantially as shown and for the purpose described. 9th. In a hoop-making machine, the combination of the rotating drum carrying knives for notching and finishing the hoop, shaving-knives 36 seated opposite the periphery of said drum, and mechanism substantially as shown for moving said shaving knives laterally during the rotation of said drum, whereby the hoop is carried across the periphery of said drum.

No. 29,766. Feed Mechanism for Saw Mills.

(*Appareil d'alimentation des scieries.*)

Alexander P. Gibson, Mount Ida, W.V., U.S., 29th August, 1888. 5 years.

Claim.—1st. The combination, with the feed shaft provided with the disks C, D, of the transversely movable bearing boxes, a shaft F journaled in said boxes, and movable longitudinally therein, friction wheels H, I, of different diameters secured on said shaft, a lever connected to said shaft F to move the same in its bearings, and a drive disk contacting with the wheel H, substantially as specified. 2nd. The combination, with the feed shaft provided with the disk C, D, of the shaft F bearing in bars and longitudinally moving therein, friction wheels H, I, of different diameters secured on said shaft, a frame K slotted to play on guide bolts, and having a portion embracing said shaft F and a lever for shifting said frame and shaft, substantially as specified. 3rd. The combination of the longitudinally movable shaft F, having the friction wheels H, I, a drive shaft having a disk contacting with the wheel H, a journal box receiving the shaft F, a horizontal belt crank lever arranged near one end of said journal box, a link connecting said lever to the journal box, and an operating lever connected to the belt crank lever, as set forth.

No. 29,767. Door Knob Attachment.*(Ajustage des boutons des portes)*

Samuel Crawford, London, Ont., 29th August, 1888. 5 years.

Claim.—The sliding plate B having slot a formed therein, for partially enclosing and gripping the grooved shank C of a door-knob, so as to retain the same in position in the rose or escutcheon plate, said sliding plate being fastened to the door by a screw F, and adjusted thereby, so as to cause the key hole E formed in it to match the key hole of locks of different sizes and patterns, substantially as shown and specified.

No. 29,768. System of Heating by Electricity.*(Mode de chauffage par l'électricité)*

Elias E. Ries, Baltimore, Md., U.S., 29th August, 1888. 5 years.

Claim.—1st. The herein described method of utilizing a continuous current of electricity of relatively high potential and small volume, which consists in transmitting said continuous current from a generating station over relatively small conductors to one or more points of consumption, converting a portion of said continuous current at the point or points of consumption into one of intermittent or alternating polarity, and increasing the volume or quantity of the said current, then passing the converted current through heat developing conductors in the secondary circuit of the transformer, and in passing the remainder of the continuous current into one or more continuous current consumption circuits, as set forth. 2nd. The herein described method of producing heat from electricity, which consists in generating continuous currents of relatively high electro-motive force and small volume, transmitting said continuous currents over relatively small conductors to a storage battery or batteries located at or near the point or points of consumption, interrupting the current from the storage battery at the points of consumption, sending said interrupted currents to induction transformers, and utilizing the secondary currents for the production of heat, substantially as described. 3rd. In a system of heating cars by electricity, the combination, with a car or cars, of one or more generators arranged to be driven by the momentum of said cars, an induction transformer or transformers having suitable car heating devices in the secondary circuits thereof, and a pole changer in the generator circuit, whereby the current sent to the primary coils of the transformer is of alternating polarity, as set forth. 4th. The combination, with a source of continuous currents, of a secondary battery located in the external circuit thereof, connections from each of the cells of said battery to a commutator switch, a distributing circuit, and two or more working circuits leading therefrom, one of which includes a pole changer and an induction transformer, and heating devices in the secondary circuit thereof, and connections between the distributing and commutator switches, whereby any desired portion of the battery may be put in circuit therewith, and with either of the consumption circuits leading therefrom, substantially as described. 5th. The combination, with suitable source of continuous currents of electricity, of a secondary battery in circuit therewith, a distributing switch and connections between the switch and battery, a branch circuit including electric lamps or other translating devices arranged in multiple arc extending from said switch, and another branch extending therefrom and including a pole changer, an induction transformer operated by the interrupted current, and heating devices included in a circuit of low resistance extending from the secondary coils of the induction transformer, substantially as described. 6th. The herein described method of utilizing a continuous current of electricity of relatively high electro-motive force and small volume, which consists in transmitting said continuous current over relatively small conductors to a storage battery or batteries, located at or near the point or points of consumption, interrupting a portion of the current from the storage battery, passing the interrupted current through an induction transformer, whereby they are converted into secondary currents of larger volume and lower electro-motive force, and supplying the remaining energy of the storage battery direct to translating devices utilizing continuous currents, substantially as described. 7th. The combination, with a source of continuous current of high tension, of two or more consumption circuits supplied therefrom and containing translating devices requiring currents of different character or quality, and a means substantially as shown for interrupting or alternating the currents in one of said circuits without interfering with the continuous flow of current in the remaining circuit or circuits, substantially as described. 8th. The combination, with a source of continuous current of high tension, of two or more consumption circuits supplied therefrom, and containing translating devices requiring currents of different character or quality, means substantially as shown for interrupting or alternating the currents in one of said circuits without interfering with the continuous flow of current in the remaining circuit or circuits, and an induction transformer for reducing the electro-motive force of said interrupted or reversed current, substantially as described. 9th. In a system of heating by electricity, the combination, with suitable low resistance supply conductors, of a plurality of low resistance heat developing metallic conductors arranged in multiple arc between said supply conductors, and adapted to automatically regulate the heat developed in each of said conductors by variation in the flow of current there-through caused by the change in their respective resistances due to the heat developed, substantially as described. 10th. The combination, with a suitable source of continuous currents, of a secondary battery connected to said source, and arranged to be charged in series, a commutator switch and separate connections extending from the cells of said battery to said switch, a distributing switch to which said commutator switch is connected, whereby any desired portion of the secondary battery may be connected therewith in multiple arc, and consumption circuits extending from said distributing switch, one of said circuits including a pole changer, an induction transformer, and heating devices included in the secondary circuit of the transformer, substantially as set forth. 11th. The combination, with a source of continuous currents, a secondary battery in circuit with said source, and arranged to be charged thereby in series, a commutator switch having terminals connected with each separate cell, or group of cells in the battery, a distributing switch to which

the battery switch is connected, and whereby any desired portion of the cells of the battery may be connected in multiple arc, and a heating circuit of very low resistance, an induction transformer, the secondary coils of which are connected with the heating circuit, the primary coils whereof extend to a pole changer, and connections between the separate portions of the interruptor and the distributing switch for supplying the current thereto, substantially as described.

No. 29,769. Machine for Making Horse Shoes.*(Machine à faire les fers à cheval.)*

Jacob Russell, Brooklyn, N.Y., U.S., 29th August, 1888. 5 years.

Claim.—1st. A machine for squeezing simultaneously the two ends of a horse shoe blank, comprising two pairs of movable jaws, and means for moving both jaws of each pair simultaneously toward and from each other. 2nd. A machine for squeezing simultaneously the two ends of a horse shoe blank, comprising two pairs of movable jaws provided with adjustable dies, and means, substantially as described, for moving both jaws of each pair simultaneously toward and from each other. 3rd. The combination, with the bending rollers of a horseshoe machine against which the blank is placed, of two pairs of movable squeezing jaws and dies arranged with respect to the bending rollers, as described, and means for actuating said jaws and dies whereby the latter are adapted to squeeze both ends of the blank simultaneously without disturbing it. 4th. The combination of the jaws P, P and P₂, P₂ provided respectively with dies and with interfering teeth, whereby one jaw of the pair is made to impart its motion to the other, and the cam M, and its shunt. 5th. The combination of the jaws P, P and P₂, P₂ mounted to rock on suitable bearings and provided with dies, means for coupling together the jaws of each pair, whereby one is made to impart its motion to the other, and means for actuating said jaws. 6th. The combination, with the rotating bonder or former of a horseshoe machine, and the mechanism for actuating it, of two pairs of movable dies for squeezing the end of the blank, and mechanism for actuating said dies, the two mechanisms being timed to effect the operations of squeezing and bending the blank successively, substantially as described. 7th. The squeezing-jaw provided with a die D attached by a single screw or pin h, and with two adjusting screws i, i, whereby the level or inclination of the working-face of the die is varied. 8th. The combination, with the former L of the spreader O provided with rollers and mounted adjustably on the former, and the two levers N, N pivoted on the machine bed at a, a, and provided with bending rollers d, d at one end, and cam-like faces e, e at their other ends, substantially as set forth.

No. 29,770. Metal Pot with Strainer.*(Poëlon avec passoire.)*

Thomas Burnard, Hamilton, Ont., 29th August, 1888. 5 years.

Claim.—1st. The combination of a metal pot A having a projecting lip A₁, and a metal perforated strainer C provided with a recess e, hooks I, and lid J, substantially as and for the purpose hereinbefore set forth. 2nd. The combination of a metal pot A, with the strainer C, and its lid J, of the taper B with its fulcrum hinge H, substantially as and for the purpose hereinbefore set forth.

No. 29,771. Railway Spike and Spike Blank.*(Cheville et ébauche de cheville de chemin de fer.)*

Howard Greer, Lakeview, Ill., U.S., 29th August, 1888. 15 years.

Claim.—1st. In a spike blank, the head 15 having beads 17 and 18, produced or developed along one edge of the blank exterior to the usual rib 14, substantially as set forth. 2nd. A railway rail spike having a driving head, and two claw-bar beads or projections, one on the side next the rail (when the spike is driven) and the other on the opposite side, substantially as set forth. 3rd. A railway rail spike having a double head, the upper one of which has a claw bar head or projection on the side next the rail (when driven) and another on the opposite side, and the lower head of which has a projection or lip 4 for engaging the rail flange, and a swell or enlargement 6, substantially as set forth. 4th. An incline or taper 9, substantially as set forth. 5th. The incline or taper 10, in combination with the incline or taper 9, substantially as set forth. 6th. A railway rail spike having, in combination, the double heads, and a taper 9, substantially as set forth.

No. 29,772. Road Cart. (Désobligeante.)

James C. Wallace, Guelph, Ont., 29th August, 1888. 5 years.

Claim.—1st. The combination of the extensions of the shafts E, E, with the axle K, and shafts J, J, substantially as and for the purpose hereinbefore set forth. 2nd. The combination of the springs A, A, shackles B, B, rod D, strap C, axle K, and seat M, substantially as and for the purpose hereinbefore set forth.

No. 29,773. Water Motor. (Moteur hydraulique.)

Henry E. Tremble, Kalamazoo, Mich., U.S., 29th August, 1888. 5 years.

Claim.—1st. A motor comprising a suitable frame or support, a piston head consisting of two jointly connected plates, the end of one plate pivoted to the support, a crank-shaft or its specified equivalent, and suitable stops to limit and control the vibration of the piston, substantially as set forth. 2nd. The combination of a suitable flume or frame, the jointed piston pivoted therein at one end, and the adjustable stop gates in position for the free end of the piston to contact with, substantially as set forth. 3rd. The combination of a suitable flume or frame, the jointed piston pivoted at one end therein, and the piston rod attached to the piston and extending laterally therefrom, substantially as set forth. 4th. The combination of a suitable flume, an automatically oscillating piston therein, and adjustable stop-gates, substantially as set forth.

No. 29,774. Trotting Harness.*(Harnais de course.)*

John H. Whitaker, Davenport, Iowa, U.S., 29th August, 1888; 5 years.

Claim.—1st. The loose collar or shackle for a horse's hind leg, combined with a yielding connection with the shafts, arranged as described, to adapt itself to the stride of the horse, substantially as and for the purpose described. 2nd. The collar or shackle for a horse's hind leg, combined with a supporting strap connecting with the same, and a shaft connection arranged to adapt itself to the stride of the horse, substantially as and for the purpose described. 3rd. The combination of the collar or shackle A, the flexible connection B, rod *d* attached longitudinally to the shaft, and a sleeve *e* sliding thereon and attached to the flexible connection B, substantially as and for the purpose described.

No. 29,775. Toy. (Jouet.)

Orlando P. Briggs, Chicago, Ill., U.S., 29th August, 1888; 5 years.

Claim.—1st. A top-spinning apparatus comprising a frame, a longitudinally movable rod, a spring for actuating the rod, a detent for holding the spring compressed, and yielding bar opposing said rod adapted to hold the cylindrical spindle of the top in engagement with the rod when the latter is moved endwise, substantially as described. 2nd. A top-spinning device comprising a longitudinally movable rod provided with rack teeth, a spring for moving said rod, a detent and trigger engaging the rod for holding the spring compressed and releasing the same, and a spring presser bar opposite the rack-bar and adapted to hold the toothed spindle of a top in engagement therewith, substantially as described. 3rd. The herein described toy having the form of a gun or pistol provided with a barrel, and a longitudinally movable rod therein, a spring for actuating the rod, a detent and trigger for holding the spring compressed and releasing the same, and spring arms at the end of the barrel provided with holders at their free ends to receive and hold a ball or marble, substantially as described.

No. 29,776. Grinding Machine for Frame*Saws. (Machine à affûter les scies en groupe.)*

Hoslt and Fleisher, Christiansa, Norway, (assignees of Gustavo Carl- sen, Uleaborg, Findland), 30th August, 1888; 5 years.

Claim.—A transportable grinding machine for frame saws, consisting of an emery wheel mounted on the end of a lever, which may be swung horizontally and vertically, and which lever is attached to a horizontally swinging arm pivoted to one end of a horizontal carrier rod, which may be adjusted vertically and horizontally on a stand adapted to be bolted or otherwise secured to the floor, substantially as herein described.

No. 29,777. Carriage Speaking Tube.*(Ports-voix de voiture)*

Edwin E. Wise, (assignee of George A. Beach), Chicago, Ill., U.S., 30th August, 1888; 5 years.

Claim.—1st. The carriage speaking tube extending from the driver's seat of the carriage to the interior of the carriage body, and consisting in the combination, with a stationary rubber hose guide tube section B, of the sliding rubber hose section B telescoping within said section B, and furnished with a mouth piece C fitting in a suitable socket on the carriage within reach of the driver's seat, and rubber hose section G furnished with a mouth piece G', substantially as specified. 2nd. The carriage speaking tube extending from the driver's seat of the carriage to the interior of the carriage body through the boot of the carriage, and consisting in the combination, with a stationary rubber hose guide tube section B, of the sliding rubber hose section D telescoping within said section B, and furnished with a mouth piece C fitting in a suitable socket on the carriage within reach of the driver's seat, said mouth piece C having a hinged cover F furnished with double disk whistle, and rubber hose section G furnished with a mouth piece G', substantially as specified. 3rd. The combination, with a rigid or non-folding closed carriage body, of a telescoping or sliding speaking tube B D G having mouth pieces C, G', the stationary tube or guide B communicating with a hole or opening through the carriage body, and the carriage body being provided with a socket to receive and conceal said mouth piece C, said tube D sliding or telescoping entirely within the carriage body, substantially as specified. 4th. The combination of carriage body A, stationary tube B having thimble *b* at its outer end, said tube B being secured at the top of the carriage under the upholstery, and provided with an elbow E at its inner end, sliding tube D provided with a mouth piece C at its outer end, said carriage body being provided with a socket to receive said mouth piece, dependent tube G secured to said elbow and provided with a mouth piece G', said mouth piece being furnished with a hinged cap F provided with a double disk whistle, one disk of said whistle being integral with said hinged cap, substantially as specified. 5th. The combination, with carriage body A, stationary tube B having thimble *b* at its outer end, said tube B being secured at the top of the carriage under the upholstery, and provided with an elbow E at its inner end, sliding tube D provided with a mouth piece C at its outer end, said carriage body being provided with a socket to receive said mouth piece, dependent tube G secured to said elbow and provided with a mouth piece G', said mouth piece being furnished with a hinged cap F provided with a double disk whistle, and one disk of said whistle being integral with said hinged cap disk, said tube G being furnished with flexible rubber bulb *g*, substantially as specified. 6th. In a carriage speaking tube, the combination, with a speaking tube, of its mouth piece or bell, a hinged perforated cap disk having a flange fitting over the rim of said mouth piece, and a second perforated disk inside said cap disk and forming with said cap disk a whistle, substantially as specified. 7th. The combination, with a carriage and carriage speaking tube, of a wire spring mouth piece, holder clamp H having a pivot portion *h* hinged to the carriage frame,

and arms *h*², *h*³ and *h*³, *h*³ standing in planes at about right angles to each other, and connected by spring coils *h*⁴, *h*⁴, substantially as specified. 8th. The combination, with a speaking tube, of a wire spring clamp H having hinge *h*, *h*¹, and *h*², *h*², clamp arms *h*³, *h*³, *h*³ connected at an angle to said arms *h*², *h*² by spring coils *h*⁴, *h*⁴, said clamp arms *h*⁴, *h*⁴ having coiled or curved ends *h*⁵, *h*⁵, substantially as specified. 9th. In a carriage speaking tube, the combination, with a speaking tube, its mouth piece or bell C furnished with an inner sleeve C' and an outer sleeve C², said sleeves C', C² forming an annular chamber between them to fit and receive the end of the speaking tube, substantially as specified. 10th. In a carriage speaking tube, the combination, with a speaking tube, its mouth piece or bell C having shoulder or rim *c*, furnished with an internal flange or rim *c*¹, and a hinged cover F having a flange *f* adapted to fit over said rim *c* and provided with a central whistle perforation, and a second perforated disk inside said cap disk and forming with said cap disk a whistle, substantially as specified.

No. 29,778. Stop Valve. (Soupape de retenue.)

John A. Creelman and George H. Graham, Rochester, N. Y., U.S., 30th August, 1888; 5 years.

Claim.—1st. A globe and valve therein, in combination with a cap for the globe, a stem in the cap, a handle secured to the stem, a diaphragm, a stud rigid with the diaphragm operated by the handle, and a connecting bar or lever within the globe for said stud and valve, substantially as shown and described. 2nd. A globe and valve therein, in combination with a cap for the globe, a stem held by the cap, a handle secured to the stem above the cap, a diaphragm within the cap, a stiffening disk for the diaphragm, a stud, or jaws rigid with the diaphragm and disk operated by the handle, and a lever within the globe to connect said stud and valve, substantially as shown and described. 3rd. A globe with its contained valve, in combination with a cap or cover for the globe, a threaded stem held in the cap and provided with an external handle, a diaphragm within the cap, a stud rigid with the diaphragm operated by the handle, a ring resting with in the globe beneath the diaphragm, and a connecting lever for said stud and valve joined to said ring, as shown. 4th. A globe and valve, in combination with a cap for the globe, a stem held by the cap, a handle secured to the stem, a diaphragm, a stud rigid with the latter operated by the handle, and a connecting lever for said stud and valve, said lever being formed with a stop for the valve, substantially as and for the purpose set forth.

No. 29,779. Safety Valve. (Soupape de sûreté.)

Charles H. Payne and Hamilton S. Corvin, Toledo, Ohio, U.S., 30th August, 1888; 5 years.

Claim.—1st. In a safety valve, in combination with the enclosing top of the steam space, a valve seat removably secured thereon, as and for the purpose set forth. 2nd. In a safety valve, in combination with the valve seat, a valve formed with a lower face to fit the seat, and an upper face with an angular perforation for the insertion of a removable valve stem having a corresponding angular end portion, as and for the purpose set forth. 3rd. In a safety valve, in combination with a circular valve seat and valve, a valve stem connected at one end with the valve, and provided at the opposite end with an attachment for revolving the valve upon the seat, as and for the purpose set forth. 4th. In a safety valve, a valve seat, a valve seated thereon, a valve seat movably connected with the valve held to any desired pressure thereon by a lever, and an adjustable weight connected therewith, in combination, with a lever adapted to raise the valve stem from pressure upon the valve, as and for the purpose set forth. 5th. In a safety valve, a valve stem having one end attached to a valve, and provided at the opposite end with a bevel gear, a shaft journaled at right angles thereto having a bevel gear intermeshing with the gear upon the valve stem, and attachment for revolving the shaft, as and for the purpose set forth.

No. 29,780. Stove Damper. (Clé de tuyau.)

Barrett C. Oblinger, Independence, and Curtis E. Thomas, Kansas, Mo., U.S., 30th August, 1888; 5 years.

Claim.—1st. In a stove-pipe damper, a suitable frame, in combination with a main operating-plate having a central aperture and a suitable handle, and separate and independent deflecting-plates journaled upon opposite sides of said operating-plate, the latter having a diameter one-half of which is greater than the distance between the plates, substantially as described. 2nd. In a stove-pipe damper, a suitable frame adapted to be removably located in the pipe at the junction of two sections, said frame being provided with lugs adapted to rest in the apertures in the pipe, in combination with plates independently journaled in said frame, substantially as described. 3rd. In a stove-pipe damper, a suitable frame provided with bearings in its side-bars, in combination with plates separately and independently located in said frame, and provided with journals adapted to turn in said bearings, substantially as described. 4th. In a stove-pipe damper, a suitable frame, in combination with a series of separate and independent plates one of said plates having a diameter one-half of which is greater than the distance between the plates, substantially as described. 5th. In a stove-pipe damper, a supporting frame adapted to removably fit in a stove pipe, the side-bars of said frame being provided with oppositely-located angular apertures, in combination with two or more plates loosely mounted in said frame, and provided with angular journals which have their bearings in said angular apertures, substantially as described. 6th. The combination in a stove-pipe damper, of the frame A, upper plate B, main plate C having central aperture bar *c* extending across said aperture and handle *b* and lower plate D, substantially as described.

No. 29,781. Spring Tooth Cultivator.*(Scarificateur à dents élastiques.)*

J. O. Wisner, Son & Co., (assignees of Wareham S. Wisner), Brantford, Ont., 30th August, 1888; 5 years.

Claim.—1st. A curved plate adjustably connected to the back of a

spring tooth of a cultivator, substantially as and for the purpose specified. 2nd. A curved plate A fitted onto the back of the spring tooth B between the jaws formed by the saddle D, in combination with a bolt C and cross block E, arranged substantially as and for the purpose specified.

No. 29,782. Central Station Heating System.
(*Système de chauffage les gres centrales*)

The National Heating Company, New York, N. Y. (assignee of Arthur W. Abbott, Chester, N. J., and Frank C. F. Kunak, New York, N. Y.) U.S., 30th August, 1883: 5 years.

Claim.—1st. In a heating system, the combination of a superheater, a supply main, a force pump, an expansion joint or coupling provided with a double-acting check valve, and means for conducting water for the supply main into a house or other building, and utilizing the same for heating purposes. 2nd. In a heating system, the combination of a superheater, a supply main, a force pump, a supply pipe leading from said main, a box or housing N, a movable coupler or T head attached to said supply pipe located in said box or housing, and branch pipes leading from said coupler to the building to be heated, substantially as shown and described. 3rd. In a heating system, the combination of a superheater, a supply main, a force pump, a supply pipe, a box or housing into which said supply pipe extends, a coupler attached to said pipe within said housing, and a branch pipe or pipes leading from said coupler into the house or houses to be heated, substantially as shown and described. 4th. In a heating system, the combination of a heater, a supply main, a force pump, a supply pipe, a housing into which said supply pipe extends, a coupler within said housing, a branch pipe or pipes attached to said coupler and extending out of said housing into a building or buildings to be heated, a regulator and converter and a radiator or radiators, substantially as shown and described. 5th. In a heating system, the combination, with a heater supply main and a force pump, of a box or housing located beneath the sidewalk, said box being provided with ways or bearings, and a block *an* resting thereon, a supply pipe extending from the said main into said housing, a coupling attached to said supply pipe and resting movably upon the block *an*, and branch supply pipes communicating with said coupling and extending into the house or houses to be heated, substantially as shown and described. 6th. In a hot water heating system, the combination of a superheater, a supply main, a force pump, a box or housing, provided with side openings N, as shown, a supply pipe leading from the main into said housing, a coupler and branch supply pipes leading from said coupler through said openings into the building to be heated, substantially as shown and described. 7th. In a hot water heating system, the combination of a heater, a supply main, a force pump, a box or housing provided with side openings N₁ and ways or brackets *an*, as shown, of a block *an* resting on side ways, a coupler resting on said block, a supply pipe connecting the main and coupler, and branch supply pipes leading from said coupler into the building or buildings to be heated through the openings N₁, substantially as shown and described. 8th. In a hot water and steam heating system, the combination of a heater, a supply main, a force pump, a housing N provided with ways or brackets *an*, a block *an*, having a longitudinally concave upper surface, a coupler *an*, having a convex lower surface resting on said block, a supply pipe connecting the main and coupler, and a branch pipe or pipes leading from the coupler to the building or buildings to be heated, substantially as shown and described. 9th. In a hot water circulating system, the combination of a superheater, a supply main and force pump, an autom. check valve located in the supply main, a return main, a return water tank and pump for forcing the water from the tank into the heaters, substantially as shown and described. 10th. In a central station heating system, the combination of a heater, a supply and return main, a bracket at M, having an upper and lower opening, and a removable cap and revoluble supports in said openings, whereby the mains are permitted to move freely in the direction of their lengths, substantially as shown and described. 11th. In a central station heating system, the combination of a heater, a supply and a return main, a bracket M having upper and lower openings, a removable cap for the upper opening and removable supports for the mains in said openings, said bracket being secured firmly to its supports, whereby said mains are held in place and their free longitudinal movement provided for, substantially as shown and described. 12th. In a hot water circulating system, the combination of a superheater, a supply main, a force pump, therefor, a return main, a supply pipe, a box or housing, a movable coupling within said box, a branch supply pipe leading from said movable coupling to the house to be heated, a branch return pipe leading from the house to the side box and provided with a movable coupling thereon, and a return pipe leading from said coupling to the return main, substantially as shown and described. 13th. In a hot water circulating system, the combination of a superheater, supply and return mains, a force pump, supply and return pipes, branch supply and return pipe, and a box or housing within which the supply and return pipes and branch supply and branch return pipes connect, substantially as shown and described. 14th. In a hot water circulating system, the combination of a heater, force pump, supply and return pipes, a housing within which the supply and return pipes connect with branch supply and return pipes, a regulator, a converter, a radiator or radiators, a condense water tank and

connecting pipes, substantially as shown and described. 15th. In a hot water circulating system, the combination of a heater, supply, and return mains provided with expansion joints, force pumps, supply and return pipes, movable couplings, a housing containing the couplings, branch supply and return pipes, a regulator and converter and radiators and connecting pipes, substantially as shown and described. 16th. The combination of the heater, the supply and return mains and the branch supply and branch return mains, a coupler formed in a single piece having two longitudinal and two transverse bores, and means to permit of the longitudinal expansion and contraction of the supply mains, substantially as shown and described. 17th. The combination of the heater, the supply and return mains, the branch supply and branch return mains, and a coupler formed in a single piece, provided with two longitudinal and two transverse bores, and means to permit of the longitudinal expansion of the supply and return mains and the branch supply and branch return mains, substantially as shown and described. 18th. In a hot water and steam heating system, the combination, with the supply main, of an automatic pressure regulator, provided with a steam or converting chamber, said chamber being surrounded by a hot water chamber, the supply main, hot water chamber, the regulator and steam or converting chamber being in communication with each other, substantially as shown and described. 19th. In a hot water heating system, an automatic pressure regulator provided with a steam or converting chamber, said chamber being partially enclosed by a hot water chamber, the hot water chamber regulator and steam or converting chamber being in communication, substantially as shown and described. 20th. An automatic differential fluid pressure regulator, consisting of a casing or casting, having an upper chamber provided with an auxiliary chamber *an*, a chamber *om* below the auxiliary chamber and separated therefrom by a partition having a central opening in which is a valve seat in combination with a piston provided with the stem *an*, to which is attached the valve *an* and a weighted lever *an*, substantially as shown and described. 21st. An automatic differential fluid pressure regulator, consisting of a casing having upper and lower chambers, an auxiliary chamber formed in the bottom of the upper chamber, and separated from the lower chamber by a perforated partition, in combination with an elastic piston *an*, provided with the valve stem *an* and the weighted lever *an*, and a connection between the piston and lever, substantially as shown and described. 22nd. An automatic differential fluid pressure regulator, consisting of a casing provided with chambers *R₁*, *Om*, *Om*, a piston *R₁*, provided with a valve stem *an* and a weighted lever *an*, in combination with a converter *R*, provided with the chamber *R₁* and a pipe or passage communicating with the chamber *Om* of the regulator, as shown and described. 23rd. An automatic differential fluid pressure regulator, consisting of a casing having the chambers *R₁*, *Om* and *Om*, and a removable *an*, in combination with a piston situated in chamber *Om*, provided with the valve stem *an* and a weighted lever *an* in chamber *R₁* connected with said piston, substantially as shown and described. 24th. In a heating system, the combination of a superheater, a supply main, a force pump, expansion joints or couplings, a supply pipe, a housing N, branch pipes leading from said supply pipe to different houses, a converter and regulator, with which the branch supply pipes communicate, and a radiator connected with the converter, substantially as shown and described. 25th. In a heating system, the combination of a heater, a supply main, a force pump, a supply pipe leading from the supply main, a movable coupling *an*, pipes leading from said coupling to a regulator and converter, a regulator and converter and radiators, substantially as shown and described. 26th. In a hot water heating system, the combination of a heater, a supply main, a force pump, a supply pipe, a box or housing, connected with said supply pipe within the housing, a movable coupler attached to said supply pipe within the housing, a branch pipe or pipes connected with said coupler, a regulator and converter, and a radiator or radiators, the supply mains and pipes being provided with expansion and movable joints and couplings, as shown and described.

No. 29,783. Tube Cutter. (*Décapoir de tube.*)

Daniel F. Atwood (assignee of James R. Vance), Geneva, N. Y., U.S., 30th August, 1883: 5 years.

Claim.—1st. A tube cutter, composed of the mandrel A, provided with a diagonal channel *a*, and a cutter *c* sustained adjustably longitudinally in said channel to cut the tube inside of the boiler, substantially as shown. 2nd. A tube cutter, consisting of a mandrel adapted to enter into the tube to be cut, a collar on the mandrel abutting against the end of the tube, a channel extending diagonally through the mandrel from the outer side of the said collar to the inner side thereof, and a cutter sustained adjustably longitudinally to said channel, substantially as described and shown. 3rd. In combination with the mandrel A, having the channel *a* extending diagonally through it, the cutter *c*, extending longitudinally through said channel and a clamp on the mandrel engaging the shank of the cutter, and holding the same in its position, as set forth. 4th. The combination of the mandrel A, provided with the oblique channel *a*, the cutter *c* extending through said channel and having its shank serrated, and the eccentric *e* pivoted to the mandrel and having a serrated face engaging the said shank of the cutter, substantially as described and shown.

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

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| <p>1189. THE COWELL PLATFORM AND COUPLING CO. (assignee), 2nd 5 years of No. 17,472, from the 11th day of August, 1888. Improvements on Car Platforms, 1st August, 1888.</p> | <p>1197. L. W. POND, 3rd 5 years of No. 9,137, from the 30th day of August, 1888. Improvement on Rafting Booms, 23rd August, 1888.</p> |
| <p>1190. E. NORTON, 2nd 5 years of No. 17,722, from the 22nd day of September, 1888. Improvements on Sheet Metal Cans, 2nd August, 1888.</p> | <p>1198. J. GOLDIE and H. McCULLOCH, 2nd 5 years of No. 17,664, from the 12th day of September, 1888. Improvements on Gradual Reduction Roller Mills, 24th August, 1888.</p> |
| <p>1191. J. T. BARNARD (assignee), re-issue of No. 9,096, 2nd 5 years of No. 17,555, from the 6th day of August, 1888. Improvement on Emery or Corundum Wheels, 2nd August, 1888.</p> | <p>1199. W. KING, 2nd 5 years of No. 18,035, from the 4th day of November, 1888. Improvements on Sectional Boilers, 24th August, 1888.</p> |
| <p>1192. P. and A. S. PATTERSON, 3rd 5 years of No. 9,104, from the 12th day of August, 1888. Improvements on Harrows, 9th August, 1888.</p> | <p>1200. A. R. APPLEMAN, 2nd 5 years of No. 17,573, from the 1st day of September, 1888. Improvements on Seed Cleaners, 27th August, 1888.</p> |
| <p>1193. THE COWELL PLATFORM and COUPLING CO. (assignee), 2nd 5 years of No. 17,516, from the 18th day of August, 1888. Improvements on Car Couplings, 10th August, 1888.</p> | <p>1201. A. M. PLASCHKE, 3rd 5 years of No. 9,139, from the 30th day of August, 1888. Improvements on Self-Acting Washing Machines, 29th August, 1888.</p> |
| <p>1194. C. F. MILBURN, H. ASHLEY, H. F. MITCHELL and H. CANNIFF, 2nd 5 years of No. 17,515, from the 18th day of August, 1888. Improvements in Tubular Axles, 18th August, 1888.</p> | <p>1202. J. E. BAKER (assignee), 3rd 5 years of No. 9,138, from the 30th day of August, 1888. Improvements in Machines for Faring, Coring and Slicing Apples, 29th August, 1888.</p> |
| <p>1195. N. B. ELLIOTT, 2nd 5 years of No. 17,522, from the 20th day of August, 1888. Improvements on Pneumatic Clothes Washers, 18th August, 1888.</p> | <p>1203. A. R. YOUNG, 2nd 5 years of No. 17,750, from the 24th day of September, 1888. Improvements on Feed Water Backs for Boilers, 30th August, 1888.</p> |
| <p>1196. C. L. HIGGINS, 2nd 5 years of No. 17,540, from the 22nd day of August, 1888. Improvements in Welts and Welt Guides for Sewing Machines, 22nd August, 1888.</p> | <p>1204. W. WHITE, 2nd 5 years of No. 17,564, from the 1st day of September, 1888. Improvements on Roofing Felt, 31st August, 1888.</p> |
| | <p>1205. W. WHITE, 2nd 5 years of No. 17,585, from the 1st day of September, 1888. Improvements on Roofing Compositions, 31st August, 1888.</p> |

AUGUST LIST OF TRADE MARKS.

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3227. ROBERT W. MORGAN and WILBUR L. MOORMAN, of Lynchburg, Co. of Campbell, Virginia, and JOHN W. SELBY, of Philadelphia, Pennsylvania, U.S.A., (Dental Chewing Gum Co.) Chewing Gum, 4th August, 1888.
3228. GEORGE B. STOCK and DAME ANNIE W. HOOD, trading as the MONTREAL SOAP AND OIL MANUFACTURING CO., of Montreal, Que. Soap, 6th August, 1888.
3229. JOHN POWER & SON, of Dublin, Ireland. Whiskey, 6th August, 1888.
3230. J. D. MACKAY, of Truro, Nova Scotia. Canned Condensed Goods, such as Milk, Coffee, Cocoa, Meats and Fruits, 7th August, 1888.
3231. JULES PICOT, de Paris, France. Produit lexiviel, " Lessivo Phenix," 7 Aout, 1888.
3232. EVANS BROS. PIANO AND MANUFACTURING CO. (Ld.), of Ingersoll, Ontario. Pianofortes, 7th August, 1888.
3233. D. LEONARDT & CO., of 100 Charlotte Street, Birmingham, England. Pens, 8th August, 1888.
3234. THE F. P. ROBINSON CO., of Boston, Mass., U.S.A. Black dyed Fabrics, 8th August, 1888.
3235. BENS DORP & CO., of Amsterdam, Holland. Cocoa, 13th August, 1888.
3236. EDOUARD MAILHOT, de Trois Rivières, Que. Cigares, 15 Aout, 1888.
3237. AMÉDÉE VALLÉE, No. 30 Rue d'Enghien, Paris, France. Cognac et vins en caisses, Articles de Paris, Bijouterie en or, argent et doublé, vêtements confectionnés, chaussures, couvertures et lingerie, 20 Aout, 1888.
3238. FINDLAY, DURHAM & BRODIE, of Victoria, B.C. Salmon, 20th August, 1888.
3239. FINDLAY, DURHAM & BRODIE, of Victoria, B.C. Salmon, 20th August, 1888.
3240. WAUKENPHAST & CO., of Haymarket, London, England. Leather and skins of all kinds, articles of clothing, including Boots and Shoes, Games of all kinds, Archery, Fishing Tackle. Toys and Roller Skates, 20th August, 1888.
3241. WAUKENPHAST & CO., of Haymarket, London, England. Leather and skins of all kinds, articles of clothing, including Boots and Shoes, Games of all kinds, Archery, Fishing Tackle, Toys and Roller Skates, 20th August, 1888.
3242. WINDSOR CANNING COMPANY, of Aberdeen, Skeena River, B.C. Canned Salmon, 21st August, 1888.
3243. HUGH MALCOLMSON, of Chatham, Co. of Kent, Ont. Canned Goods, such as Tomatoes, Corn, Peas, Beans, Apples and small fruits of all kinds in tin or glass, 21st August, 1888.
3244. CHASE & SANBORN, of Boston, Massachusetts, U.S.A. Coffee and Coffee Compounds, 23rd August, 1888.
3245. CHASE & SANBORN, of Boston, Massachusetts, U.S.A. Coffee and Coffee Compounds, 23 August, 1888.
3246. BENS DORP & CO., of Amsterdam, Holland. Cocoa, 28th August, 1888.
3247. HEINTZMAN & CO., of Toronto, Ont. Pianofortes, 25th August, 1888.
3248. LA COMPAGNIE " LE PELERIN," of Montreal, Que. A Medicinal Preparation, 28th August, 1888.
3249. SOCIÉTÉ MEUNIER, de 56 Rue de Chateaudun, Paris, France. Chocolat, 29 Aout, 1888.
3250. ARCHAMBEAU & FRÈRES, de 72 Quai des Chartrons, Bordeaux, France. Eau de Vie, 29 Aout, 1888.
3251. J. & G. COX, of the Gorgie Mills, Edinburgh, Scotland. Gelatine, 29th August, 1888.

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4377. McMILLAN'S NORTH-WEST TERRITORIES COPY BOOKS. J. & A. McMillan, St. John, N.B., 2nd August, 1888.
4378. STEVENS' DIGEST NEW BRUNSWICK REPORTS, 1879-1886. Carswell & Co., Toronto, 2nd August, 1888.
4379. HAND-BOOK OF THE CITY OF MONTREAL AND ITS ENVIRONS, by S. E. Dawson. Samuel E. Dawson, Montreal, 3rd August, 1888.
4380. THE AMITY JERSEY, by Maggie M. Kerby. Maggie M. Kerby, Montreal, 4th August, 1888.
4381. LEAP YEAR POLKA, by Laura McKenzie. Laura McKenzie, Montreal, 4th August, 1888.
4382. AN EXTRACT FROM THE TECHNICAL STUDIES FOR THE PIANOFORTE, by Louis Plaidy. Breitkopf & Hartel, of Leipzig, Germany, 6th August, 1888.
4383. AN EXTRACT FROM 50 SELECTED STUDIES, by J. B. Cramer; systematically arranged and with notes by Dr. Hans von Bülow. Jos. Aibl, of Munich, Germany, 6th August, 1888.
4384. A LANDSMAN'S LOG BOOK, by "Vagrant." John T. P. Knight, of Woodstock, N.B., 6th August, 1888.
4385. CLERGÉ SECULIER DU DIOCESE DE QUEBEC, 1856-1857-1858. (Photographie), Jules Ernest Livermois, Quebec, 6 Aout, 1888.
4386. RETAIL HARDWARE MERCHANTS' NET PRICE LIST OF SCREWS, FROM 25 PER CENT. TO 60 PER CENT. John Lovell & Son, Montreal, 6th August, 1888.
4387. THE CANADIAN MUSIC COURSE—BOOK III., by Alexander P. Cringan. The Canadian Publishing Co. (Ld.), Toronto, 7th August, 1888.
4388. OUTLINES OF CANADIAN HISTORY, for the use of Schools, by a Catholic Teacher. (Dominion Catholic Series), James A. Sandler, Montreal, 8th August, 1888.
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4371. MONOGRAPHIES.—GOUVERNEURS, INTENDANTS ET EVEQUES DE LA NOUVELLE FRANCE. Augusto Béchard, Ottawa. 25 Juillet, 1888.
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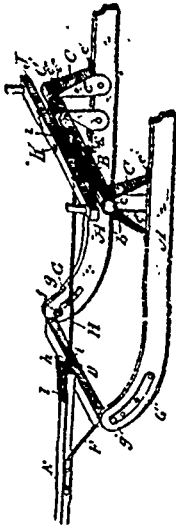
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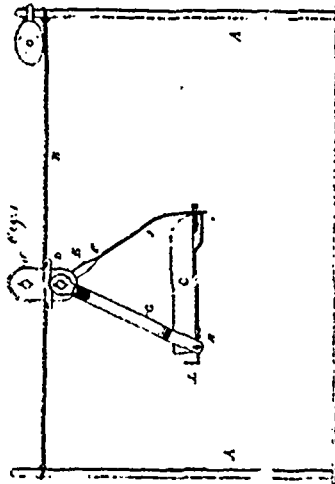
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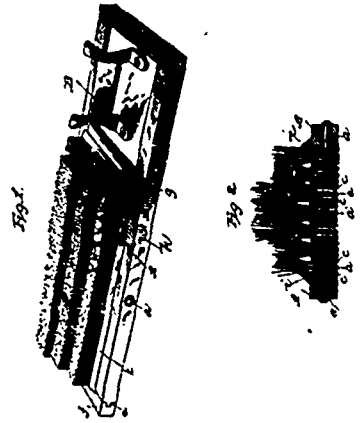
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29602 Chapin & Edwards' Bob-Sled.



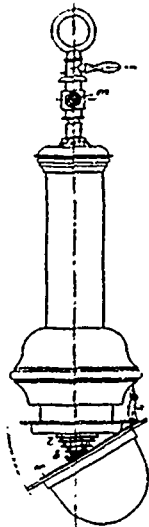
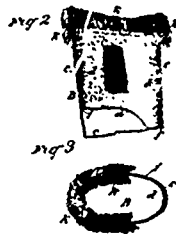
29603 Faulkner's Conveyor and Dumper.



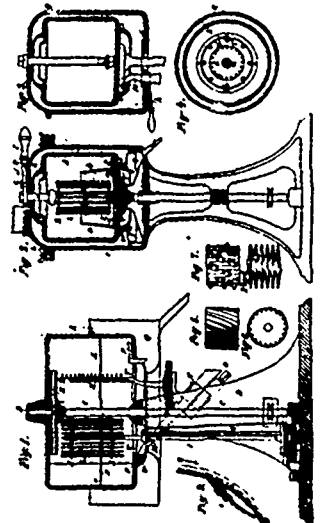
29604 Chattaway's Door Mat.



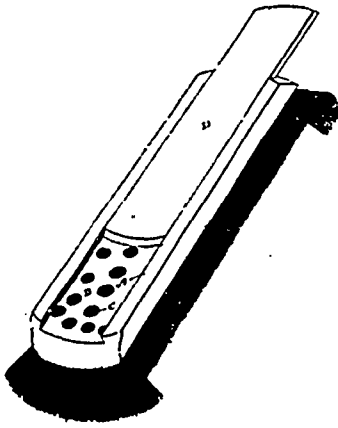
29605 Thomas Rubber Boot.



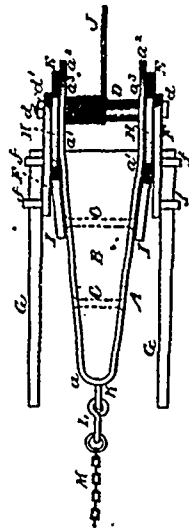
29606 Fullford and Van Lann's Gas Lamp.



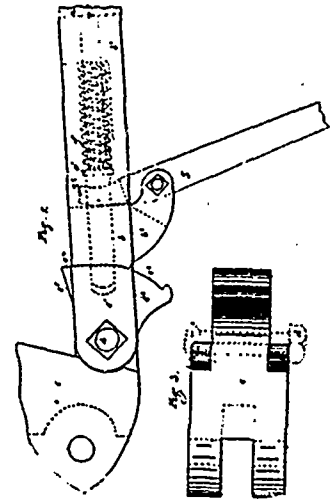
29607 Johansson's Apparatus for Manufacturing Butter.



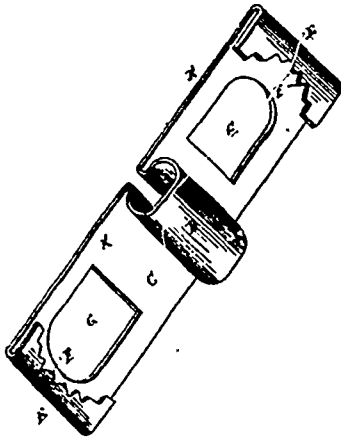
29608 Boeckh's Scrubbing Brush



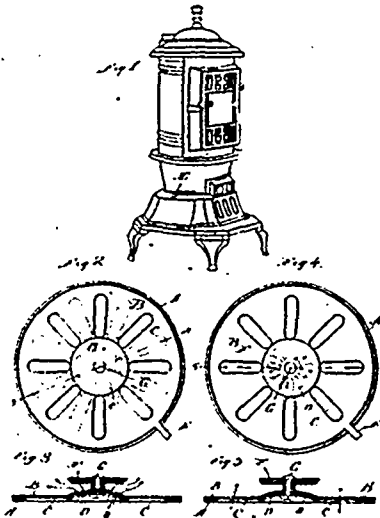
29609 Lafo's Apparatus for Extracting Stumps.



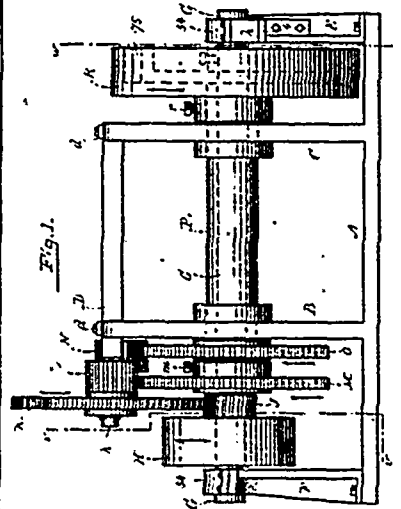
29610 Fox's Car-Coupling



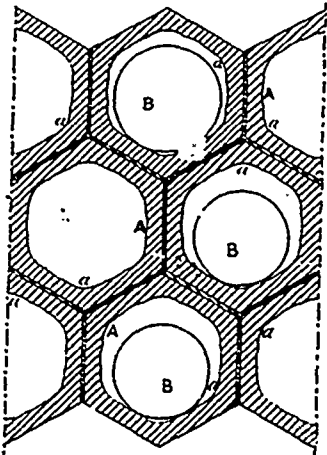
29611 Burton's Nut Lock



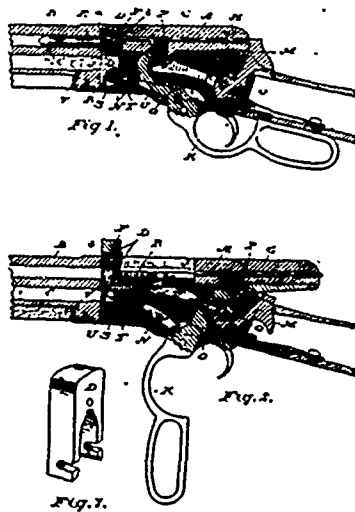
29612 Webber's Stove Grate.



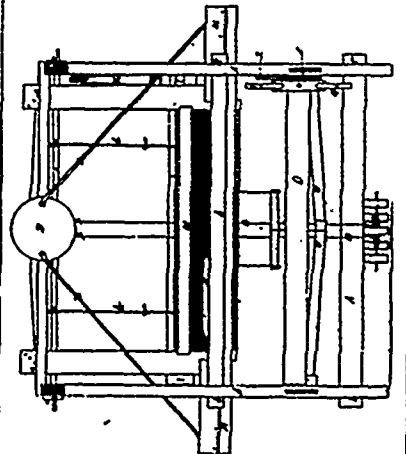
29613 Gould's Machine for Making Rolled Iron.



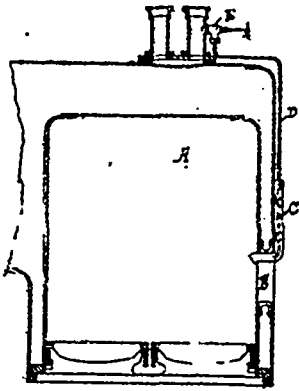
29614 King's Wine Bin.



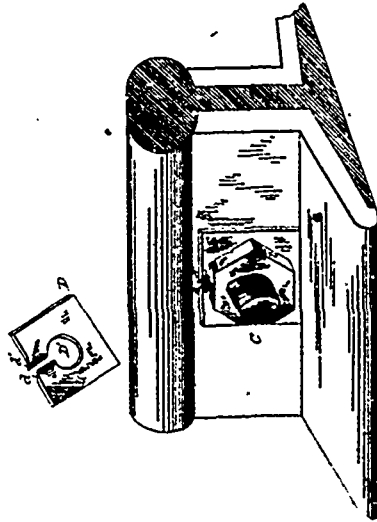
29615 Cooper and Cashmore's Repeating Rifle.



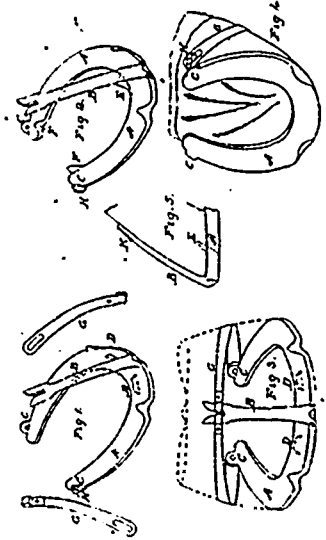
29616 Lafontaine's Loom.



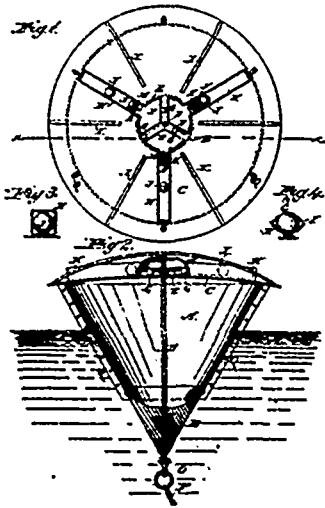
29618 Dow's Smoke Consumer, etc.



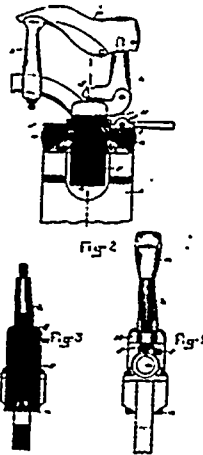
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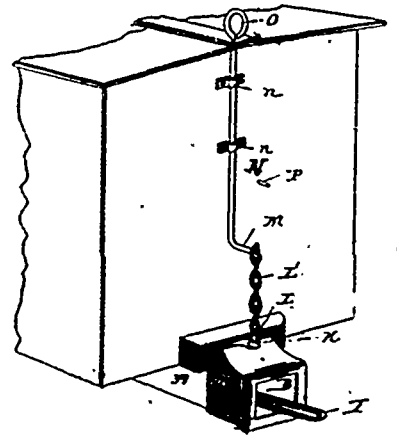
29620 Jutson and Poupard's Shoe for Horses, etc.



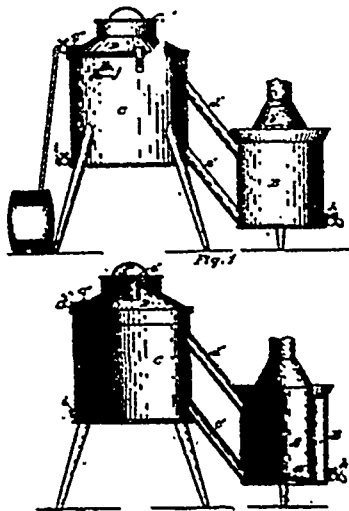
29621 McLaughlin's Signal Buoy.



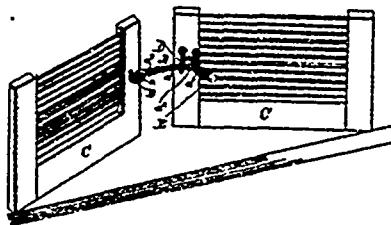
29622 Stone's Jack Mechanism for Boots and Shoes.



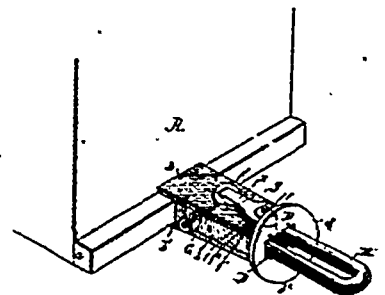
29623 Yauger's Car-Coupling.



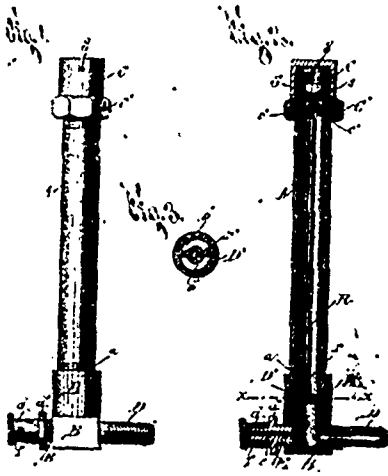
29624 Mercer's Washing, Scalding and Snow-Melting Apparatus.



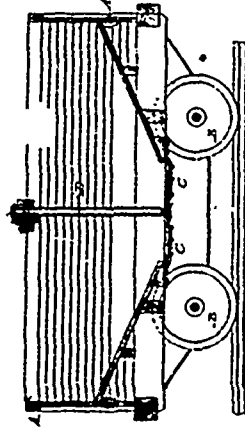
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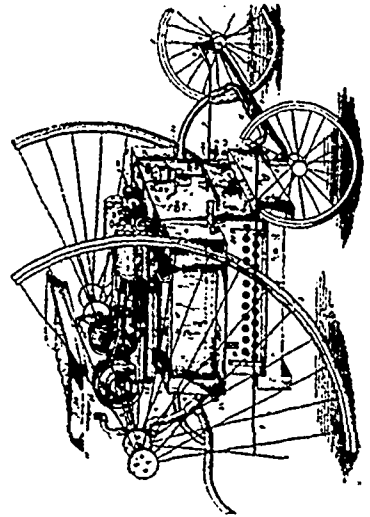
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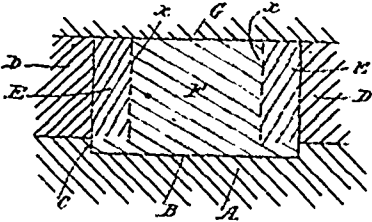
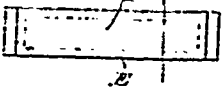
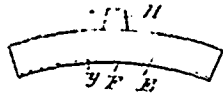
2967 Waggoner's Vent Plug for Steam Radiators.



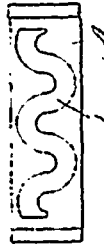
29678 Bean's Dumping Car.



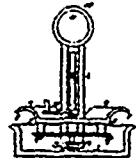
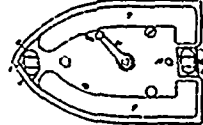
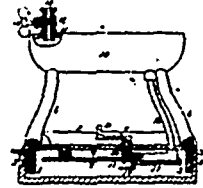
29679 Hullard's Steam Road Vehicle



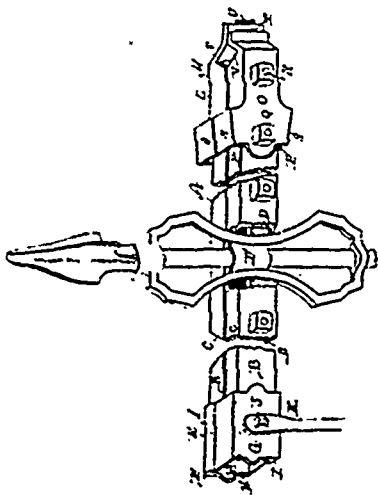
29632 Hatt's Brake Shoe.



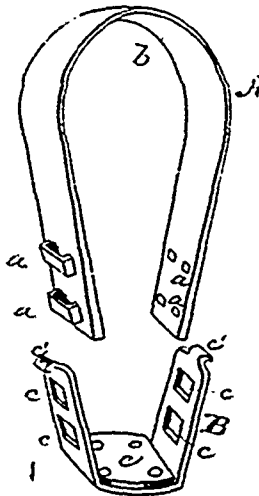
29631 Hatt's Brake Shoe.



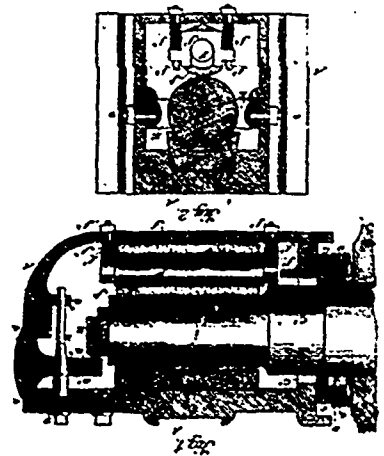
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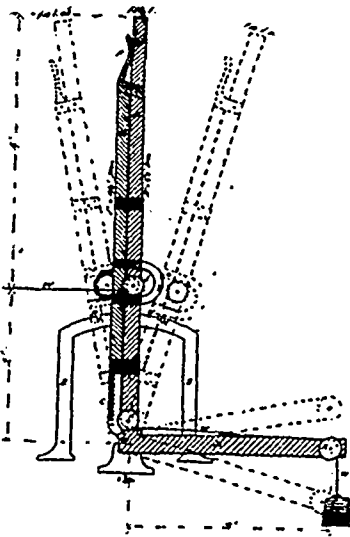
29633 Rogers' Iron Fence.



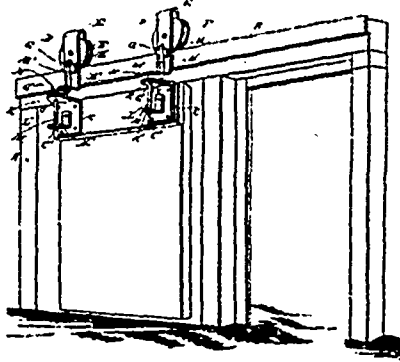
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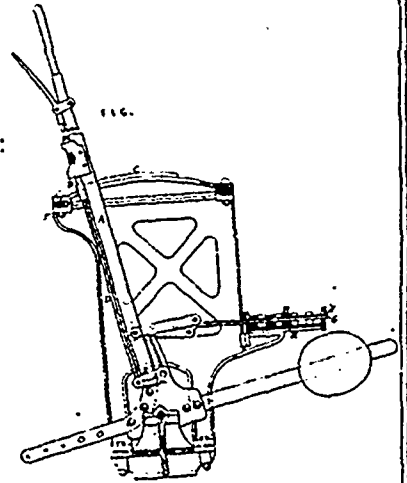
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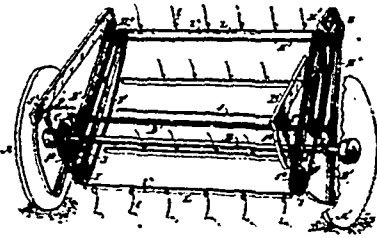
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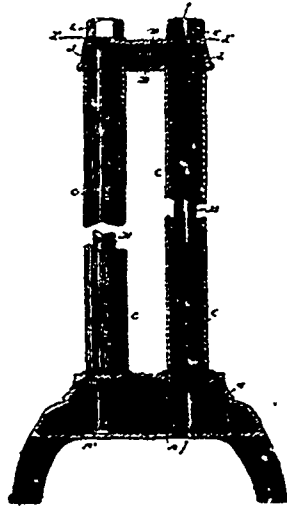
29637 Grantis's Door Hanger



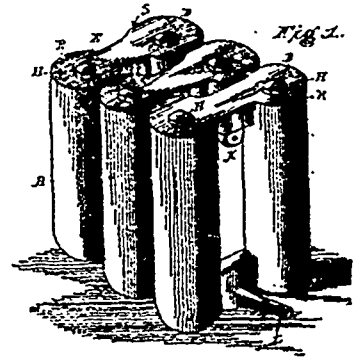
29638 Reid's Interlocking Apparatus.



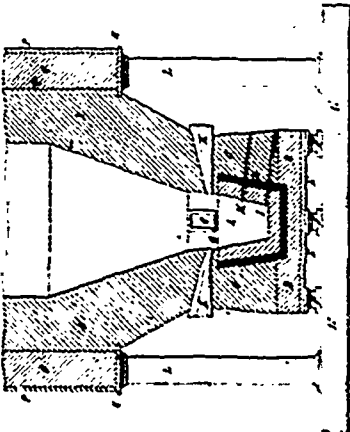
26639 Utter's Hay Tedder.



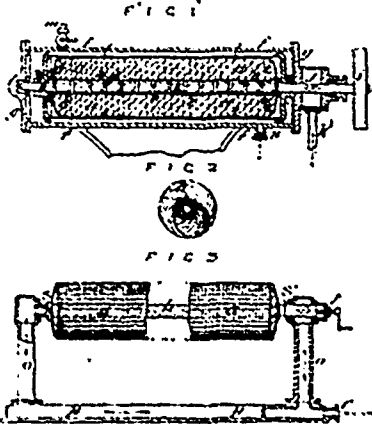
29640 Askins' Radiator.



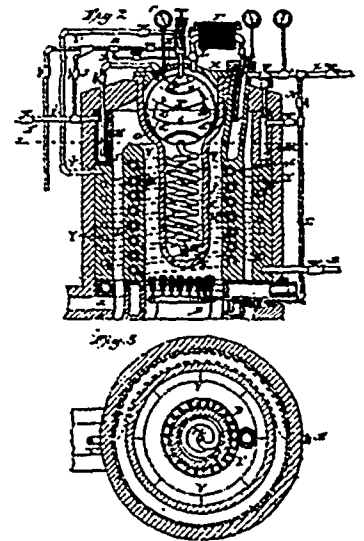
29641 Askins' Steam Radiator.



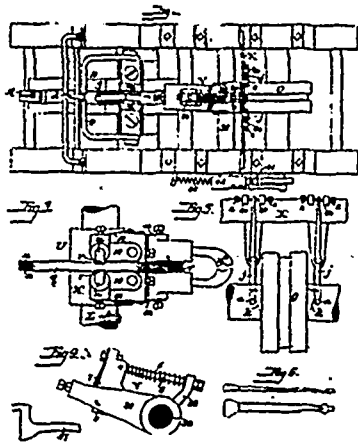
29643 Lewis & Phillips' Extraction of Metals from Ores



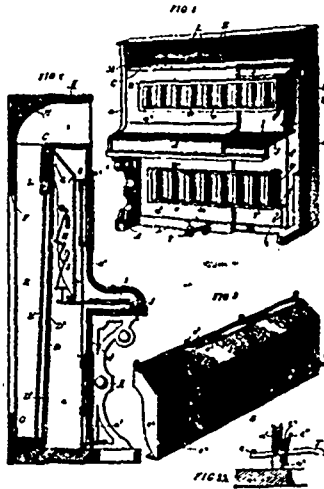
29644 Sutcliffe's Apparatus for Washing, etc.



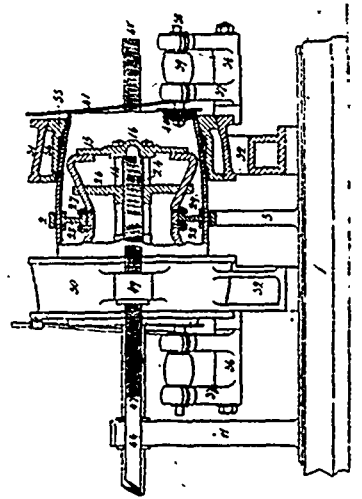
29645 Archer's Process of Manufacturing Gas.



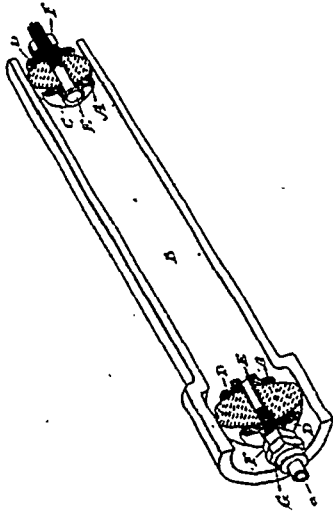
29646 Pierce's Nail Finishing Machine.



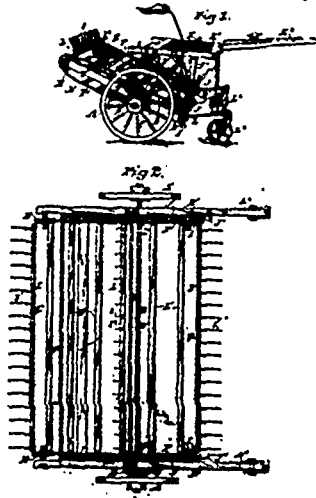
29647 Dutton's Upright Piano.



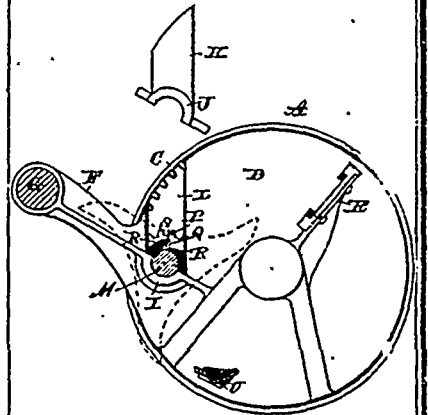
29648 Dunbar's Cask and Barrel



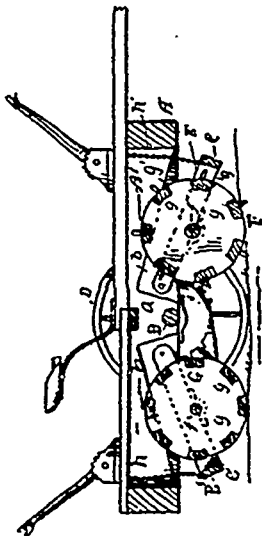
29649 McGuire & Morrison's Expansion Plug.



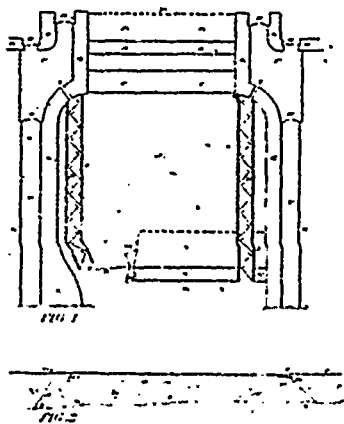
29650 Utter's Hay Tedder.



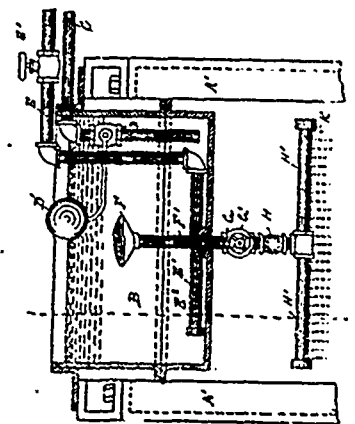
29651 Rogers' Lawn Mower.



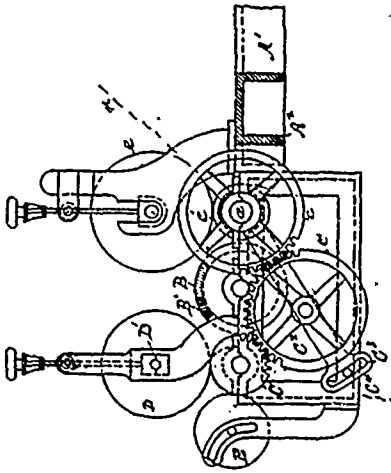
29652 Wyatt's Clod Crusher and Harrow



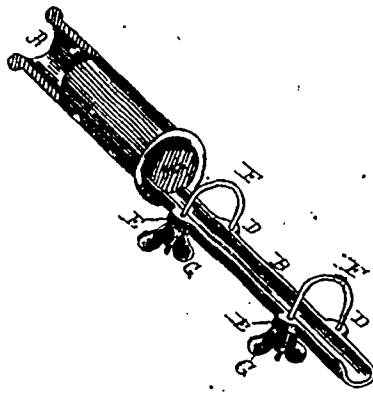
29653 Rogers' Fishway.



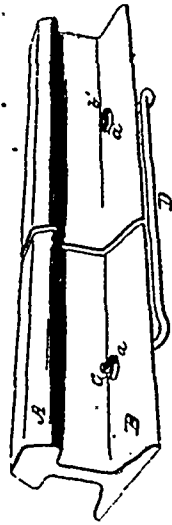
29654 Cheyne's Jute and Hemp Softening Machine.



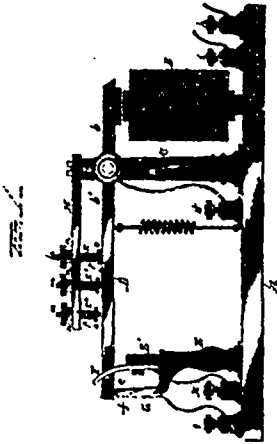
29655 Cheyne's Carding Machine.



29656 Bartlett's Extension Handle Joint.



29658 Stitzel & Weinedel's Electrical Connector.



29659 Stitzel & Weinedel's Telegraphic Relay.



FIG. 1.

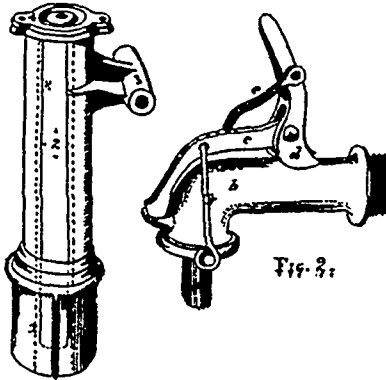
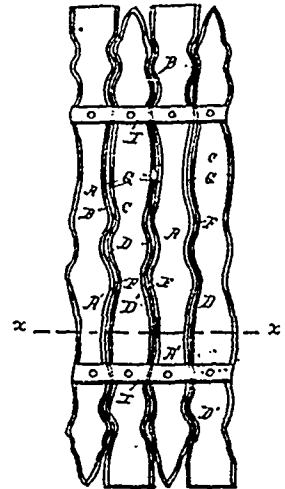
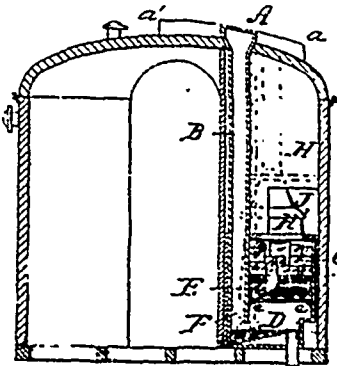


FIG. 2.

29660 Dennis' Pump.



29661 Riegel's Pattern for Pickets and Balusters.



29662 Mann's Ventilating Apparatus.

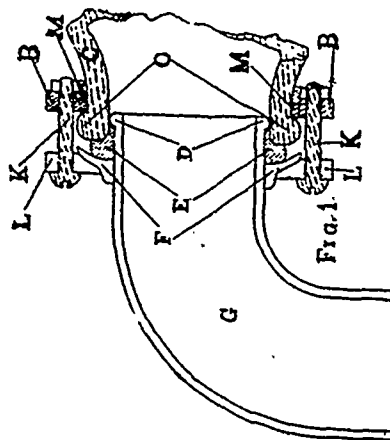
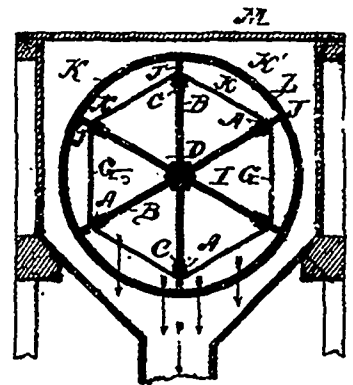
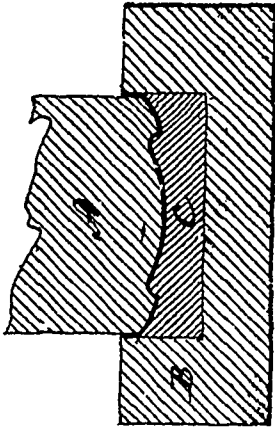


FIG. 1.

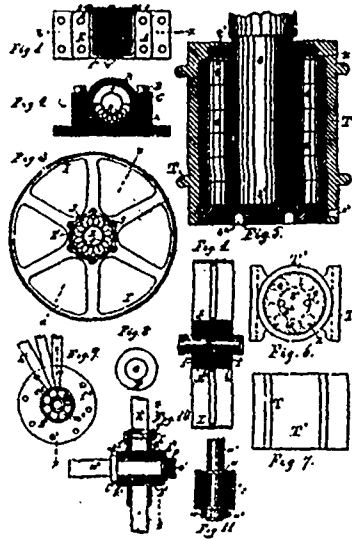
29663 Parker's Ventilation of Closets.



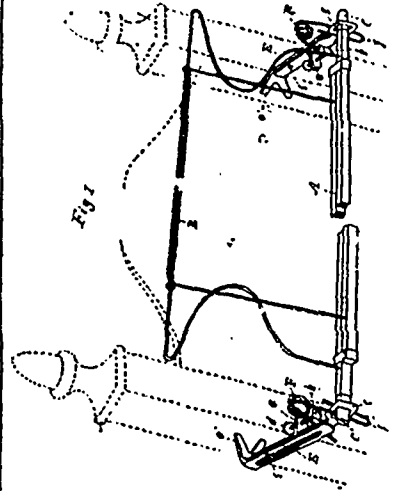
29664 Erickson's Bolting Reel.



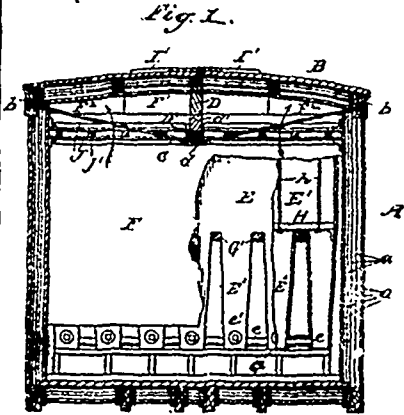
29665 Cannon's Die for Swaging Sheet Metal Articles.



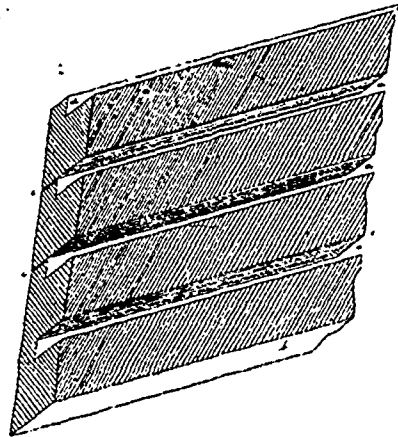
29666 Hyatt's Anti-Friction Journal Bearing.



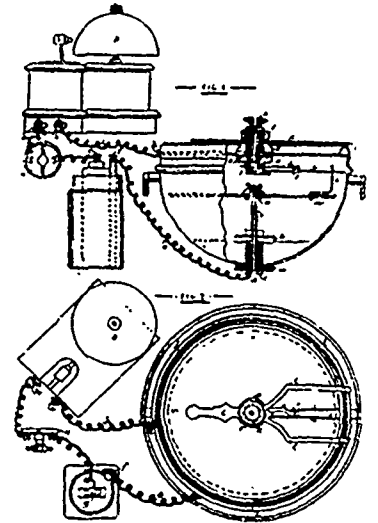
29667 Clark's Pillow-Sham Holder.



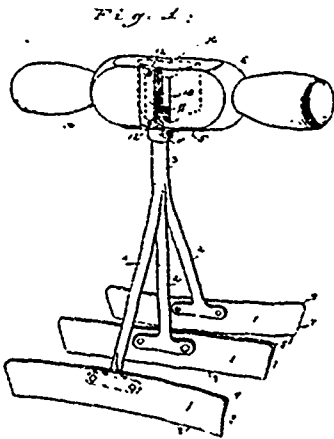
29668 Riordan's Refrigerator Car.



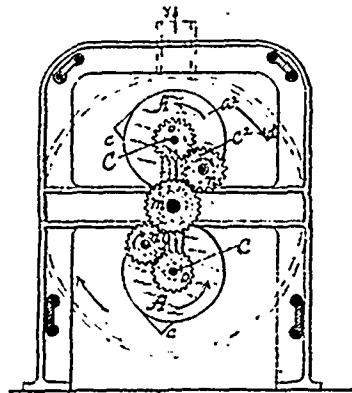
29669 Brown's Sheathing Lath.



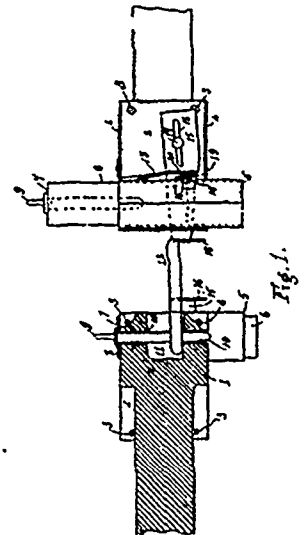
29670 Gross' Electrical Apparatus for a Marine's Compass.



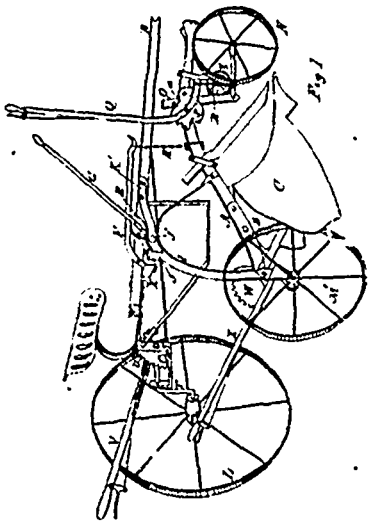
29671 Bridgman's Chopping Knife and Slicer.



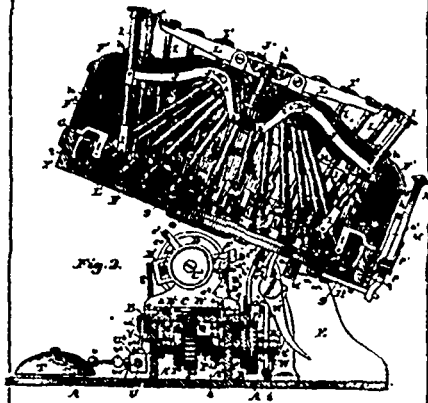
29672 Wegman's Hulling and Grinding Grain.



29673 Rutledge's Car Coupling.



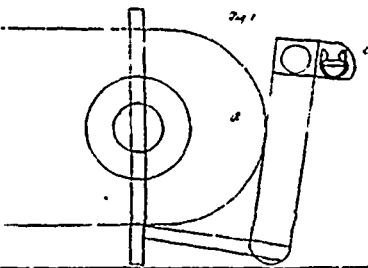
29674 Woodlan & Patterson's Sulky Plough.



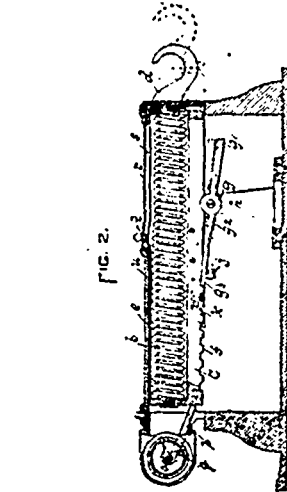
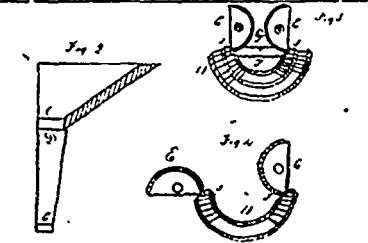
29675 Donnelly's Type Writing Machine.



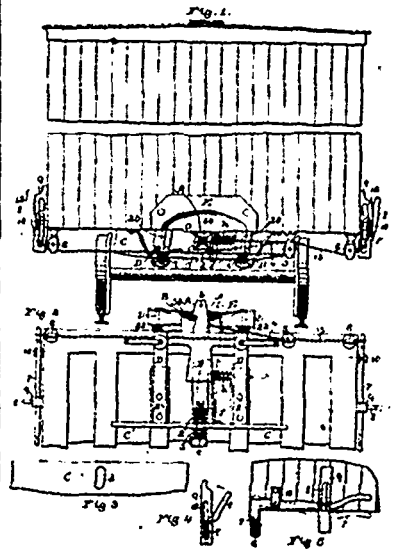
29676 Cushman's Whip.



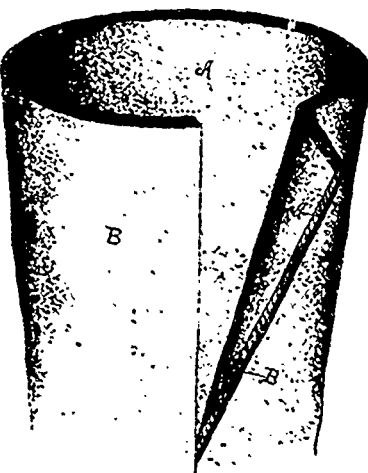
29677 Millin's Elevator for Fanning Mills, etc.



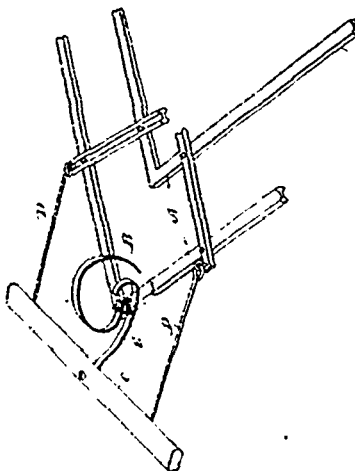
29678 White's Finger Pull.



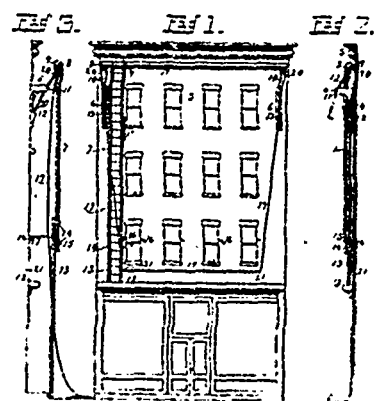
29679 Barry's Car Coupling.



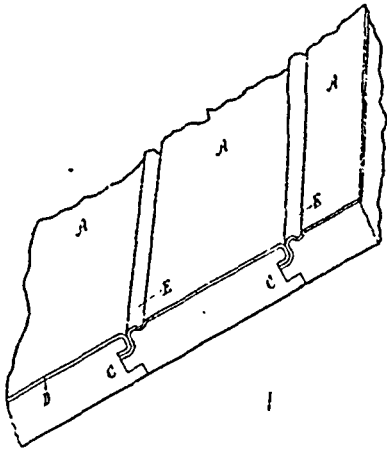
29680 Beiger's Fabric Foot.



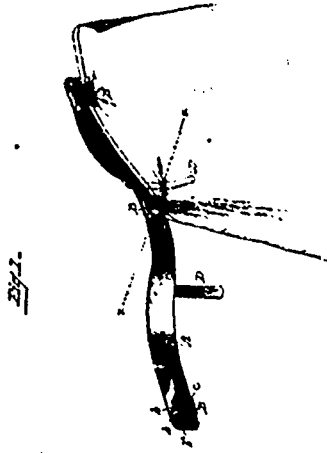
29681 Wisner's Cultivator.



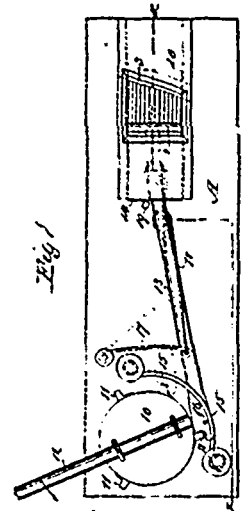
29682 Fallgatter's Fire-Escapo



29683 Brock's Lumber.



29684 Gooch's Napkin Supporter.



29685 McCarn's Reciprocating Plunger.



29686 Blissoll's Curling Iron.

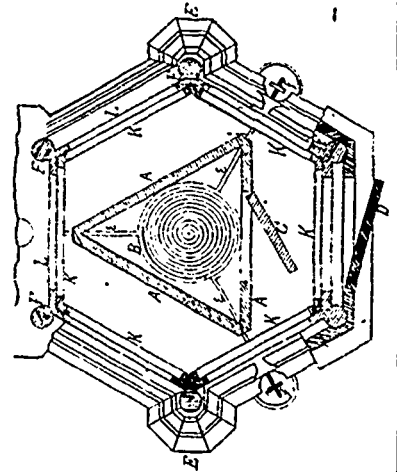
Fig. 1.



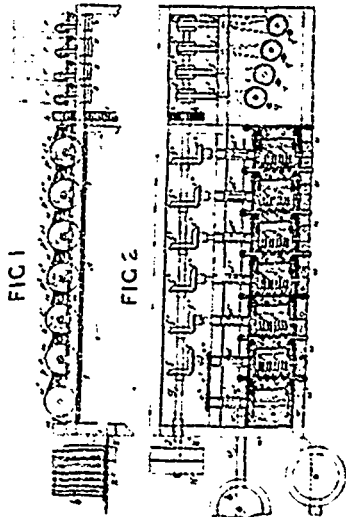
Fig. 2.



29687 Horden's Stone Boat.



29688 Gutchell's Fountain.



29689 Smith's Viro Drawing Machine.

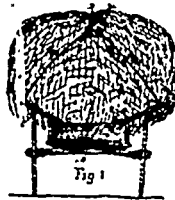


Fig. 2.

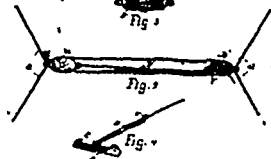
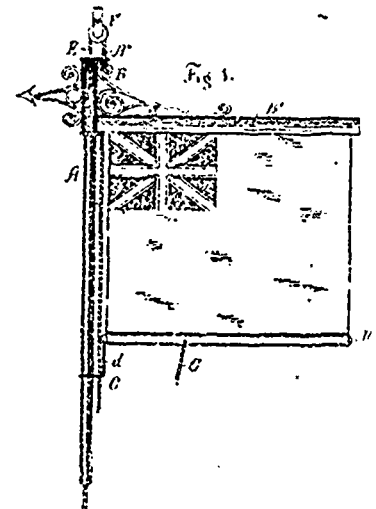


Fig. 3.

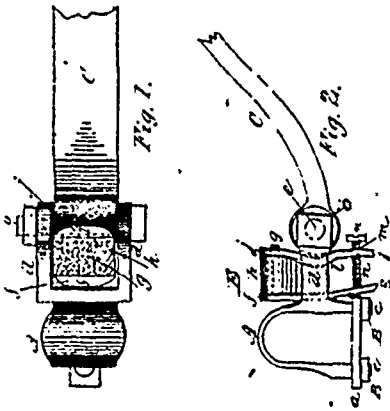


Fig. 4.

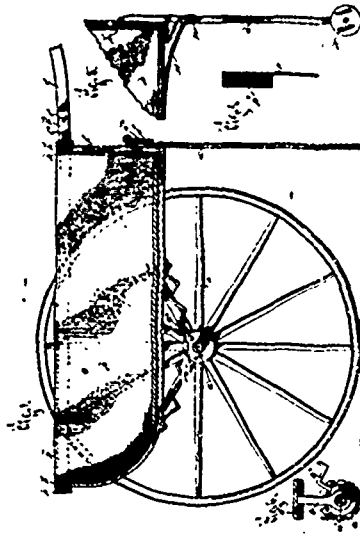
29690 Baker's Hay Binder.



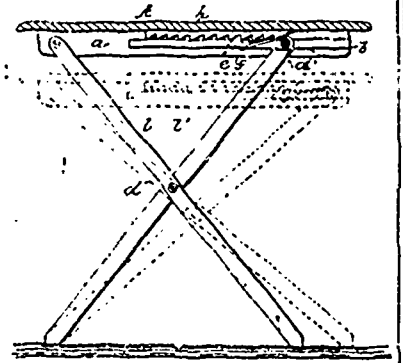
29691 Potre's Flag Staff.



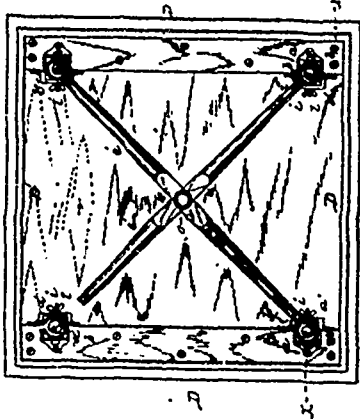
29632 Ross Anti-Rattler.



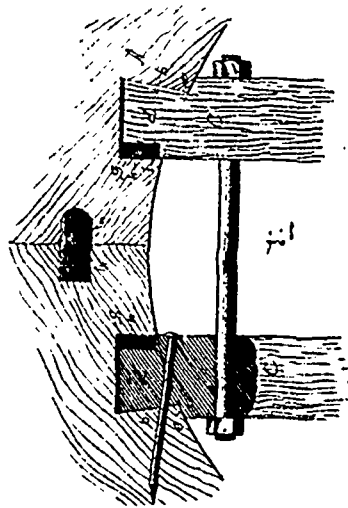
29693 Teal's Hand Cart.



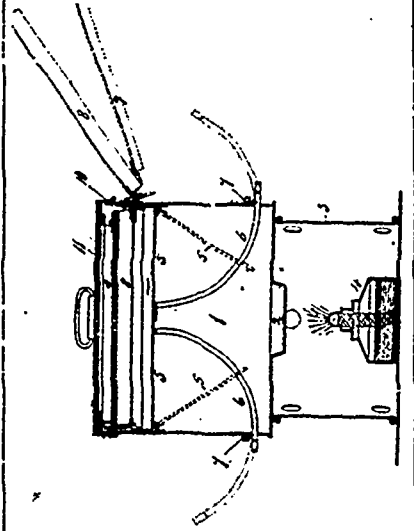
29644 Bon's Folding Table.



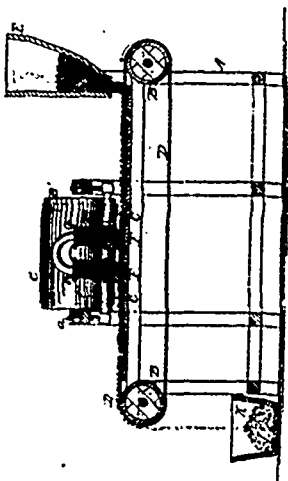
29695 Bon's Folding Table.



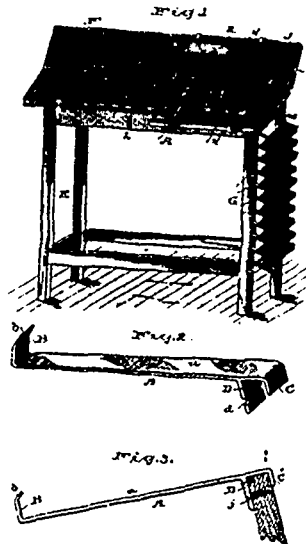
29697 Dodge's Band Pulley.



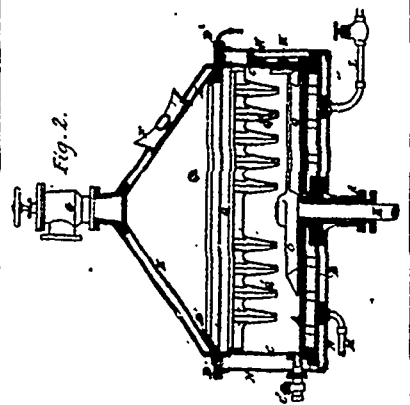
29696 Rogers' Bleaching Apparatus.



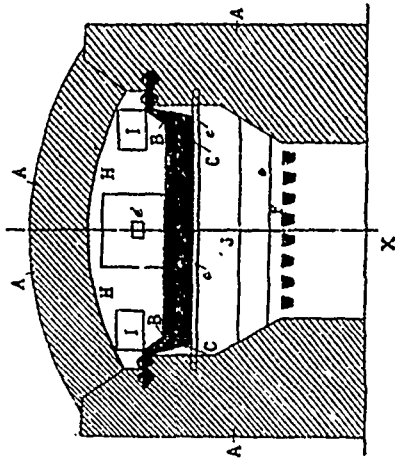
29699 Conkling's Machine for Eliminating Iron from Ores, etc.



29700 Blakeley's Support for Shelves.



29701 Edwards' Apparatus for Drying Animal Matter, etc.



2870 Weirich's Treatment of Auriferous Minerals.

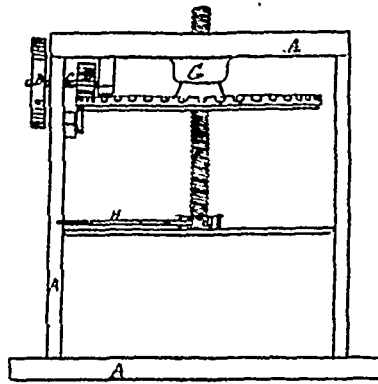


FIG. II

28763 Wettlaufer's Cider Press.

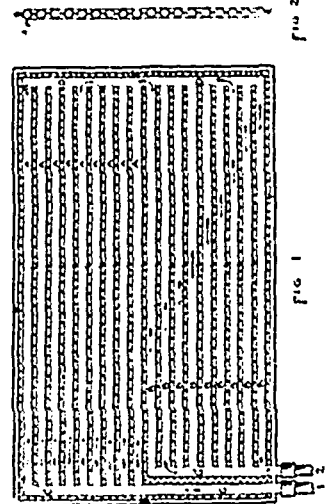
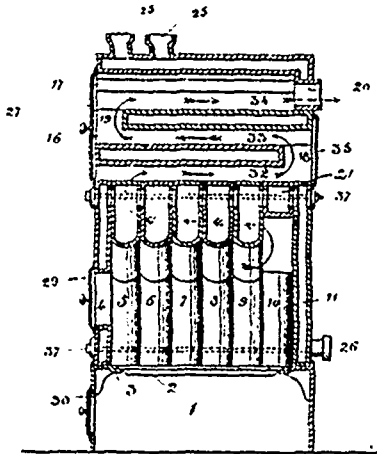
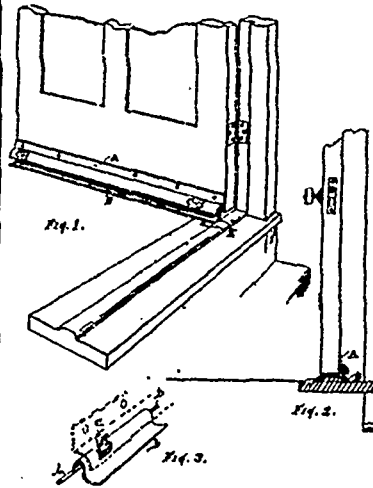


FIG. 1

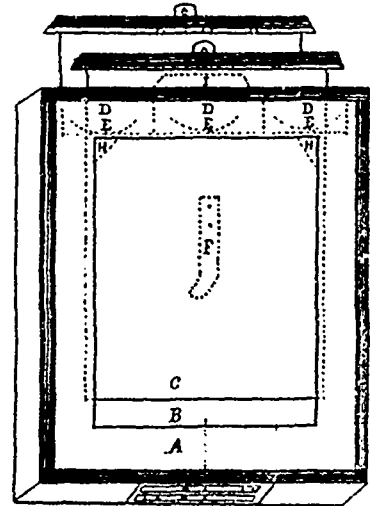
28752 Mount's Hot Water Heating Apparatus.



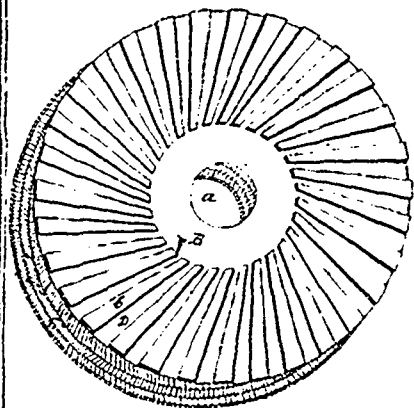
28765 Gate's Hot Water Boiler.



28766 Hibbert's Weather Strip.



28757 Williams' Dry Plate Holder.



28765 Fleming's Mode of Dressing Mill Stones.

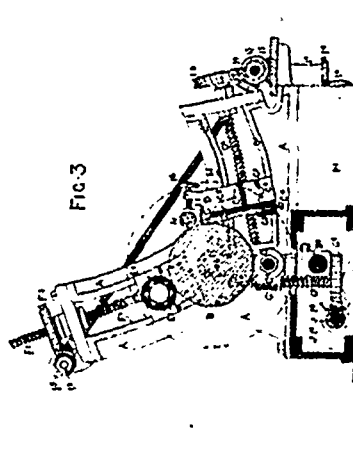
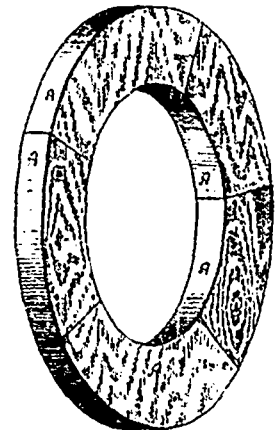
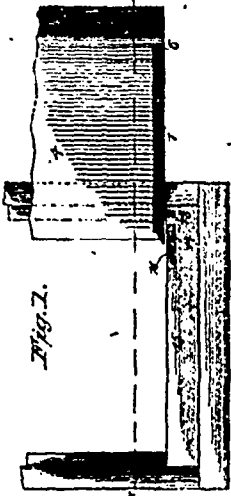


FIG. 3

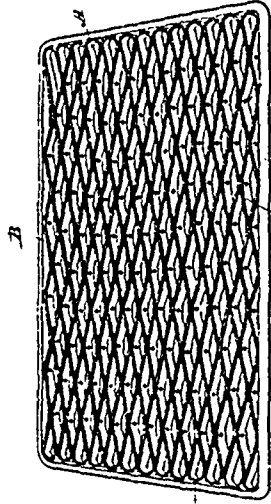
28769 Ellis' Machinery for Cutting Wood.



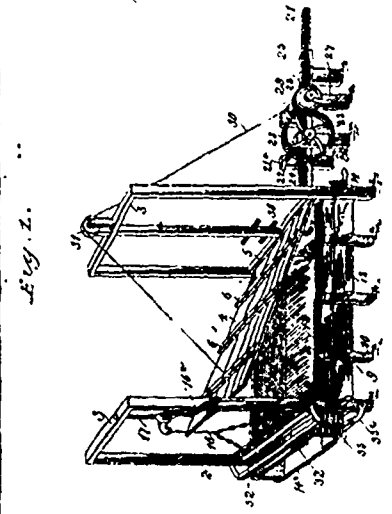
28710 Pitton's Wooden Pulley.



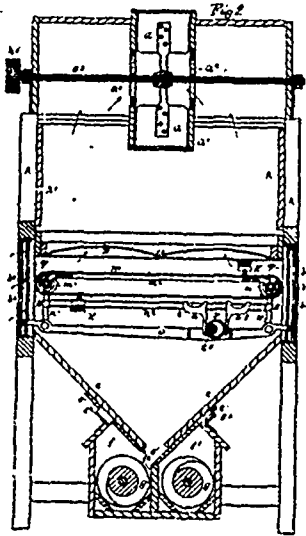
22711 Retina or Weather Strip.



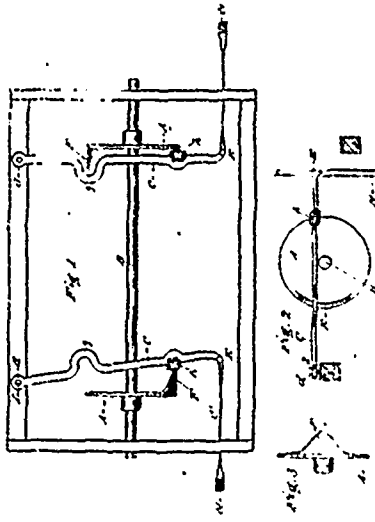
22712 Price's Mat.



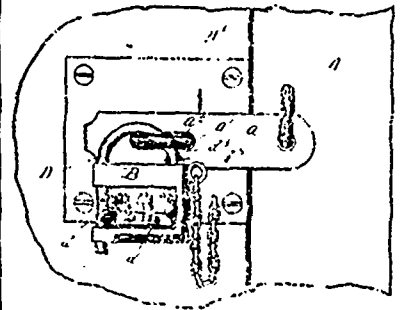
22713 Stephenson's Mattress Stuffing Machine.



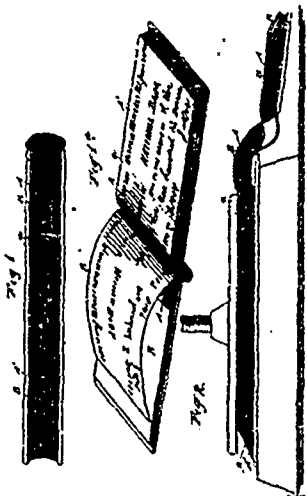
22714 Ponder's Middling Purifier



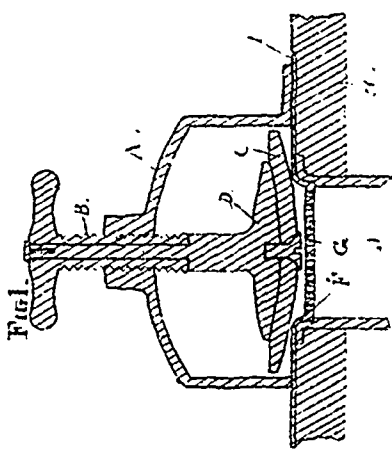
22715 Hranblin's Picker Motion for Looms



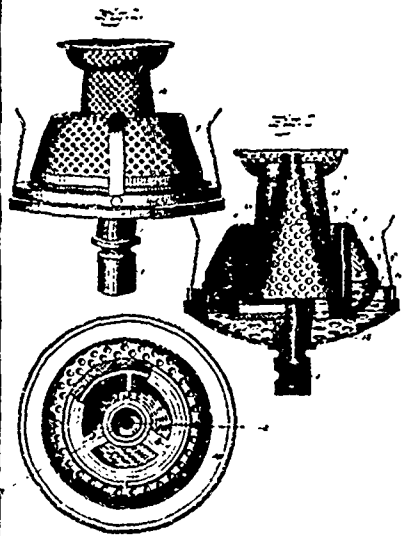
22716 Harech's Seat Lock.



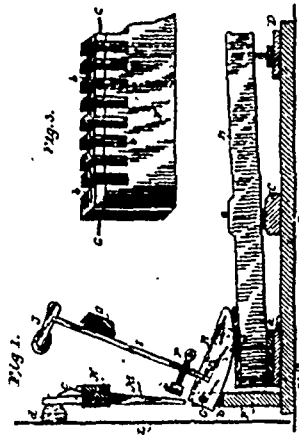
22718 Deane & Townsend's Check Book, etc



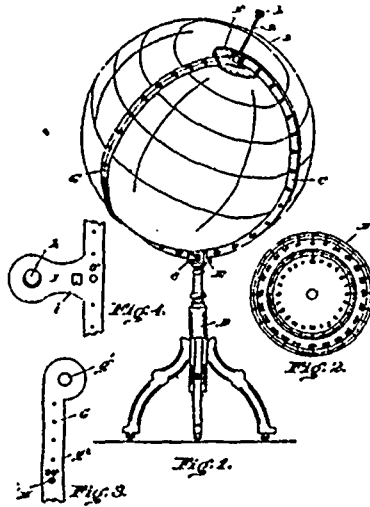
22719 Wallace's Sewer Gas Excluder



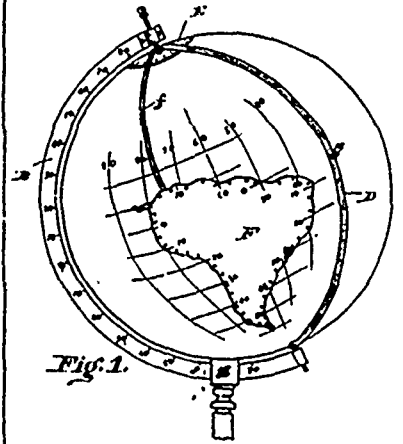
22720 Bird's Gas Burner



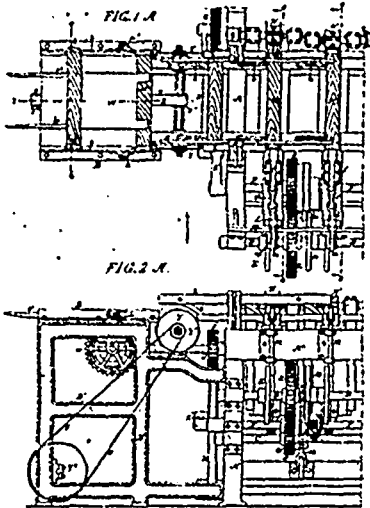
29721 McDonald's Piano Forte Action



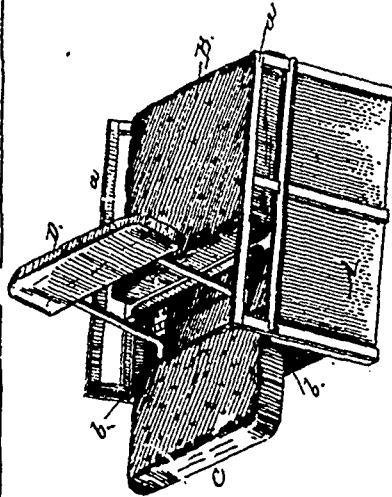
29722 Story's Spherical Black Board



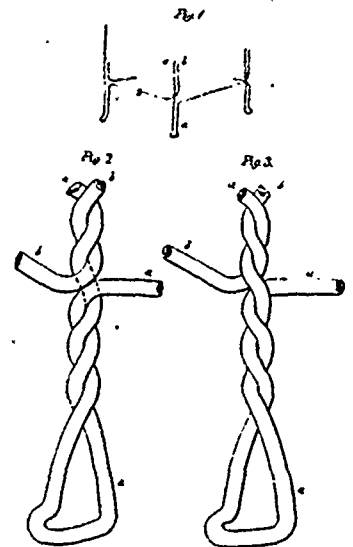
29723 Story's Spherical Black Board



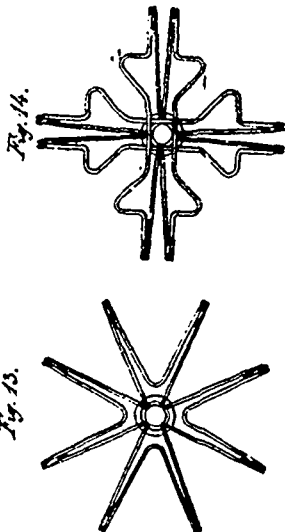
29724 Rebuss' Machinery for Making Barrel Staves.



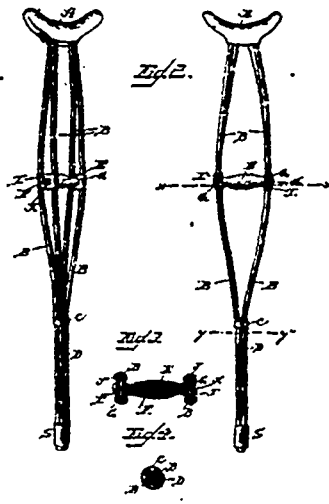
29725 Hydenburgh's Vehicle Seat.



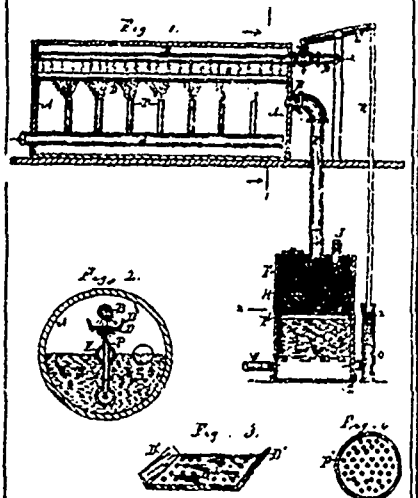
29726 Westvang's Iron Chair



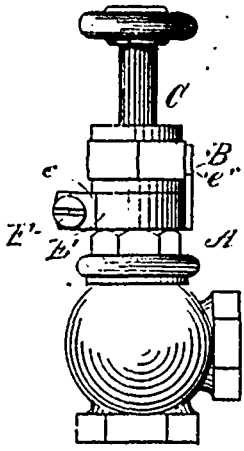
29727 Westvang's Furniture Spring.



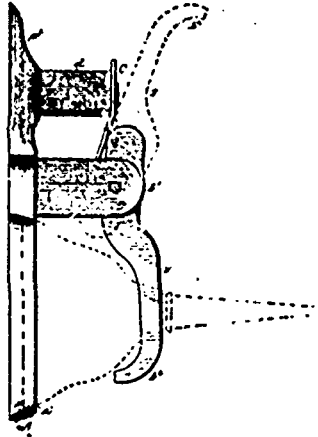
29728 Finche's Crutch.



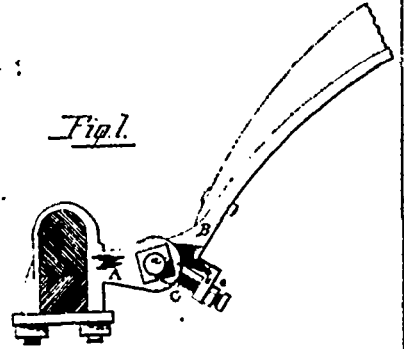
29729 Miller's Feed Water Heater etc



29730 Van Wart's Valve Nut Lock.



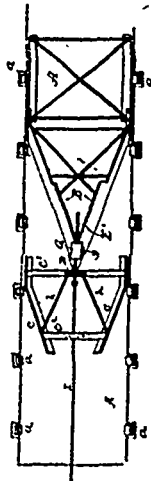
29731 Durfey's Oil Can Holder.



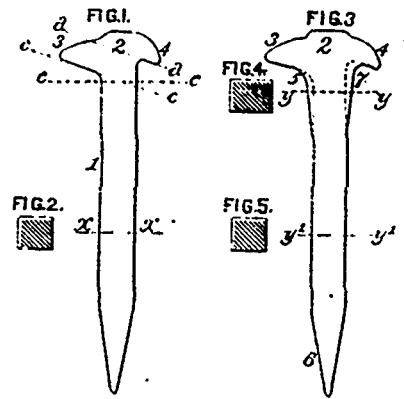
29732 Donehy's Thill Coupling.



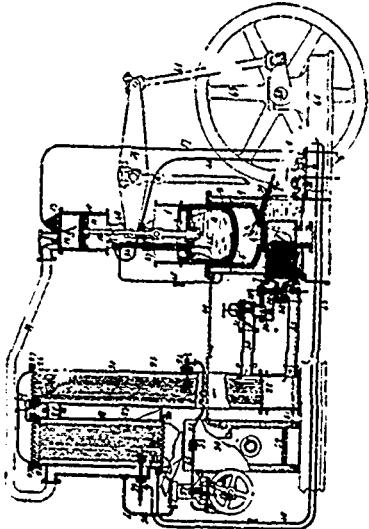
29733 Brenton's Mowing and Reaping Machine.



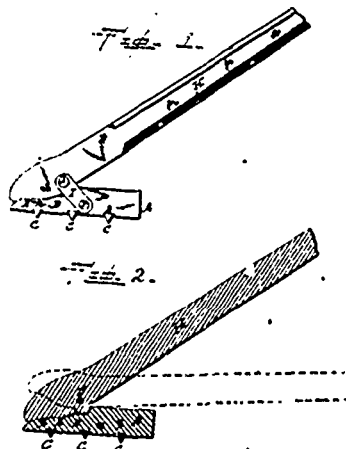
29734 Barnhardt's Car Unloader.



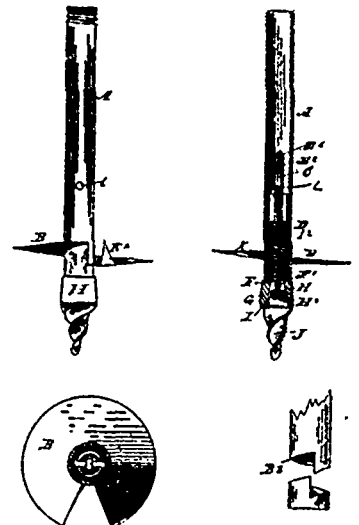
29735 Greer's Railway Spike.



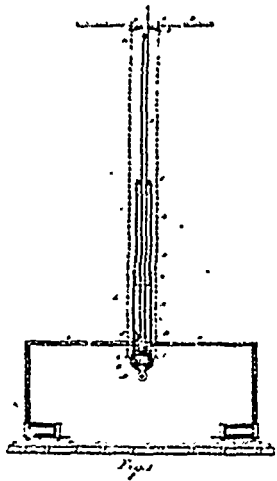
29736 Hargreaves' Process for Obtaining Motion from Heat.



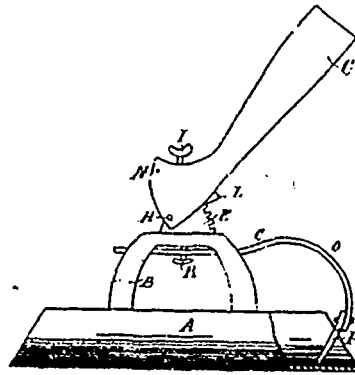
29737 Bird's Car Mover.



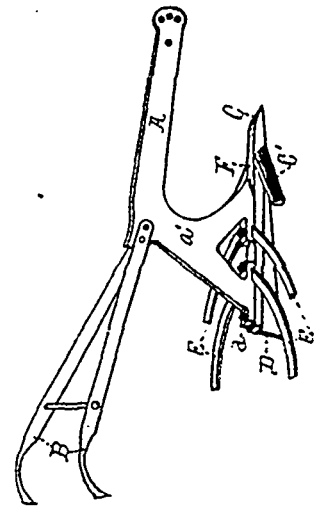
29738 Garand's Earth Auger.



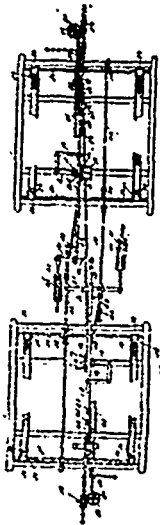
29733 Desjardine's Stove Pipe



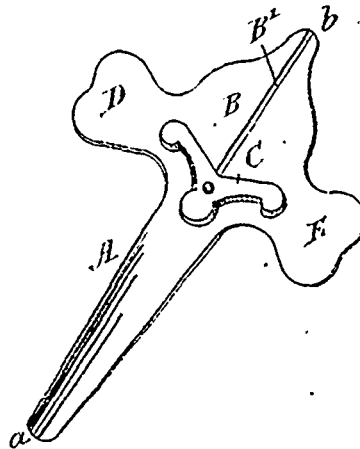
29740 Robinson's Drain Cleaner.



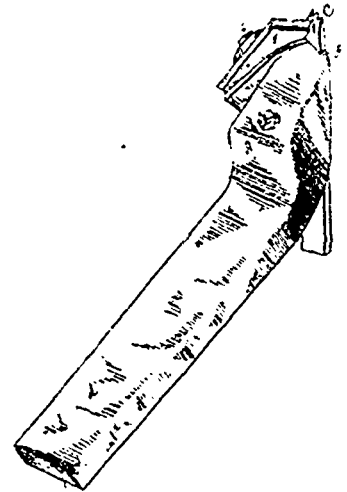
29721 Lundergan's Potato Digger.



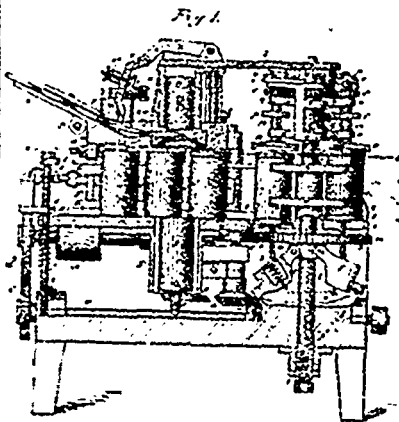
29747 De Coar & Keast's Car Brake.



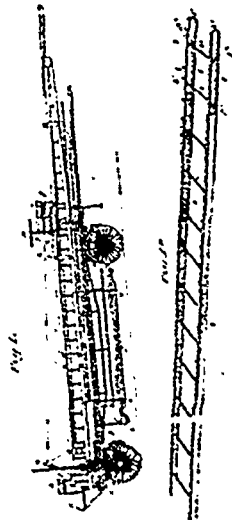
29745 Randall's Apparatus for the Administration of Liquid Medicine.



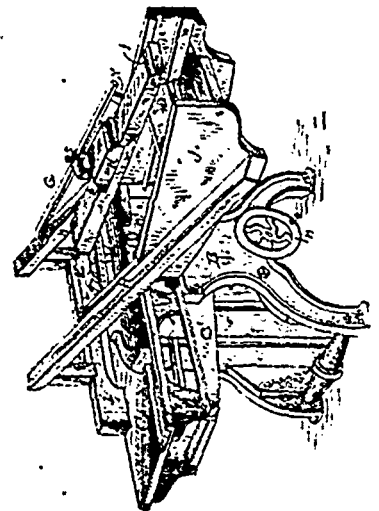
29742 Philion's Tool for Boring and Turning.



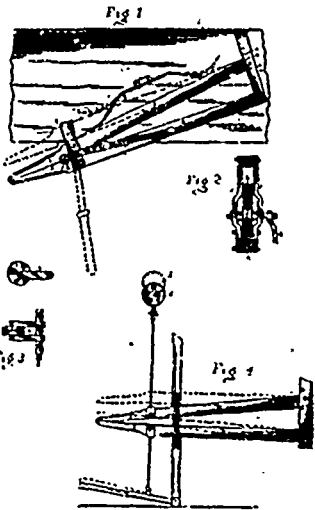
29748 Jensen's Can Crimper and Capper.



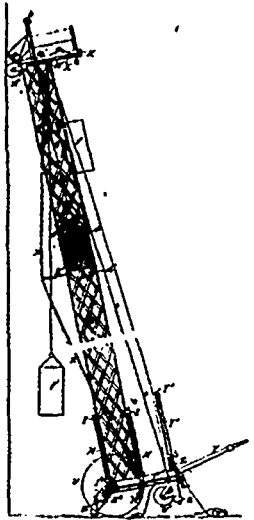
29746 Steck's Piro Ladder Truck.



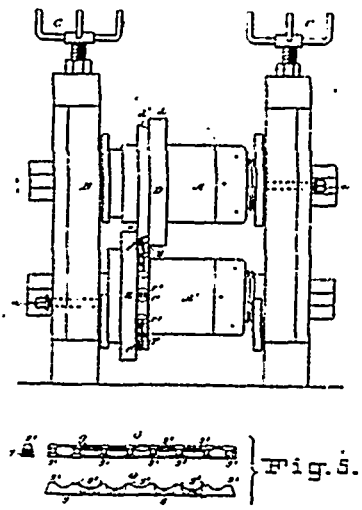
29747 McNeal's Machine for Rabbiting, etc.



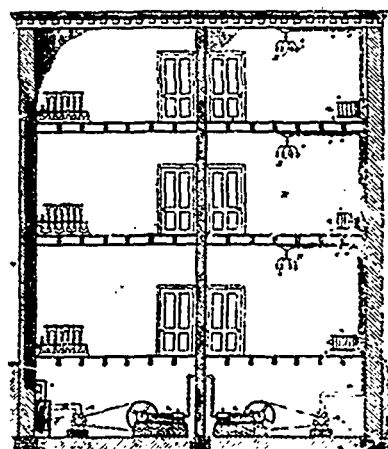
29748 Eberhart's Stretcher for Boots, etc.



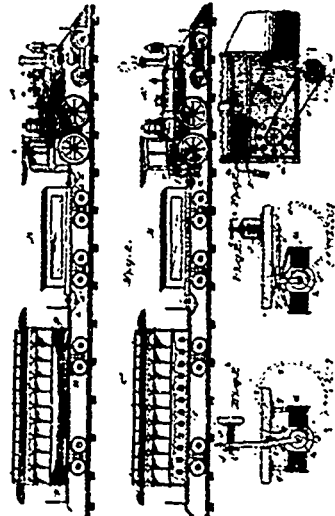
29749 Edwards' Expanding Apparatus for Fire Escapes, etc.



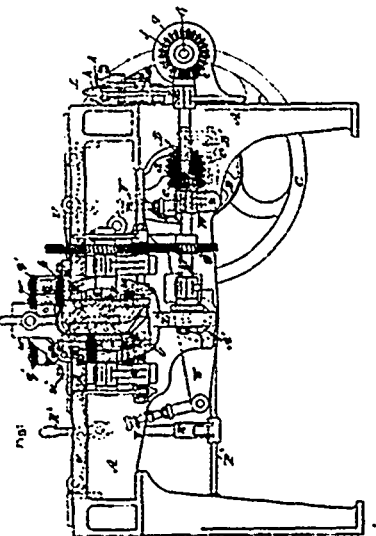
29750 Russell's Machine for Rolling and Creasing Horse Shoe Blanks.



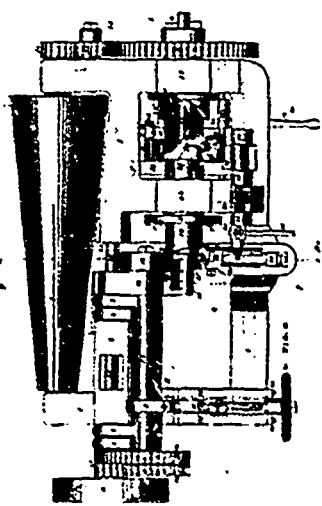
29751 Rice's Heating by Electricity.



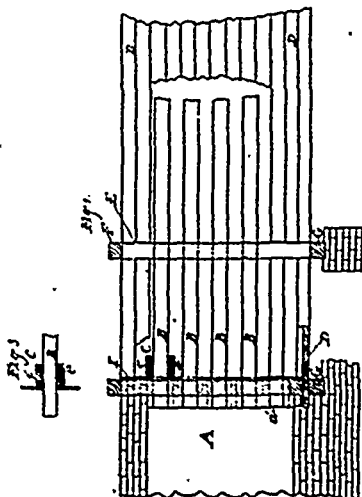
29752 Rice's Electric Heating Apparatus



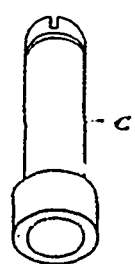
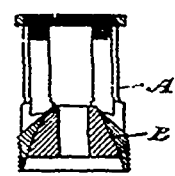
29753 Parkhurst's Wire Nail Machine.



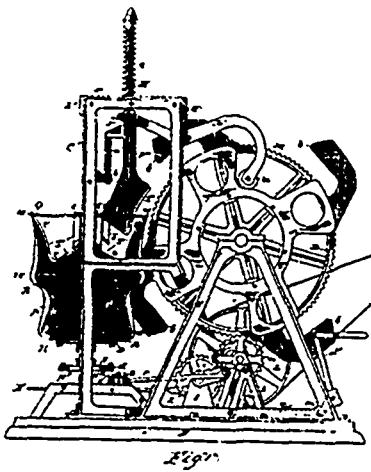
29754 Parham's Machine for Making Coil Springs



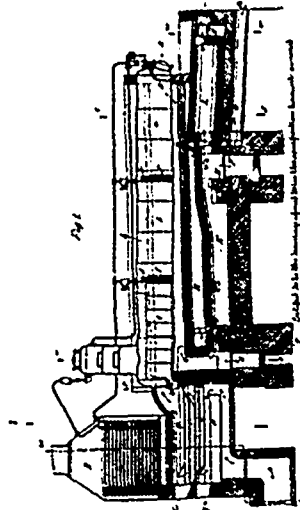
29755 Jackson's Device for the Evaporation of Brine



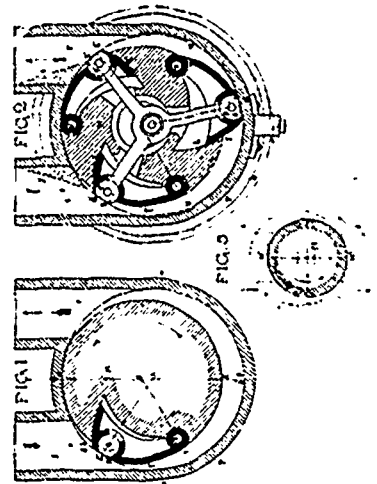
Malcolm's Water Cock



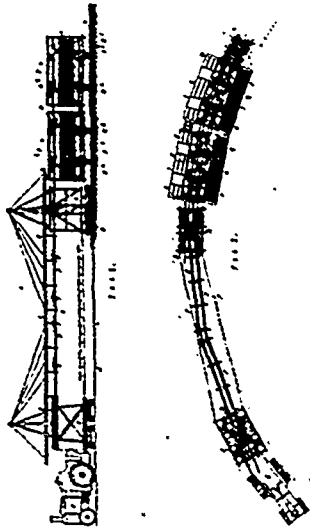
29757 O'Connor's Machine for Crimping the Uppers of Footwear



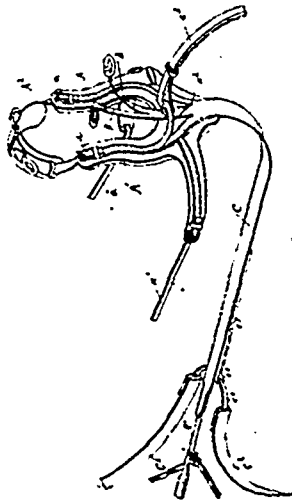
29756 Dahl's Furnace for Recovering Salts from Lyes.



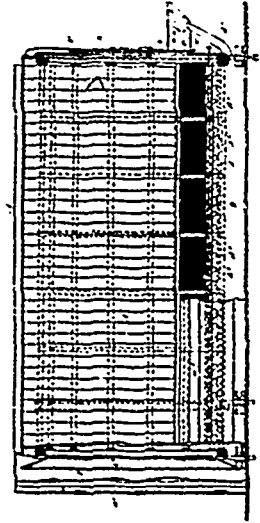
29759 Taverdon's Motor.



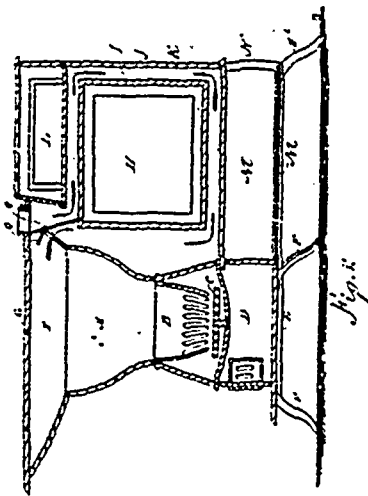
29758 Anderson's Plant for Laying Permanent Way or Railway Tracks.



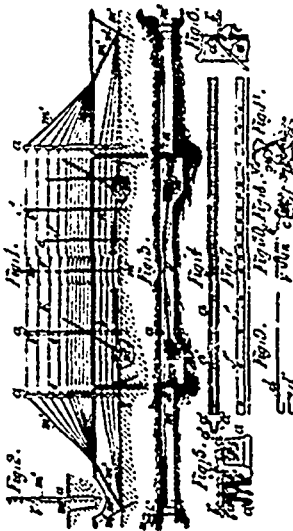
29761 Harlow's Harness.



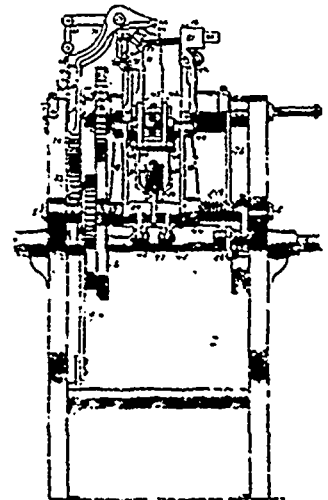
29762 Neiron & Hoven's Apparatus for Drying Wool



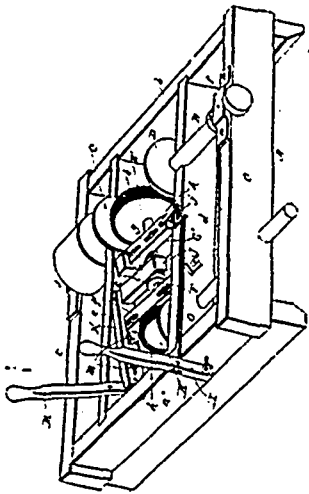
29763 Masscotte's Stove.



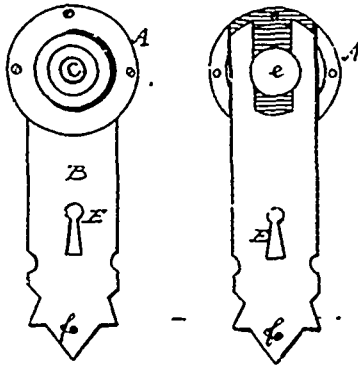
29764 Evans' Wire Fencing.



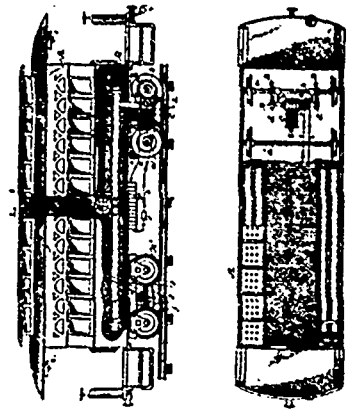
29765 Packer's Hoop Making Machine.



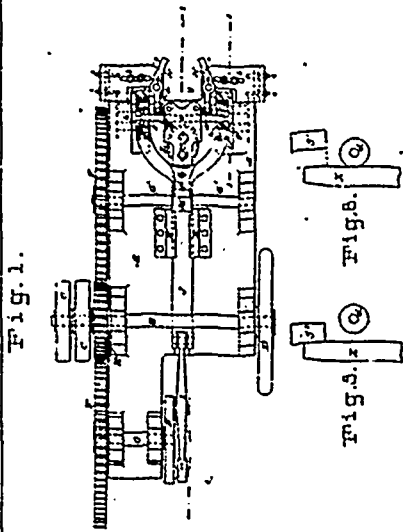
29765 Gibbon's Food Mechanism for Saw Mills.



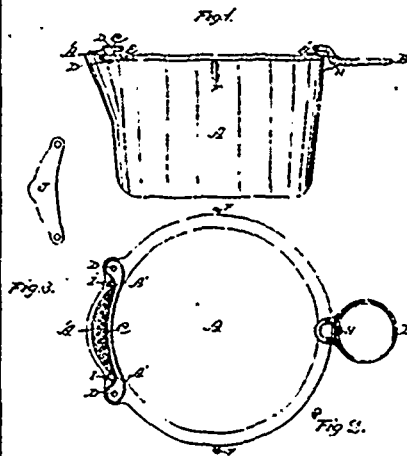
29767 Crawford's Door Knob Attachment



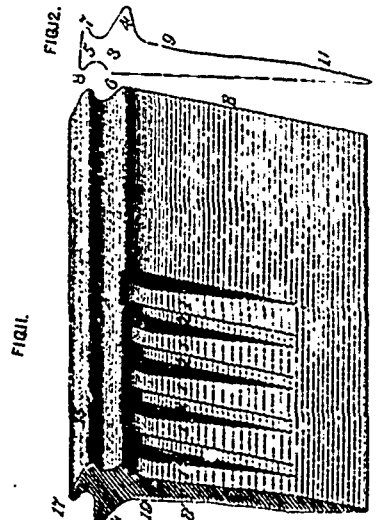
29768 Nies' System of Heating by Electricity



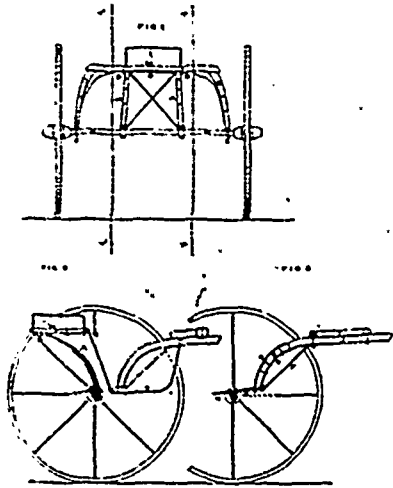
29769 Russell's Machine for Making Horse Shoes.



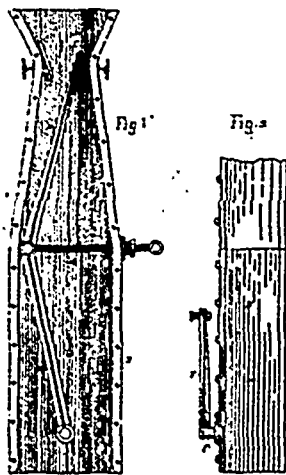
29770 Eurnard's Metal Pot with Strainer



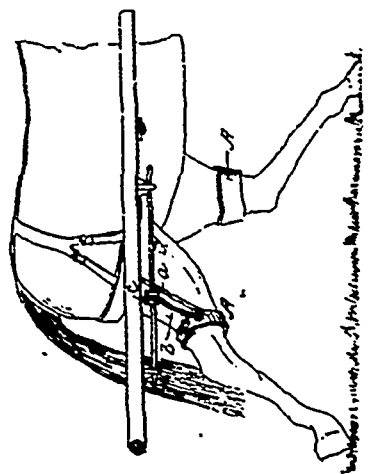
29771 Groer's Railway Spike and Flange



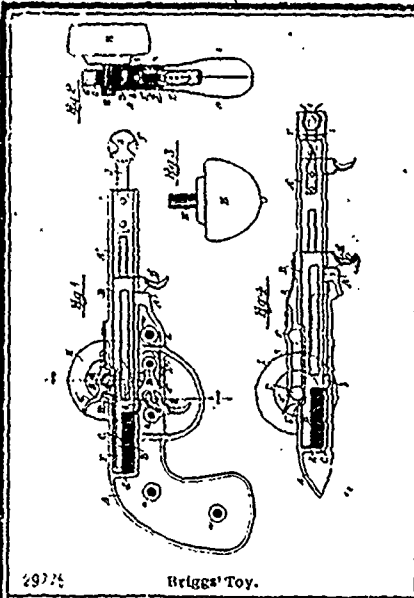
29772 Wallace's Road Cart.



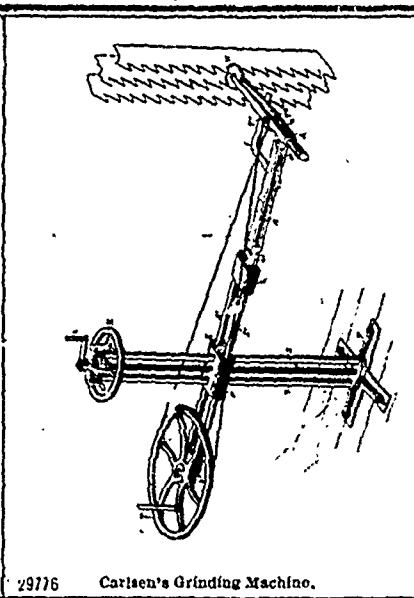
29773 Trumble's Water Motor.



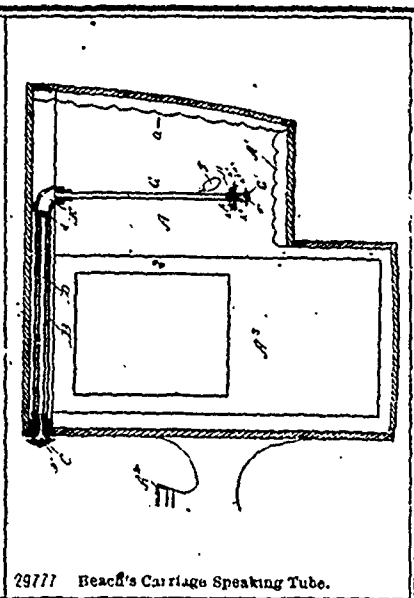
29774 Whitaker's Trotting Harness



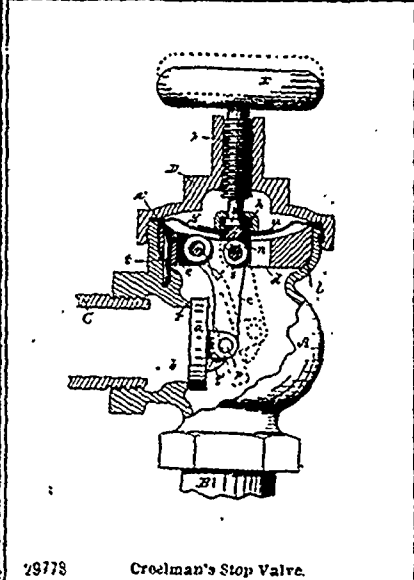
29776 Briggs' Toy.



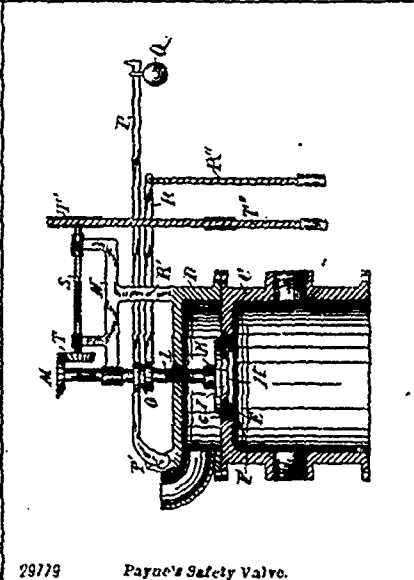
29776 Carlsen's Grinding Machine.



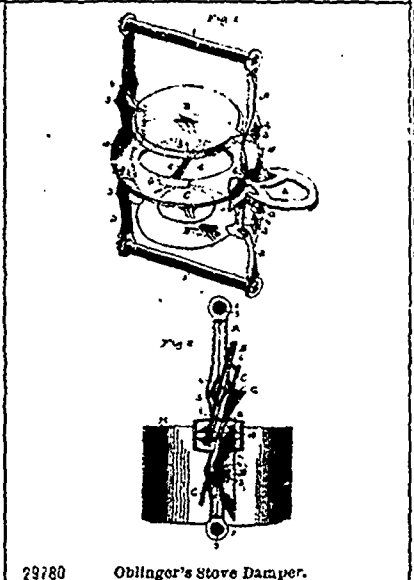
29777 Beach's Carriage Speaking Tube.



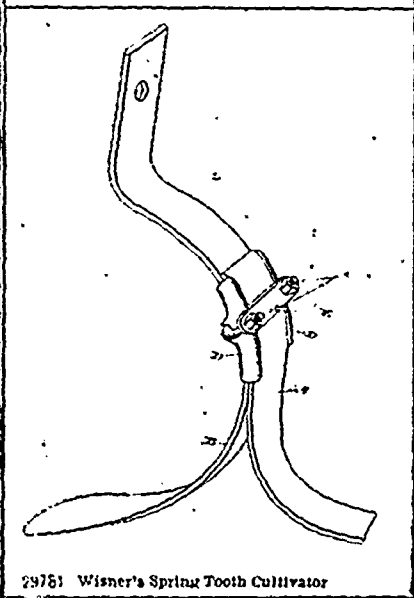
29778 Croelman's Stop Valve.



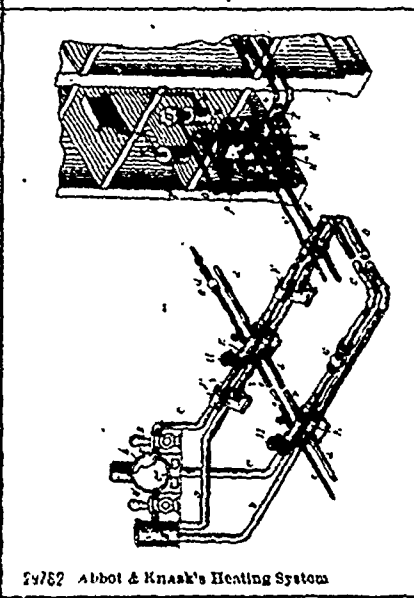
29779 Payne's Safety Valve.



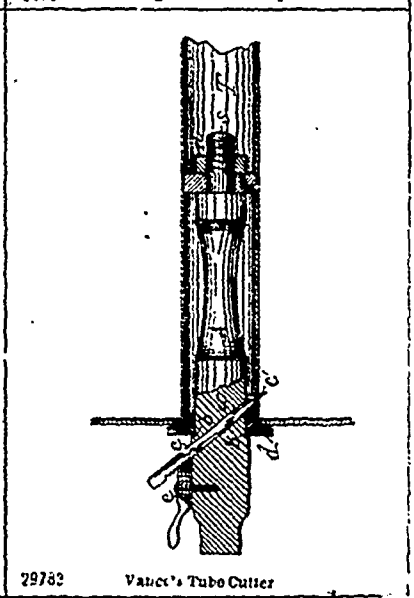
29780 Obilinger's Stove Damper.



29781 Wisner's Spring Tooth Cultivator



29782 Abbot & Knask's Heating System



29783 Vaucc's Tube Cutter